

The Conceptual Framework for Confronting Covid

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Abstract

The article is devoted to the generalization, analysis and evaluation of anti-epidemic measures in connection with the spread of coronavirus infection. The main provisions of the organization and tactics of the medical service in the perception of foci of dangerous infections are outlined. The features of limiting the spread of coronavirus infection are considered. The actions of the authorities and health care to identify the sick and organize medical care are analyzed. Approaches to the treatment of coronavirus infection are being systematized. The need to develop drugs in the interests of treating severe forms of the disease is shown. The need for full rehabilitation of patients and restoration of their health and performance is noted. The necessity of organizing scientific support for the justification, development and implementation of decisions of the medical service and executive authorities is substantiated. The role of specialists in the field of organization and tactics of the medical service in the scientific support of anti-epidemic measures is shown. Final provisions and conclusions are formulated on the need to continue summarizing and analyzing the activities of the medical service and executive authorities to increase the readiness and ability to take effective actions to counter epidemics of infectious diseases.

Keywords: *Pandemic; Spread; Coronavirus; Diagnosis; Treatment; Quarantine; Rehabilitation; Burnout; Safety; Longevity; Quality of Life; Psychology*

Medicine in its goals and content largely depends on the state of science, education and the economy. But to an even greater extent, it depends on the attitude to it and moral values in society and the state. Effective counteraction to coronavirus infection requires the coordinated functioning of executive authorities, the health care system, educational institutions, developers of medical equipment and medical institutions of diagnostic therapeutic and preventive orientation. But in the context of the pandemic and, in particular, the coronavirus infection, there was an understanding of the need to coordinate actions at the interstate level.

Today it is premature to talk about the readiness of the world's population to realize their existence from the standpoint of a philosophical understanding of the meaning of human life. Nevertheless, from a distant philosophical perspective, it is better to realize collective responsibility for what is happening on the planet sooner than later. The driving force of such awareness can be the psychological concept of understanding the meaning of human life [51]. According to this concept, the target essence of the life of generations of people is seen in the preservation and development of human life through scientific, technical and technological progress, improvement of the human personality and overcoming social contradictions and difficulties. The basis of this concept is the allocation of psychological components of the quality of life of the population [52]. These components include not only indicators of personal development, but also life expectancy and professional longevity. Ensuring professional longevity is achieved by the functioning of the education system and continuous professional development of specialists, the creation of conditions for their full self-actualization, the realization of intellectual and creative abilities and the preservation of motivation to continue professional activity, as well as building a system of socio-psychological, psychophysiological and medical support for active labor activity. Based on an understanding of the goals and objectives of ensuring the quality of life of the population, there is a need to confront coronavirus infection not to the detriment of both those who

are sick and those at risk of contracting coronavirus infection, as well as part of the population with chronic diseases of a non-infectious nature that require medical care. From these positions, the indicators of success in confronting coronavirus infection can be considered the life expectancy of the country's population in the post-pandemic period and, among other things, the extension of the professional longevity of the sick [1]. This corresponds to raising the question of assessing the effectiveness of countering coronavirus infection, taking into account indicators of excess mortality, and not to reduce it to ongoing measures and statistical data on the disease of coronavirus infection [6].

In fact, it is this formulation of the question that determines the systemic goals and objectives of the organization and tactics of confronting the pandemic. The provisions of the organization and tactics of confrontation should concern not only the prevention of the spread of the epidemic, but also the treatment and rehabilitation of patients during the recovery period [14]. It follows that confronting the pandemic requires the development and implementation of coordinated actions both to organize the treatment of patients and to restore their performance [35].

In this regard, there is a need to assess political decisions, orders of executive authorities and organize the work of medical organizations according to the criteria of their compliance to the effective solution of the tasks not only of preventing the spread of coronavirus infection, but also of social, material and financial support for the quality of life of the entire population. The World Health Organization in its recommendations was based on the position of the strategic and technical teams of specialists in infectious diseases [7]. Meanwhile, timely and practically significant recommendations could be offered, in particular, by specialists in the field of organization and tactics of the medical service, jurisprudence, social and clinical psychology.

The recommendations of specialists in the field of organization and tactics of the medical service in the event of a coronavirus pandemic should be taken into account when preparing decisions of health care organizers and executive authorities without fail [5]. The provisions of the organization and tactics of the medical service during the epidemic of infectious diseases, tested in practice, make it possible to effectively use resources, forces and means for the timely detection, isolation and hospitalization of patients and the conduct of high-quality treatment and restoration of their working capacity. In this regard, the question of how to respond to the pandemic in the face of uncertainty is more addressed to the executive authorities, and not to the medical service. This confirms the need to counter the spread of the pandemic on the basis of medical ideas about the implementation of the necessary measures [25].

The main provisions of the classical organization and tactical medical service to counter the coronavirus pandemic are as follows.

The effectiveness of countering coronavirus infection largely depends on the organization of the detection of patients and the prevention of infection of others, the timely pathogenetic treatment of patients and their subsequent rehabilitation. The solution of these tasks depends on the readiness of the medical service and its provision with the forces and means necessary to limit the spread of infection and the timely start of treatment of patients. The duration of restrictive measures of anti-epidemic orientation is established depending on the incubation period of the disease, taking into account the results of an operational clarifying study. Restrictive measures are aimed at preventing contacts of patients or carriers of infection with surrounding persons to stop transmission of infection. However, they should be adequate to the current situation and should not include excessive and ineffective measures. A rather complex and responsible task of the medical service is to ensure prompt and reliable diagnosis of the disease as a condition for identifying patients and their hospitalization in stationary conditions or treatment at home. The diagnosis should be carried out on the basis of anamnesis, clinical manifestations and the state of health of persons seeking medical help, followed by clarification on the results of testing, laboratory tests, computed tomography and detection of antibodies. An obligatory stage of the final treatment of convalescent patients, especially in the severe course of the disease, is the sanatorium-resort stage of their socio-psychological and medical recovery.

As the pandemic spreads, an increased burden falls on primary health care. And here much depends on the possibilities of distribution and redistribution of forces and means of the medical service and the experience of medical workers. As a rule, this is where problems

arise, which then spread to other stages of providing medical care to the sick [27]. And here we can only welcome the desire of the medical community to form systemic ideas about the timely detection, observation and isolation of persons, both with obvious signs of the disease, and asymptomatic carriers and spreaders of infection.

In the confrontation of coronavirus infection, the prompt establishment of the pathogen, its characteristics, properties and features of transmission was of great importance. But the effective response to the epidemic was largely determined by the readiness of the executive authorities and the health care system to mobilize resources and reserves to prevent the spread of infection and provide medical care with the mass circulation of patients and their timely and high-quality treatment in stationary conditions [32]. In this regard, national legislative acts should determine the directions and content of measures for the preparation and planning of work to ensure preparedness for emergency situations, including in the event of mass outbreaks of diseases. Work plans in this direction should include exercises and training, training of management staff and improvement of interaction between management bodies to ensure the medical and biological readiness of medical institutions and organizations to provide effective medical care to patients with infectious diseases.

The problems of prevention, diagnosis and treatment of epidemic diseases that can affect the functional state and reserve capabilities of the human body require the formation of mobilization readiness not only of health care organizers and executive authorities, but also of medical personnel. The formation of preparedness for the pandemic, localization and elimination of the consequences of infectious diseases is ensured by the early formation of the mobilization potential of the forces and means of the medical service and the preparation of the population to confront dangerous infectious diseases. This justifies the need to study, analyze and use the positive experience of such training. Specialists in the field of organization and tactics of the medical service with experience in solving practical problems of eliminating the consequences of mass infectious diseases can and are able to do this. But it also involves the development of regulatory legal instruments in the field of mobilization training of the medical service and the formation of stocks of protective equipment, the development of medical equipment and the training and retraining of medical workers in the provision of medical care in a pandemic. Of course, this implies the availability of appropriate plans and programs for scientific support for solving these problems, timely identification of potential threats and conducting advanced research and development in this direction. A critical aspect of potential pandemic preparedness is addressing the social determinants of health [21].

The development of recommendations to prevent the spread of coronavirus infection involves the study of the features of its transmission, the prompt identification of sick and asymptomatic carriers of infection and the restriction of their contacts with others. To prepare reasonable and expedient decisions and actions in these conditions, it is necessary to rely on an expert-analytical assessment of the situation with the participation of specialists in the field of epidemiology, virology, sociology, psychology and occupational health and sanitation. At the same time, it is important to take into account both the habits and culture of the population, the density of living, transport and other factors, and the impact of restrictions not only on the economy and business activity, employment, but also on the material and economic situation and psychological state of various categories of the population, as well as the ability and ability of the health care system not only to provide medical care to the sick, but also to continue to carry out treatment and preventive work with other categories of people in need of medical care, including chronic diseases.

At the same time, a special role in countering coronavirus infection is assigned to information support for the heads of health authorities and attending physicians based on the results of the operational collection, generalization and analysis of data in the interests of the prevention and treatment of coronavirus infection. To do this, modern information technologies for maintaining electronic medical histories and artificial intelligence should be used to maintain medical records, promptly generate reports and assess the effectiveness of the treatment, depending on the patient's condition, treatment and the results of laboratory tests and instrumental examination. As criteria for assessing the effectiveness of decisions of executive authorities and the health care system, not only the mortality rate of patients with coronavirus infection and the increase in mortality should be considered, but also morbidity and mortality rates for other

diseases. During the pandemic and as it ends, it is necessary to intensify research to summarize and analyze the effectiveness of decisions of executive authorities and health care, the work of medical and preventive organizations and the reasons for the reduced preparedness to act in the event of a pandemic.

Specialists from different branches of knowledge have their own vision of solving the problems of confronting the pandemic. However, economic, political and other approaches should take into account the opinion of the community of medical workers and use their recommendations in the interests of solving not specific problems and problems, but preserving the quality of life of the population as a whole, treatment, restoration and prolongation of life and professional longevity of the entire population of the country [45].

Experience shows that confronting the epidemic cannot be based on a commercial attitude to the choice of tactics, strategies, means and resources. Anti-epidemic measures should not be considered as the provision of services. The interests of individual companies, organizations and financial institutions are mainly focused on making a profit, and not on ensuring the effectiveness of the systemic response to the pandemic [22].

In almost all cases, the disease of coronavirus infection in severe form occurs against the background of chronic diseases, decreased immunity, psychophysiological reserves or resource weakening of the body. This largely depends on the socio-economic conditions of life, medical care, lifestyle and other factors that determine the quality of life of the population. Differences in the health recovery system in different countries affect the effectiveness of treatment and reduce overall mortality during the pandemic. At the same time, the compilation and analysis of data is largely hampered by different indicators of mortality during the pandemic. These indicators are largely determined by the rate of spread of infection, restrictive and quarantine measures, the resource capabilities of the health care system and the quality of medical care, the socio-economic level and other factors [7].

The airborne route of the spread of coronavirus infection has become the basis for the development of measures to prevent the spread of infection, limit contacts, identify cases and carriers of infection and their prompt isolation, as well as preventive information to the population. The main direction of preventing the spread of infection is considered to be restrictive measures. At the same time, most often these measures are implemented through bans on the work of transport, services, holding mass events and visiting public places. The effectiveness of these measures varies, and many of them do not bring the expected result. Moreover, it can have negative economic consequences and contribute to increased tensions in society. In this regard, it seems fair to raise the question of the impact of restrictive measures taken by the executive authorities on the systemic indicators of the state of health of the country's population. At the same time, the psychological aspects of the impact of restrictions are subject to mandatory consideration in the preparation of restrictive measures [9].

Often, restrictive measures and administrative control over their observance not only cause a negative reaction among the population, but also contribute to the spread of the disease. This happens when using restrictive measures without taking into account national characteristics, psychology of the population, crowding of residence and other factors. In one case, quarantine can slow the spread of infection and provide an opportunity to prepare the population and health authorities for the influx of patients requiring hospitalization. In another case, isolation, on the contrary, can contribute to the spread of the disease within the isolated community in the absence of the possibility of limiting contact and spreading the infection by airborne droplets [49].

Features of penetration into the body of the virus determined the relevance of the timely detection of sick and asymptomatic carriers and the provision of medical care, taking into account the increased risk of infection. The timeliness of detection of patients with coronavirus infection significantly limits its spread. At the same time, it is of great importance to identify patients and carriers of infection before seeking medical help at home or visiting a polyclinic for examination and diagnosis.

The spread of infection was largely facilitated by the lack of unambiguous criteria for diagnosing the disease and assessing the patient's condition, limited opportunities for isolation and hospitalization of patients due to a shortage of beds and insufficient readiness for

treatment in stationary conditions when a large flow of patients arrives. Factors in the spread of coronavirus infection can be considered the emphasis of diagnosis on the results of the polymerase chain reaction assessment, the long wait for testing data, the inability to determine the presence of the virus directly during the examination at home and in the clinic, as well as the unreliability of testing data. Excessive confidence in the results of testing for the presence of the virus in patients with symptoms of an infectious disease is evidenced by numerous data. Even after treatment, patients are tested positive for infection [26]. This can be a consequence of both unreliable testing and the carriage of infection after recovery. All this indicates that the test results are not the basis for both the statement about the recovery of the patient and the need to continue treatment.

Counteraction to coronavirus infection is largely ensured by the readiness and ability of the health care system to provide medical care to the population and effectively treat patients using modern and proven methods, technologies and medicines. The functioning of the health care system and, above all, its primary link, should ensure early diagnosis and prompt treatment of patients. In many cases, this makes it possible to prevent complications and an unfavorable course of the disease, and therefore reduce mortality [46].

But medicine requires the development of all its directions and sections with the identification of new, deeper knowledge about diseases and the development of effective methods for their diagnosis and treatment. This fully concerns the qualifications of medical personnel, the acquisition and use of modern methods of prevention, treatment and rehabilitation of patients and the restoration of not only their health, but also their working capacity. Diagnosis of the disease and assessment of the patient's condition in many cases is a complex task and requires a systematic analysis and comparison of clinical manifestations, anamnesis, complaints, examination results and laboratory data. It is necessary not only to diagnose the disease and assess the patient's condition, but also to determine the tactics of preventing the development of pathological processes in the body on the basis of clinical thinking as a system and algorithm for forming ideas about the causes, course and consequences of the disease and, accordingly, determining the optimal, individual strategy and tactics for organizing the treatment process and the subsequent psychosomatic rehabilitation of the patient after recovery. These and other features of the medical profession determine the organization and content of his professional activities, the goals and directions of the work of health authorities.

For the effective treatment of patients with coronavirus infections, it was necessary to develop general recommendations for the use of drugs, taking into account the peculiarities of their use and algorithms for the surgical correction of the content and tactics of treatment, depending on the condition, the results of the patient's medical examination, laboratory data and the effectiveness of treatment.

A special place in the confrontation with the pandemic is occupied by the problems of treating the sick. The ability of the health system to offer drugs to treat and prevent complications and dangerous consequences plays an important role here [42].

The content of the treatment itself is a significant difficulty, since it concerns not only the appointment of treatment, but also the assessment of the patient's condition, the functioning of his psychophysiological resources and body reserves, including the ability of his immune system to cope with infection. In this regard, it seems that the existence of so-called treatment protocols is fraught with great dangers. First, the protocols, on the one hand, seem to remove the responsibility from the doctor for the effectiveness of treatment, including the legal consequences for the result of treatment. Secondly, thereby pushing aside the need to take into account the individual characteristics of the patient's body. And thirdly, in fact, they transfer treatment to the category of providing services, shifting responsibility to the patient who agrees to receive these services on a general basis. Aspects of the justification of the tactics and content of treatment, of course, require much more attention and justification than is practiced most often.

In this regard, statistically reliable conclusions about the effectiveness of treatment with certain drugs are respected. But the problem is that not all countries are ready and able to produce medicines. And so they are acquired based on assumptions about their effectiveness for the treatment of infection. Hence the further proof that the fight against the pandemic should be inter-State in nature and not be based on the commercial production of medicines, vaccines, tests and required medical equipment.

An important role in conducting high-quality treatment was played by the use of effective drugs in the early stages of the development of the disease and the prevention of deterioration of the condition of patients, especially those on inpatient treatment. Medical institutions should provide individual treatment of patients, taking into account the psychosomatic status, state of immunity, sensitivity to drugs and contraindications to them. To do this, the treatment process should be accompanied by prompt diagnosis of the patient's condition and its correction by doctors and paramedical personnel. At the same time, increased attention should be paid to the analysis of the course of the disease and the development of operational recommendations to ensure effective treatment.

In terms of treating patients with coronavirus infection, statistical data on the effectiveness of the use of certain drugs are of interest, and most importantly, the determination of indications and contraindications for changing or adjusting the tactics of managing patients depending on the severity of symptoms and their condition [3]. Recommendations on the use of statins, anticoagulants, antiaggregants and antiarrhythmic drugs in patients were substantiated [43].

Of course, doctors immediately saw the prospects for treating patients, especially with a severe form of the disease coronavirus infections, with the help of antibody-containing plasma. And although serum with antibodies does not provide full protection against infection, it can reduce the severity of the disease and, with large-scale use, can slow the spread of the virus. To do this, it seemed important to immediately organize large-scale work on the collection of plasma with antibodies from sick persons. However, this required health care organizers and executive authorities to prepare medical organizations for this and motivate the sick to donate blood to save the lives of seriously ill patients [12].

The greatest difficulty for the treatment of coronavirus infection is acute respiratory distress syndrome with significant damage to the lung tissue and a decrease in blood oxygen saturation. The choice of liberal or conservative oxygen therapy for acute respiratory distress syndrome remains debatable [4].

According to various sources, acute respiratory distress syndrome is the cause of death in about 80% of patients. In acute respiratory distress syndrome and reduced desaturation, oxygen therapy is usually performed. Depending on the patient's condition, conventional or high-flow oxygen therapy, non-invasive or invasive artificial ventilation of the lungs, as well as extracorporeal membrane oxygenation are used to saturate the blood with oxygen. Meanwhile, especially with invasive methods of oxygen therapy, bacterial complications may occur after a day, requiring the appointment of antibiotic therapy with various combinations of antibiotics. In these conditions, much depends on the correct choice of treatment tactics that can prevent deaths and reduce the time of stay of patients in intensive care units.

For the treatment of damage to the lung tissue as a result of an overactive reaction of the immune system, the use of stem cells and plasma with antibodies produced in the body of the ill was shown. Their use realizes a unique opportunity to replace damaged tissues with the same type of cells and restore lung function. But this requires the use of tests to detect antibodies, determine indications and contraindications and test the method in practice. Consideration was also given to the use of plasma with antibodies to prevent infection and prevent severe forms of the disease by persons in direct contact with patients.

The use of many drugs, in particular, corticosteroids, to stop distress syndrome required careful monitoring and correction depending on the body's response to dosage and individual sensitivity [53]. One of the directions for improving the effectiveness of the treatment of coronavirus infection in respiratory distress syndrome is the use of antioxidants. A serious complication of the course of an infectious disease is sepsis. In this case, it is proposed to be guided by certain principles for determining the tactics of treatment and rescue of seriously ill patients [2].

From a medical point of view, great difficulties arise when people with oncology get sick with COVID. The fact that the treatment itself requires special control is evidenced not only by various complications and consequences, but also by a description of the often occurring, so-called, syndrome of the consequences of intensive care [8].

A special direction for improving the quality of treatment by medical workers is the development of recommendations on the content and algorithm for the treatment of patients, taking into account the nuances, features and factors affecting the effectiveness of treatment [30].

At the same time, the availability of drugs that can successfully treat the sick and reduce the mortality associated with a decrease in oxygen in the blood due to lung damage and the formation of microthrombi in the vessels of the heart and brain is of particular importance. One of these drugs that can save the lives of tens of thousands of patients with coronavirus infection is the drug perfluoran. The particles of its emulsion are 70 times smaller than the erythrocyte, and have the ability to dissolve and deliver oxygen to organs and tissues through narrowed, inflamed and partially thrombosed vessels. In medical practice, perfluoran was used to maintain vital functions in case of massive blood loss and impaired blood supply to the brain, heart, kidneys and other organs and tissues. However, the transfer of rights to the production of the drug to commercial structures made it impossible for its large-scale production and the creation of stocks for use in the event of a pandemic. Meanwhile, the use of perfluoran in acute respiratory distress syndrome that occurs with inflammation and pulmonary edema can become the only means of saving the lives of patients with coronavirus infection. In this regard, the drug should be included in the national stocks of funds for medical care of the population in cases of an epidemic of dangerous infection.

Promising means of prevention and treatment of coronavirus infection are drugs created on the basis of monoclonal antibodies and polyclonal preparations from donor immunoglobulins. However, their development and production required significant funds and they were not used for mass prevention and treatment.

An effective direction for improving the quality of treatment is the use of artificial intelligence technologies by medical workers to form individual algorithms for treating patients, selecting drugs and eliminating side effects. All this requires a scientifically based approach to determining the strategy and tactics of treating patients with coronavirus infection, discussing and developing treatment protocols taking into account the practical experience of clinical medicine.

In response to the pandemic, the focus has been on vaccine development and widespread vaccination. Vaccination is one of the most effective measures to combat the pandemic and largely prevents the spread of epidemics and is effective in its socio-economic consequences. At the same time, skepticism about vaccination reduces the rate of achieving effective herd immunity. The factors that reduce the rapid conduct of vaccination in the required volume are highlighted [41].

Meanwhile, the excessive reliance of health organizers, politicians and executive authorities on vaccination and its consideration as a panacea is not entirely justified. The creation of vaccines and the determination of its indications and contraindications requires thorough research, including when changing the gene structure of the pathogenic virus [24].

The development of vaccines involves conducting the necessary studies and tests not only to study their effectiveness, but also to clarify the indications and contraindications. The extent of vaccination depends to a large extent on convincing evidence of the absence of adverse reactions. In particular, data have been obtained that cases of thrombosis and pulmonary embolism before and after vaccination occur with the same frequency and are not a consequence of vaccination [47]. And this is quite a difficult task that requires the readiness of medical organizations to conduct, in particular, clinical trials of the vaccine. In addition, the probability of mutation of the gene structure of the pathogenic virus remains. And this requires either the actual repetition of studies and tests, or the clarification of its effectiveness and contraindications. In this regard, the question of the timing and usefulness of conducting, in particular, clinical trials of the vaccine is naturally raised [37].

At least two important circumstances should be borne in mind. First, the production of antibodies as a result of vaccination requires a certain tension of the immune system, a reconfiguration of its mechanisms and, of course, a weakening of its potential in relation to another infection and, especially, to oncological processes. As a result, the body's ability to effectively counter external and internal threats

to health or the progression of the disease is weakened. Secondly, as a result of the development of immunity as a result of vaccination, conditions are created for the asymptomatic response of the body to infections. And in this case, a person for some time becomes a carrier, and essentially a spreader of infection. And, finally, thirdly, after vaccination, compliance with measures to protect against infection is reduced and the possibilities of infection are expanded both in public places and with close communication and contacts.

In this situation, the hope for the formation of population immunity is justified, but it is justified only if conditions and circumstances are met, which cannot always be taken into account and ensured [38]. There is reason to believe that people who have recovered from coronavirus infection have a stronger immune response after vaccination than those who have never been infected [10].

First of all, it is a way of life and the ability to carry out labor activity and preserve the way of life while minimizing contacts and crowding of the population. In addition, this is the readiness and ability of the medical service to provide the necessary assistance to the sick in remote areas, including using air ambulance. And another important role here is played by the initial level of medical care for the population, the conduct of medical examinations and measures to protect health and ensure the environmental and sanitary and hygienic safety of living.

The effectiveness of the work of medical workers and the quality of medical care for the population, including in the context of the spread of a new coronavirus infection, is largely determined by the professional training, qualifications and experience of medical personnel, their attitude to the work and purpose of medicine. Medical activity to provide quality medical care requires continuous professional development and the use of new knowledge, technologies and means for the treatment of patients, as well as the elimination of the consequences of epidemics and foci of mass poisoning and diseases. In the context of the pandemic, medical personnel work in conditions of increased professional and psycho-emotional stress, situational and personal anxiety and susceptibility to the formation of the syndrome of professional burnout. This determines the need for appropriate socio-psychological support of medical activities. The main directions of such support are advanced training and the formation of the readiness of medical personnel to work in extreme conditions, material incentives and the creation of socio-psychological conditions for the extension of professional longevity. Medical personnel working in a pandemic need to develop and implement measures not only for material incentives, but also for psychological support and social protection. The development of measures of material incentives for medical workers should be carried out with the involvement of specialists who know the features of the organization of medical care, prevention, treatment and protection of public health in the event of foci of mass infection and the spread of especially dangerous infections.

From the standpoint of ensuring the quality of life and well-being of the population, when developing a strategy and implementing tactics to combat the pandemic, its most important direction is to ensure the psychological safety of the individual [50]. This is confirmed by the data on a multiple increase in the number of requests for psychological help to psychotherapists as the pandemic spreads.

Psychological analysis of the state and response of citizens to the danger of the pandemic and lifestyle changes in conditions of restriction of movement and communication highlighted the problem of psychological safety to be taken into account when carrying out anti-epidemic measures and planning socio-psychological support for the population. The pandemic has had a negative impact on the psychological well-being of all segments of society, regardless of their age, gender, economic status and occupation due to unpredictability, uncertainty, social exclusion, loss of income, loneliness and limited access to basic services [20].

In conditions of a high level of neuro-mental stress, anxiety, information stress and cognitive dissonance, there is a need to ensure the psychological safety of the individual, preserve the psychosomatic reserves of the body, preserve motivational and moral values and needs, compensate for the restriction of social contacts and assessments that regulate the psycho-emotional state of the individual to ensure its psychological safety. The feeling of psychological security of the individual is the result of an assessment, correlation and comparison of external actions, statements, appeals and warnings to the existing ideas of the individual about his safety. During a pandemic, security

is ensured by the consistency of ideas about the external situation and adaptation to changes and limitations in the implementation and satisfaction of socio-psychological and vital needs.

In the context of the pandemic, the psychology of citizens and their attitude to the actions of the authorities are changing from the standpoint of assessing its ability to ensure the quality of life and its safety. The inclusion in the structure of perception of the surrounding world of the aspect of evaluation, choice or regulation of actions to protect against coronavirus infection justifies the need to attract additional attention to actions to ensure the psychophysiological reliability of professional activity. When focusing on reducing the risk of contracting an infection, the focus on maintaining activity in the new conditions of interaction, communication and implementation of labor activity remains. All this makes the problems of ensuring the safety of the individual and, in particular, medical personnel urgent.

Ensuring the physical and mental health of health workers and preventing their burnout is considered a critical factor in the fight against the pandemic [23]. Attention is drawn to the massive cases of professional burnout of medical workers who have been working in Covid treatment facilities for a long time [39].

This is especially true for specialists of the departments of anesthesiology and resuscitation [40]. All this testifies to the need for special socio-psychological support for medical personnel [48].

Hard work in conditions of health risk and limitations, the absence of the usual breaks for rest, making decisions of a high level of responsibility and performing additional duties with an indefinite deadline for the completion of work provoke emotional burnout. This is manifested by a feeling of fatigue, deterioration of well-being, headaches, dizziness, skin itching, dermatitis, insomnia and other manifestations. Ultimately, all this affects the psychological state and is manifested by signs of emotional depression, which include bouts of melancholy, hopelessness, decreased self-esteem, discontent, guilt, the formation of complexes, a bad mood, a limitation of the circle of communication and the lack of former joy from the desired actions, communication and interests.

With prolonged work, such an emotional state among medical workers is noted more and more often. Restoration of health and psycho-emotional state of workers providing medical care to patients with coronavirus infection requires special decisions of executive authorities and health care. In this regard, a special program is needed to rehabilitate medical workers, restore their psycho-emotional state, work capacity and prolong professional longevity.

At the same time, the importance of the organizational foundations for ensuring the safety of the activities of not only medical workers, but also civil servants, as well as workers ensuring the functioning of production, the economy and the service sector, should not be underestimated [16].

One of the directions of combating the pandemic and preventing its adverse consequences should be considered the further treatment and rehabilitation of patients with coronavirus infection. The purpose of these measures is not only to prolong their professional longevity and reduce disability, but also to restore working capacity to ensure the reliability of professional activity and maintain motivation to actively meet full and harmonious life needs. The solution of this socio-economic task cannot be carried out without the participation of executive authorities and involves combining efforts, interaction and cooperation of specialists in the field of restorative medicine to develop a methodology for systematically accounting for the psychosomatic state of patients with coronavirus infection and choosing methods and means of restoring working capacity and motivation to continue professional activities.

The need for targeted rehabilitation activities after recovery has been evident almost since the beginning of the pandemic. This is largely due to both the consequences of the disease itself and the exacerbation of previously existing chronic diseases. In this regard, recommendations were developed for the rehabilitation of patients for use both during a stay in an inpatient medical institution and at the stages of health and sanatorium recovery [17]. There is no doubt about the need to plan and conduct special medical rehabilitation of patients after a severe form of the disease.

However, such rehabilitation requires taking into account the characteristics of the disease and specific disorders of the organs and systems of the body [44]. The complexity of choosing and conducting recovery measures is often associated with multi-organ pathology in patients with coronavirus infection [18]. Meanwhile, in this matter, support from the state and insurance organizations was not properly implemented.

A special direction of rehabilitation, restoration of working capacity and preservation of motivation to continue working life could be the program of sanatorium-resort and health-improving recreation of patients with coronavirus infection and medical workers. The structure and content of rehabilitation measures should take into account the specifics of damage to organs and body systems in the event of coronavirus infection and focus on restoring the values of their functioning indicators to the disease using adequate methods, means and technologies. In this regard, there is a need for comparability of data characterizing the functional state and psychophysiological reserves of the body before and after the disease.

The scope of rehabilitation services provided should be determined by special standards that take into account pathogenetic changes in the psychosomatic state. This requires equipment, including equipment designed specifically for the use of methods, methods and means of restoring the psychosomatic state after a coronavirus infection. In this regard, systemic research on the development of regulatory legal frameworks for the organization, conduct and maintenance of restorative and recreational treatment in sanatorium-resort conditions seems relevant.

Changes in the usual way of life and lifestyle of the population in connection with the pandemic and anti-epidemic measures of a restrictive nature, as well as the uncertainty of the situation, the danger of illness and concern for the health of loved ones increase the level of anxiety in a significant part of the population. Over time, anxiety can be replaced by depression. In this regard, there is a high appeal to doctors about anxiety, depression, sleep disorders, eating disorders and other conditions requiring psychotherapy. The drugs used for this and, in particular, antidepressants can help reduce blood clotting and the occurrence of internal bleeding.

After the recovery of patients with coronavirus infection, measures should be taken to rehabilitate them with the active involvement of psychologists both in the early stages and in the long period of restoration of working capacity and professional reliability. Of course, in terms of increasing the efficiency of patient recovery, new rehabilitation technologies should be compiled, accumulating best practices in solving these problems by the medical community [15].

A lot of materials have been published in the scientific literature with practically significant proposals and recommendations for confronting the pandemic. However, in many cases, they are not implemented and are not taken into account in the preparation and adoption of organizational decisions. In this regard, it seems relevant to discuss the problems of organizing and improving the effectiveness of scientific support for measures to combat pandemics. At one time, Russia conducted systematic scientific research in the interests of improving the efficiency of the health care system, including the extension of professional longevity, primarily for people of dangerous professions. Specialists. These studies concerned the provision of medical care to the population both in primary care and at the specialized and high-tech level, including in the event of foci of mass destruction, diseases or poisoning.

At the same time, scientific support for measures to localize foci and eliminate their consequences was also envisaged. Such support made it possible to quickly take the necessary organizational measures to improve the efficiency of medical care for the sick and restore their performance. Taking into account this experience, it seems that the creation of centers for scientific support of anti-epidemic measures at government operational bodies to prevent the importation and spread of coronavirus infection could ensure the organization and conduct of research on the generalization, analysis and assessment of the evolving situation to justify and promptly make informed decisions to prevent the spread of coronavirus infection.

The organization of such research should be carried out by the executive authorities responsible for the state of health care and the provision of medical care to the population. To do this, they must have scientific units capable of providing scientific support for the provision of medical care to the population. The areas of work of such units should also be scientific support for the training of medical personnel, their advanced training and retraining in the interests of both the professional development of medical personnel and the application of new knowledge and technologies in medical practice. The most important component of such support should be the justification for equipping medical educational institutions with medical and technical equipment that allows training and the formation of professionally important qualities and skills using modern educational technologies.

A special direction of scientific support should be the coordination of research on the development and evaluation of medicines and the receipt of statistically reliable data on their indications and contraindications. Conducting such research, even when using the capabilities of new information technologies for summarizing and analyzing data, requires considerable time. Without appropriate coordination on the part of the executive authorities, it is not possible to promptly offer effective treatment technologies and it turns out that for a long time useless drugs are used for treatment at best, and at worst dangerous conditions are created for the health and even life of patients [11].

Without such coordination, even the publications of specialists on the problems of the spread and treatment of coronavirus infection, containing practically significant proposals, are not promptly considered and taken into account when making decisions by health care organizers and executive authorities. Attention is paid to these publications mainly only after their coverage in the media. This is largely a consequence of the absence in the administrative regulations of executive authorities of responsibility for scientific support for the preparation and adoption of organizational decisions, and hence the operational analysis of publications of scientific articles with factual data, conclusions and recommendations. All this affects the assessment of the current state of affairs. As a result, many organizational decisions are made not on the basis of the results of a prompt analysis of the situation, but after the disclosure by patients, doctors and journalists of facts and events that require an immediate response.

Science has no right to stay away from solving urgent problems and problems of the development of society. Scientists can and should conduct research in the interests of the future, including in relation to unlikely situations and circumstances. The organization and conduct of such studies in many cases go beyond the responsibility of business and even state plans and programs, since they have a supranational orientation. In particular, this concerns the problems of creating systems for diagnosing diseases and poisoning of passengers, primarily air transport [31]. The introduction of the results of research in this direction could significantly limit the movement of patients and carriers of infection around the world. In this regard, there is a need for targeted and more effective scientific and methodological support for countering infectious pandemics [28].

An integral part of such work can be expert, analytical and information support for countering the coronavirus pandemic [29]. One of the sections of interethnic scientific research can consider the problems of socio-psychological support of medical workers and other participants in the provision of medical care to the sick and their rehabilitation [34]. At the same time, the joint development of approaches and the substantiation of recommendations should not become the prerogative of individual scientists and specialists, but the scientific community on the basis of generalization, analysis of practice and promising ideas and proposals [36].

The coronavirus pandemic was a test of the ability of the public administration system and health authorities to carry out anti-epidemic measures and verification of the compliance of the proclaimed and implemented social, moral and psychological values and relations, as well as the readiness of society for priority joint and solidarity actions. Timely provision of medical care is the responsibility of the heads of institutions and health authorities. And the fulfillment of these duties largely depends on their professional competence, the ability to make logistical decisions, identify staff and personnel problems and justify the necessary decisions to improve the efficiency of the health care system.

The organization of the work of medical institutions and the professional activities of medical workers requires scientific support in the interests of improving the quality and timeliness of the provision of necessary medical care. Features of medical activity in the treatment of patients with coronavirus infection indicate the need for urgent and comprehensive consideration of the psychology of doctors when creating conditions for them to make verified and effective decisions in the interests of quality treatment and saving the lives of patients. Addressing the safety of medical personnel is the most important task of health authorities. Cases of infection of medical workers require prompt study, analysis and taking measures to prevent the loss of medical personnel during the confrontation with the epidemic.

Medical and biological safety in confronting the epidemic is largely ensured by the availability of medicines for specific and symptomatic treatment. In this regard, the relevance of taking effective measures for the production of drugs to ensure the national security of countries in terms of medicines is increasing. The widespread use of antibiotics for the treatment of patients with a new coronavirus infection in medical institutions and at home can have adverse consequences and lead to the formation of bacterial resistance, which requires consideration in planning the production and procurement of antibacterial drugs. Reports of mortality in coronavirus infection do not always reflect the real state and effectiveness of treatment of patients and require scientific analysis and evaluation, taking into account many features and circumstances. An analysis of the effectiveness of the health care system showed the need to adopt a system of measures to improve its medical and biological preparedness to confront the pandemic.

On the basis of the foregoing, it is possible to formulate the following final clauses and conclusions.

The coronavirus epidemic has not yet ended, however, there is an understanding of the features of its spread, diagnosis and course of the disease. Experience has been gained in preventing the spread of infection, identifying cases and treating them. Assessments of the effectiveness and expediency of anti-epidemic measures are obtained. A basis has been created for the formulation of conceptual provisions for the confrontation with the epidemic for practical consideration and determination of subsequent actions. These provisions are to be taken into account in the preparation and implementation of decisions and actions to prevent the spread of infection, identify cases, treat them and then recover.

At the same time, it remains relevant to summarize, analyze and evaluate the actions of the medical service, health organizers and authorities in the interests of forming or clarifying the concept of countering future pandemics of infectious diseases. This will make it possible to substantiate and develop algorithms for assessing and forecasting the epidemiological situation and carrying out activities taking into account specific conditions, circumstances, opportunities and resources. To ensure the safety of medical workers, it is necessary to strengthen the staff of the heads of medical organizations and institutions, ration the length of the working day, uninterrupted equipment with personal protective equipment, optimize the regime of work and rest and improve the socio-psychological support of their activities. In the interests of ensuring the psychophysiological reliability of professional activity, it is necessary to conduct an operational analysis of the work of the health care system and clarify regulatory documents on the safety of activities. Scientific support for the implementation of the strategy for the development of national health systems is a necessary condition for achieving the goals of ensuring the biological and drug safety of the population.

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