

# SAFETY IN EMERGENCY ENVIRONMENT БЕЗОПАСНОСТЬ В ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ

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## ALL-RUSSIAN CENTER FOR DISASTER MEDICINE "ZASHCHITA" OF FEDERAL MEDICAL AND BIOPHYSICAL CENTER NAMED AFTER A.I. BURNAZYAN OF THE FEDERAL MEDICAL AND BIOLOGICAL AGENCY OF THE RUSSIAN FEDERATION: RESULTS OF WORK IN 2021 AND OBJECTIVES FOR 2022

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**Abstract.** The need to protect the population of the territories and personnel of the facilities serviced by the Federal Medical and Biological Agency in emergency situations by medical treatment organizations and mobile medical formations sets them an important task – to provide timely emergency and urgent medical care to victims in an emergency in accordance with modern principles of medical evacuation routing.

*The aim of the study is to analyze and to evaluate the main results of the activities of the All-Russian Center for Disaster Medicine "Zaschita" as a part of Federal Medical and Biophysical Center named after A.I. Burnazyan of the Federal Medical and Biological Agency of the Russian Federation, to develop proposals and to define objectives for further development and improvement of the system to organize medical care and medical evacuation in emergencies at facilities and territories served by FMBA of Russia.*

*Materials and research methods.* Materials: regulatory, legal and methodological documents governing the procedure for providing medical aid to the victims of emergencies; reports of the structural units of the All-Russian Center for Disaster Medicine "Zaschita", including special exercises held in 2021; scientific papers on topical issues of medical support to the population in emergencies.

*Research methods:* analytical, statistical, method of direct observation.

*Results of the study and their analysis.* The results of the first year of operation of the the All-Russian Center for Disaster Medicine "Zaschita" as a part of Federal Medical and Biophysical Center named after A.I. Burnazyan of the Federal Medical and Biological Agency of the Russian Federation in 2021 are presented. The following results are considered and analyzed: special trainings of the Field Multidisciplinary Hospital and Consolidated medical detachment; work on medical support of mass events – "Tavrada" Forum of Young Culture and Arts Workers and "Silk Road" international rally.

The work of the laboratory of scientific and methodical problems of medical support in emergency situations established in the All-Russian Center for Disaster Medicine "Zaschita" within the past year was characterized. Decrease of the Center of sanitary aviation and ambulance services abroad activities due to borders closing, caused by COVID-19 pandemic, is highlighted.

The activities of the All-Russian Center for Disaster Medicine "Zaschita" in the field of civil defense in the interests of FMBA of Russia, are listed. The main tasks for the All-Russian Center for Disaster Medicine "Zaschita" for 2022 are formulated.

**Keywords:** All-Russian Center for Disaster Medicine "Zashchita" of Federal Medical and Biophysical Center named after A.I. Burnazyan, Consolidated medical detachment, emergency and urgent medical care, emergency situations, Federal Medical and Biological Agency, field multidisciplinary hospital, mass events, medical evacuation, medical support, routing

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## ВЦМК «ЗАЩИТА» ФГБУ «ГНЦ – ФЕДЕРАЛЬНЫЙ МЕДИЦИНСКИЙ БИОФИЗИЧЕСКИЙ ЦЕНТР им. А.И.БУРНАЗЯНА» ФМБА РОССИИ: ИТОГИ РАБОТЫ В 2021 г. И ЗАДАЧИ НА 2022 г.

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**Резюме.** Необходимость защиты в чрезвычайных ситуациях (ЧС) населения территорий и персонала объектов, обслуживаемых Федеральным медико-биологическим агентством (ФМБА России), силами лечебных медицинских организаций (ЛМО) и мобильных медицинских формирований (ММФ) ставит перед ними актуальную задачу – своевременно оказывать неотложную и экстренную медицинскую помощь пострадавшим в ЧС в соответствии с современными принципами маршрутизации медицинской эвакуации.

**Цель исследования** – на основе анализа и оценки основных итогов в 2021 г. деятельности ВЦМК «Защита» в составе ФГБУ «ГНЦ – Федеральный медицинский биофизический центр (ФМБЦ) им. А.И.Бурназяна ФМБА России» (далее – ВЦМК «Защита») разработать предложения и определить задачи на 2022 г. по дальнейшему развитию и совершенствованию системы организации оказания медицинской помощи и проведения медицинской эвакуации при возникновении чрезвычайных ситуаций на объектах и территориях, обслуживаемых ФМБА России.

**Материалы и методы исследования.** Материалы исследования: нормативные, правовые и методические документы, определяющие порядок оказания медицинской помощи пострадавшим в ЧС; отчеты структурных подразделений ВЦМК «Защита», в том числе о проведенных специальных учениях, за 2021 г.; научные работы по актуальным вопросам медицинского обеспечения населения в ЧС.

**Методы исследования:** аналитический статистический, метод непосредственного наблюдения.

**Результаты исследования и их анализ.** Представлены результаты первого года функционирования ВЦМК «Защита» в составе ФГБУ ГНЦ ФМБЦ им. А.И.Бурназяна ФМБА России. Рассмотрены и проанализированы результаты: специальных учений Полевого многопрофильного госпиталя (ПМГ) и Сводного медицинского отряда (СВМО) ФМБА России; работы по медицинскому обеспечению массовых мероприятий – Форума молодых деятелей культуры и искусств «Таврида» и международного ралли «Шелковый путь».

Охарактеризована работа созданной в ВЦМК «Защита» в истекшем году лаборатории научно-методических проблем медицинского обеспечения при чрезвычайных ситуациях. Отмечено сокращение объема деятельности Центра санитарной авиации и скорой медицинской помощи (ЦСА и СМП) по проведению медицинской эвакуации из-за рубежа в связи закрытием границ, обусловленным пандемией COVID-19.

Показана деятельность ВЦМК «Защита» в области гражданской обороны в интересах ФМБА России и др. Сформулированы основные задачи ВЦМК «Защита» на 2022 год.

**Ключевые слова:** ВЦМК «Защита» ФГБУ «ГНЦ – Федеральный медицинский биофизический центр им. А.И.Бурназяна ФМБА России, маршрутизация, массовые мероприятия, медицинская эвакуация, медицинское обеспечение, неотложная и экстренная медицинская помощь, Полевой многопрофильный госпиталь, Сводный медицинский отряд, Федеральное медико-биологическое агентство, чрезвычайные ситуации

**Конфликт интересов.** Авторы сообщения подтверждают отсутствие конфликта интересов

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The implementation of many measures of the National Security Strategy of the Russian Federation<sup>1</sup> provides for an increase in the effectiveness of measures to prevent and to eliminate the consequences of emergencies of natural and man-made character, including those associated various infectious diseases.

In the Russian Federation the level of risks and hazards caused by natural and man-made disasters, terrorist acts, armed conflicts and other emergencies remains high. The country's health care system was put to a great test in 2020-2021 due to the wave-like course of the pandemic of a new coronavirus infection COVID-19 caused by mutant strains. The results and analysis of the activities of the All-Russian Disaster Medicine Service in recent years are contained in a number of scientific publications describing the goals, tasks, work experience and prospects for improving the preparedness of the health care sphere to eliminate medical and sanitary consequences of the most probable emergencies [1, 2].

The need to protect in an emergency the personnel of the facilities and the population of the territories served by the Federal Medical and Biological Agency (FMBA of Russia) determines as a priority task the timely provision of emergency and urgent medical care to victims in emergencies in accordance with the procedures of medical care and standards, clinical guidelines and in compliance with modern principles of routing of medical evacuation.

It should be emphasized that the development of organizational technologies for providing medical care to the country's population determines the increased role of medical organizations of the Federal Medical and Biological Agency of Russia in the system of medical and sanitary support for state, public, sport events, humanitarian actions with mass participation of the population, large-scale preventive medical examinations and dispensaries in remote areas of the Russian Federation. In modern conditions during such events special attention is paid to their anti-epidemic support in the conditions of the COVID-19 pandemic [3].

In accordance with the Decree of the Government of the Russian Federation from October 12, 2020 №1671<sup>2</sup> FMBA of Russia is entrusted with the creation and maintenance of the functional subsystem of the Unified State System of Prevention and Elimination of Emergencies (RSChS), designed to provide medical and sanitary assistance to victims in emergencies that occurred in organizations (at facilities) that are under the jurisdiction of FMBA of Russia.

In addition, Decree of the Government of the Russian Federation No. 206<sup>3</sup> of April 11, 2005 entrusted FMBA of Russia with the protection of personnel of organizations

<sup>1</sup> National Security Strategy of the Russian Federation: Approved by Presidential Decree No. 400 of July 2, 2021

<sup>2</sup> On amendments to some acts of the Government of the Russian Federation and invalidation of Decree No. 420 of the Government of the Russian Federation of May 3, 1994: Decree of the Government of the Russian Federation of October 12, 2020 No. 1671

<sup>3</sup> About the Federal Medical and Biological Agency: Decree of the Government of the Russian Federation from April 11, 2005. no. 206

and the population of the territories served, elimination of the medical and sanitary consequences of man-made emergencies, medical and sanitary measures to prevent and eliminate the consequences of emergency situations, radiation, chemical and biological accidents and incidents, and the prevention of spread of infectious and mass non-infectious diseases.

During implementation of measures to improve the system of organization of medical care to victims of emergencies and their medical evacuation in 2021 from the system of the Russian Ministry of Health to the organizational structure of the "State Research Center - Federal Medical Biophysical Center named after A.I. Burnazyan" the All-Russian Center for Disaster Medicine "Zaschita" was transferred, which, by order 32<sup>4</sup> of February 25, 2021 of FMBA of Russia, was charged with improving and ensuring the functioning of the system to save lives and preserve public health in case of emergencies at facilities and territories served by the Federal Medical and Biological Agency of Russia.

Undoubtedly, the results of the analysis of the first year of operation of "Zaschita" Disaster medicine Center as part of the State Research Center at the A.I. Burnazyan Federal Medical and Biological Center of the Federal Medical and Biological Agency of Russia are necessary to adjust the activities to maintain and improve the readiness of both the "Zaschita" and the relevant medical organizations of the Federal Medical and Biological Agency of Russia to respond and act in emergencies.

Considering the above, we can state that the study aimed at studying and evaluating the activities of "Zaschita" in 2021 is relevant, and its results will be in demand in practice.

**The purpose of the study** is to develop and substantiate the proposals on further development and improvement of the All-Russian Center for Disaster Medicine "Zaschita" functioning and in general the system of organization of medical care and medical evacuation of victims in emergencies at the facilities and territories served by the Federal Medical and Biological Agency of Russia on the basis of the analysis and assessment of the main results of "Zaschita" activity in 2021.

**Materials and methods.** Materials of the study: regulatory, legal and methodological documents determining the procedure for organizing and providing medical care and medical evacuation of victims in emergencies; reports on the activities of the structural units of the All-Russian Center for Disaster Medicine "Zaschita", including the results of scientific work in 2021; reports on special exercises with medical organizations of FMBA of Russia; scientific papers and publications on topical issues of medical care in emergencies. Research methods: analytical statistical, method of direct observation, logical and informational modeling.

**Results of the study and their analysis.** As the results of the study have shown, the practical and scientific activity of the All-Russian Center for Disaster Medicine "Zaschita" within the A.I. Burnazyan Federal State Budgetary Institution

<sup>4</sup> On the implementation of organizational measures related to the transfer of the property complex from the Federal State Budgetary Institution "All-Russian Center for Disaster Medicine" of the Federal Medical and Biological Agency to the Federal State Budgetary Institution "State Scientific Center of the Russian Federation - Federal Medical Biophysical Center. A.I. Burnazyan": order of the FMBA of Russia from February 25, 2021 no.32

Federal Medical and Biological Center in 2021 was diversified, focused on maintaining and improving the level of readiness of the Field Multidisciplinary Hospital (FMH), the Center for Medical Aviation and Emergency Medical Care and the Management and Methodical Support Center to perform their tasks in likely emergencies.

In order to increase readiness to take adequate measures in emergency conditions and to study the capabilities of medical formations, including the Joint Medical Detachment (JMD) of FMBA of Russia, a tactical and special exercise "Organization of the Joint Medical Detachment of FMBA of Russia during the liquidation of medical and sanitary consequences of the emergency situation" was conducted, with practicing the formation, nomination and deployment of functional units, implementation of measures for admission, medical triage, provision of medical care and conducting medical treatment.

The exercise revealed a number of problematic issues that need to be resolved. Among them: the insufficient readiness of the JMD personnel for the operational response to the emergency, due to the fact that most of the involved medical specialists for the first time participated in such an event and, as a result, it was difficult to qualitatively and fully perform their tasks; the need for regular similar exercises involving medical specialists not only of JMD, but also medical health care organizations of FMBA Russia, specialists of which will participate in the liquidation of the medical and sanitary consequences. The experience of the exercise made it possible to take appropriate measures to equip the FMH with special equipment, medical diagnostic and treatment devices, to clarify the level of professional training of hospital staff and adjust a number of measures to maintain and improve it, taking into account the most likely structure of sanitary losses arising in an emergency and the specifics of work carried out in the emerging conditions. Proposals for changes in the reserve of consumables (medicines, medical devices) are being developed.

During the year, specialists of "Zaschita" participated in 8 command-staff exercises (CSE) and tactical-special exercises conducted jointly with the Ministry of Health, Rospotrebnadzor and the Ministry of Emergency Situations of Russia. The most significant of them were:

- A command-staff exercise at the National Defense Control Center (NDCC) of the Russian Federation with a software and hardware complex to practice the issues of improving the system of information interaction in the field of national security of the Russian Ministry of Defense and other security agencies and executive authorities of the subjects of the Russian Federation (hereinafter referred to as the subjects);
- "Organization and conduct of civil defense on the territory of the Russian Federation" with the testing of measures to improve the efficiency and consistency of civil defense forces when carrying out civil defense activities and conducting rescue and other emergency work;
- Checking the readiness of multidisciplinary medical units of the Center for Hygiene and Epidemiology of the Department of Rospotrebnadzor for the Samara Region and the territorial Disaster Medicine Centers of the regions to fulfill their tasks";

Development of the Arctic Zone of the Russian Federation (hereinafter — the Arctic Zone) is carried out

within the framework of the realization of the Presidential Decree of October 26, 2020 № 645<sup>5</sup>, which determines the need to develop and improve the medical forces and means of FMBA of Russia for the organization of medical and evacuation support for the population and personnel of the facilities located in this area and in the waters of the Northern Sea Route, in various emergencies.

It should be noted that the organization of emergency and urgent medical aid to the victims of emergencies in the Arctic zone is influenced by the significant remoteness of medical organisations of the 2nd and 3rd levels from the waters of the Northern Sea Route and from the coastal zone — from 500 km to 1.5 thousand km and more. Such a situation requires to be ready to perform a great volume of sanitary-aviation evacuation with the use of aviation equipment, equipped with medical airplane and helicopter modules, etc. At the same time, a number of difficulties associated with the timely provision of medical care to victims have been overcome through the use of telemedicine consultations. In 2019-2021 specialists of "Zaschita" organized and conducted more than 35 thousand telemedicine consultations in the Arctic regions (Table 1).

An important measure aimed at providing emergency and urgent medical aid to the patients and victims of emergencies is the creation of mobile medical formations (mobile medical aviation complexes) in the organizational structure of the Arctic rescue centers of the Russian Emergencies Ministry, which will allow to move quickly to the emergency area, to conduct comprehensive emergency and rescue activities, if necessary — to deploy evacuation reception, medical triage, emergency medical aid and preparation

As a part of the interdepartmental research exercise in September 2021 on elimination of the consequences of a fire on a cruise liner in the Kola Bay on the Northern Sea

Route, a harbor evacuation receiver was deployed at the expense of the Murmansk Medical Center, FMBA of Russia, to fulfill the above tasks. At the same time during the exercise in Norilsk a multidisciplinary medical complex for COVID-19 patients with thermal burns of varying severity was deployed by the Rapid Response Team of the Krasnoyarsk District Medical Center of FMBA of Russia.

The results of the exercise showed the need to develop a system of interagency cooperation in organizing medical assistance and — first and foremost — medical, sanitary evacuation, evacuation of victims, as well as to create a system of special training for medical personnel in the appropriate mobile medical formations (MMF) in the Arctic zone.

On behalf of the Russian Federal Medical and Biological Agency, work was carried out in 2021 on a set of civil defense measures. "Zaschita" specialists took part in the development and revision of drafts of the Plan for civil defense preparedness in the Federal Medical and Biological Agency of Russia and the Regulation on the organization and conduct of civil defense in the Federal Medical and Biological Agency. We summarized information from more than 280 reports of medical organizations of the Federal Biomedical Agency and prepared a report on the implementation in 2021 of the Russian Federal Biomedical Agency Action Plan 2020-2024. (The report on implementation of the Federal Medical and Biological Agency's strategy in the field of civil defense, population and territories protection against emergencies, fire safety and safety of people at water objects in 2030 and the draft report on the state of the civil defense at the Federal Medical and Biological Agency were prepared. Plans of the main activities in the field of civil defense, prevention and elimination of emergencies, fire safety and anti-terrorist protection were agreed; Action Plans for emergencies of different nature submitted by medical organizations of the Federal Medical and Biological Agency of Russia.

On the basis of the study and analysis of the existing organizational and methodological basis in the system of

<sup>5</sup> On the Strategies of Development of the Arctic Zone of the Russian Federation and National Security for the period up to 2035: Decree of the President of the Russian Federation of October 26, 2020 № 645

Таблица 1/ Table No. 1

**Количество (абс.) телемедицинских консультаций, проведённых специалистами ВЦМК «Защита» в регионах Арктической зоны в 2019–2021 гг.**

The number (abs.) of Telemedicine Consultations Conducted by Specialists of VTSMK Zashchita in the Regions of the Arctic Zone in 2019-2021

Регион АЗ РФ /Arctic zone of the Russian Federation	2019	2020	2021	Итого Total
Архангельская область / Arkhangelsk region	1153	1722	2025	4900
Красноярский край / Krasnoyarsk Territory	438	2038	2189	4665
Мурманская область / Murmansk region	970	1610	1948	4528
Ненецкий автономный округ / Nenets Autonomous Okrug	630	561	761	1952
Республика Карелия / Republic of Karelia	501	708	843	2052
Республика Коми / Komi Republic	547	868	870	2285
Республика Саха (Якутия) / Republic of Sakha (Yakutia)	853	1775	2452	5080
Чукотский автономный округ / Chukotka Autonomous Okrug	199	391	569	1159
Ямало-Ненецкий автономный округ / Yamalo-Nenets Autonomous Okrug	2138	3242	3472	8852
<b>Всего / Total</b>	<b>7429</b>	<b>12915</b>	<b>15129</b>	<b>35473</b>

emergency medical evacuation of patients and victims, including victims of polytrauma, patients with new coronavirus infection COVID-19 and other contingents, the basic principles determining the routing of medical evacuation were substantiated and developed, taking into account the distance of the zone/area of emergency from populated areas. The basic variants of the routing of the medical evacuation of the injured in emergencies have been revealed, which should be applied not only in the conditions of the emergency, but also in the everyday activity mode.

The activities of the Central Sanitary and Epidemiological Service and ambulance services were aimed at providing emergency medical care, including specialized emergency medical care and medical evacuation of patients and victims in an emergency. In 2021, over 600 patients were medically evacuated, including 168 patients with suspected COVID-19 (Table 2).

The decrease in the total number of medical evacuations performed is due to the transfer of "Zaschita" to the jurisdiction of FMBA of Russia and the change in the scope of medical evacuation tasks, as well as the closure of borders in conditions of the COVID-19 pandemic.

Much work has been done to license the activities of the Center for Emergency and Critical Care Medicine within the State Research Center of A.I. Burnazyan Federal Medical and Biological Center of the Federal Medical and Biological Agency of Russia for the provision of emergency medical care, including specialized ambulance services. An appropriate license has been obtained.

The specialists of the Center for Emergency Medicine took an active part in the development of "Proposals (practical recommendations) on the organization of internal quality control and safety of medical activity outside a medical organization" when providing emergency, including specialized, medical care outside a medical organization and the corresponding methodological recommendations [4]. In accordance with the created practical recommendations, specialists from the Roszdravnadzor's Quality Institute were the first in the country to audit the

internal quality control of emergency and ambulance specialized medical care and medical evacuations in "Zaschita", which resulted in a certificate of compliance.

In 2021 the specialists of "Zashchita" as a part of the Joint Medical Unit of FMBA of Russia performed a significant amount of work to ensure medical support events with mass participation of the population.

In order to provide medical support for the Forum of Cultures and Arts "Tavrida" (hereinafter — the Forum) in 2021 on the territory of the "Art Cluster" using pneumocage modules and container-type premises, the FMH was deployed. Its tasks were: to provide emergency and urgent medical care, if necessary — temporary isolation of patients with infectious diseases; if necessary — medical evacuation to the nearest medical organisations. The increase in the number of guests and participants of the Forum up to 10 thousand required additional medical forces and means from the medical treatment organizations of FMBA of Russia — emergency medical teams were on duty at the most important and numerous events, which took place simultaneously in different parts of the Forum territory. In addition, a multidisciplinary coordination and technical center was deployed to coordinate all medical services and equipment involved in providing medical care for the Forum. The medical organisations of the Republic of Crimea were identified in advance for the hospitalization of patients. Medical evacuation was carried out to the city hospital in Sudak and in cooperation with the teams of the Crimean Republican Center for Disaster and Emergency Medicine to other medical organisations of the Republic.

In total, during the Forum, about 12,000 people sought medical care at the FMH and emergency care stations, including 23 with laboratory-confirmed COVID-19. 53 people were hospitalized, including 23 with COVID-19; 4963 tests for COVID-19 were performed. There were no outbreaks of infectious diseases among Forum participants.

At the Forum venue, a training session entitled "Organizing the Elimination of Medical and Sanitary Consequences of the Fire on the Central Stage of the Forum Territory" was held twice, with training on the interaction

Таблица 2/ Table No.2

**Объём проведения медицинской эвакуации больных и пострадавших в ЧС специалистами ВЦМК «Защита» в 2020–2021 гг.**

Volume of Medical Evacuation of Patients and Victims by Specialists of "Zashchita" Disaster Medicine Center in 2020-2021

Объём выездной работы Volume of fieldwork	Число эвакуированных, чел. / Number of evacuees, people.					
	всеми видами транспорта by all means of transport	из них / of which				
		автотранспортом by motor transport	авиационным транспортом // by air transport			ж/д транспортом / by railroad transport
			всего total	из них / of which		
				по России in Russia	из-за рубежа from abroad	
2020						
<b>Всего пациентов / Total patients</b>	<b>1651</b>	<b>142</b>	<b>210</b>	<b>170</b>	<b>40</b>	<b>12</b>
в т.ч. с COVID-19/ including COVID-19	833	723	110	84	26	0
2021						
<b>Всего пациентов / Total patients</b>	<b>608</b>	<b>555</b>	<b>47</b>	<b>39</b>	<b>8</b>	<b>6</b>
в т.ч. с COVID-19/ including COVID-19	168	151	17	16	1	0

between Russian Federal Medical and Biological Agency forces and the executive authorities of the Republic of Crimea and other organizations participating in the elimination of the consequences of the fire.

In accordance with the Action Plan for the Russian stage of the annual international Silk Road Rally (hereinafter — the Rally) in 2021 the medical support of the whole route through the territory of Russia and Mongolia for the first time, without the involvement of international medical and insurance organizations, was entrusted to FMBA of Russia, which included more than 40 specialists from 11 FMBA medical organisations and specialists of the All-Russian Center for Disaster Medicine "Zaschita". During preparations for the Rally, areas of responsibility and ways to evacuate possible victims were identified along the entire route, and interaction was organized with regional representatives, health care authorities, ambulance stations and territorial Disaster Medicine Centers. Particular attention was paid to measures to ensure anti-COVID safety — PCR testing was organized before the start of the Rally and the day before the expected crossing of the border of the Russian Federation. All in all 144 people got medical help during the Rally; 141 out-patiently; 3 persons were sent to the hospital. During the Rally six participants were evacuated from the track by medical crews due to the malfunction of vehicles.

The results of the activity on medical and sanitary support of the event showed the necessity of the early solution of such organizational issues as accommodation, provision with the expendable drugs and medical products, diagnostic equipment, sanitary transport, engineering and technical equipment, etc.

In order to provide scientific and methodological support for "Zaschita" activities in 2021 were created: in the structure of "Zaschita" — Laboratory of problems of medical support in emergency situations (hereinafter — Laboratory); in the Medical and Biological University of Innovation and Continuing Education of A.I. Burnazyan

Federal Medical and Biological Center — Department of Disaster Medicine. The main direction of scientific-methodological and educational activity of "Zaschita" is development of the system of organization of medical aid rendering to victims of emergencies on objects and territories serviced by the Federal Medical and Biological Agency of Russia and training specialists in the field of "Disaster Medicine".

Specialists of the laboratory have developed terms of reference for the research work on the topic: "Development of the system of organization of medical care, medical evacuation in emergencies and emergency medical care in everyday activities on sites and territories served by the Federal Medical and Biological Agency of Russia" (code number: "Zaschita"), which received a positive review by the Department of Medical Sciences of the Russian Academy of Sciences with a recommendation to FMBA Russia to include this topic in the plan of research work. As part of the first phase of the research and development activities in 2021, medical and technical requirements for the FMH and JMD of the Federal Medical and Biological Agency of Russia were developed and received a positive review from leading experts in disaster medicine.

The medical and technical requirements define the procedure for the creation, location, deployment and operation of the Field Multidisciplinary Hospital and the Joint Medical Detachment when operating in the modes of daily operations, high readiness and emergency situations as surgical, toxic-therapeutic, radiological and infectious disease hospitals (Figure 1).

A draft concept for the creation of a field multidisciplinary hospital has been developed.

Decree of the Government of the Russian Federation on October 12, 2020 № 1671 on FMBA of Russia is tasked to create a functional subsystem of the RSChS. In pursuance of this Government Decree, specialists of "Zaschita" developed a draft Regulation on the functional subsystem of medical and sanitary aid to victims of emergencies in

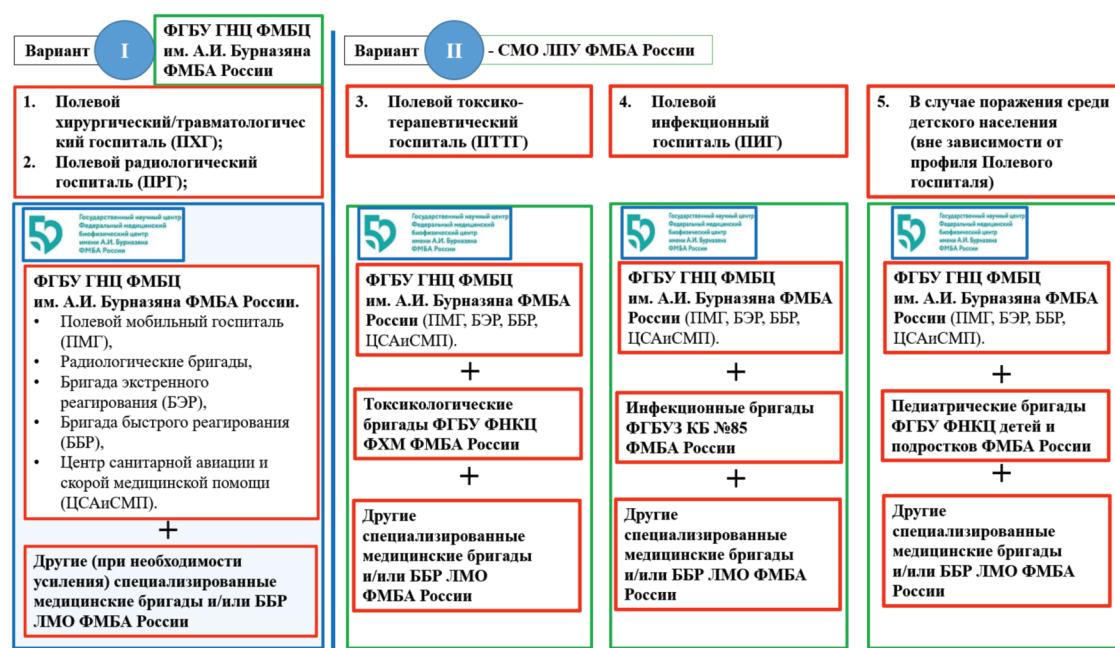


Рис 1. Варианты развертывания ПМГ и СМО  
Fig. 1. Options for deployment of field multi and WSCs

organizations (at facilities) under the jurisdiction of FMBA of Russia — is currently under consideration in the Ministry of Emergency Situations of Russia.

The Department of Disaster Medicine has developed and approved additional professional development programs for specialists:

- "The Work of Medical Organizations of the Federal Medical and Biological Agency of Russia in Emergency Situations" (37 hours);

- "Organization of Internal Control over the Quality and Safety of Medical Activities in Emergency Medical Care, including Specialized Emergency Medical Care and Medical Evacuation of Patients and Victims" (37 hours).

Special attention at the Department of Disaster Medicine was paid to the training of specialists of aviation medical brigades and training in first aid techniques (Table 3).

The specialists of "Zaschita" together with the professors-scientists of the Military Medical Academy named after S.M. Kirov prepared the textbook "Medicine of extreme situations" in two volumes, designed for training of medical specialists of the power ministries — it was published in the first half of 2021.

The main results of scientific and practical work of "Zaschita" were presented at 16 All-Russian conferences and symposiums, including those with international participation. In the reports the following issues were presented: information support of the Federal Medical and Biological Agency of Russia; activities of the FMH and JMD, medical support activities with mass participation of the population, providing medical care to patients and medical evacuation of victims in emergencies, the medical response to emergencies of biosocial nature, management of emergency medical care. Final reports on all directions of "Zaschita" activities were made at the jubilee international scientific conference "Burnazyan Federal Medical and Biological Center: 75 years on guard of human health".

As part of the activities of the Russian Academy of Sciences at a meeting of the section of preventive medicine

and at the general meeting of the Department of Medical Sciences the reports "Routing in the system of medical and evacuation support in emergencies to improve the availability and quality of medical care provided to victims in the Arctic zone of the Russian Federation" and "Medical evacuation of COVID-19" were presented.

Dissertation works carried out by the staff of "Zaschita" are devoted to solving problems of medical evacuation of patients and victims in emergencies, including from abroad; organization of medical care during liquidation of medical and sanitary consequences of terrorist acts; normative regulation of the All-Russian Disaster Medicine Service; organization of first aid and medical care at Russian ski resorts; medical triage in radiation accidents; information technologies of FMBA of Russia.

"Zaschita" specialists paid attention to the development of the main aspects of the functioning and certification of International Emergency Medical Teams (EMTs); participated in the creation of organizational, clinical and technical principles of EMTs activities. The principles they developed were laid out in the WHO Blue Book and Red Book, published in 2021, which regulate the work of EMTs in response to natural disasters, epidemic outbreaks, military and armed conflicts.

A WHO working group on standardization of medical evacuations at the international level was established in 2019. As part of the group's work, 8 meetings were held in 2021, and a WHO medical evacuation manual is being developed to regulate the organizational, clinical and technical principles of medical evacuation teams at the national and international levels.

### Conclusion

The presented results of the work of the All-Russian Center for Disaster Medicine "Zaschita" allow us to state that within the framework of their competence the specialists of "Zaschita" of the State Research Center for Medical and Biological Center named after A.I. Burnazyan of FMBA of Russia are able to determine and

Таблица 3/ Table No.3

### Циклы подготовки и число обученных на кафедре медицины катастроф МБУ ИНО Training Cycles and the Number of Trainees at the Department of Disaster Medicine at Medical and Biological University of Innovation and Continuing Education

Наименование циклов и сроки их проведения Name of cycles and their timing	Кол-во циклов Number of cycles	Число обученных, чел. Number of people trained
Циклы дополнительного профессионального образования In cycles of additional professional education		
Санитарно-авиационная эвакуация / Air medical evacuation	4	66
Проведены занятия:/ Classes conducted		
Базовая сердечно-легочная реанимация с применением автоматического наружного дефибриллятора –тренинг с сотрудниками ФГБУ ГНЦ ФМБЦ России им. А.И.Бурназяна ФМБА России Basic cardiopulmonary resuscitation with an automatic external defibrillator (training with employees of the Federal State Budgetary Institution State Research Center named after A.I. Burnazyan of the Russian Federal Medical and Biological Agency)	5	55
Первая помощь в условиях огневого контакта – сотрудники Следственного комитета России First aid in the conditions of fire contact – employees of the Investigative Committee of Russia	3	44
Оказание первой помощи при несчастных случаях, травмах, отравлениях и других состояниях и заболеваниях, угрожающих жизни и здоровью First aid in case of accidents, injuries, poisoning and other conditions and diseases that threaten life and health	3	36
<b>Всего / Total</b>	<b>15</b>	<b>201</b>

to solve practical and scientific tasks on organization and scientific substantiation of problematic issues, organization of medical and sanitary support for victims in emergencies at the facilities and territories served by FMBA of Russia, on providing medical care and medical evacuation of patients and victims in emergencies in compliance with the routing principles.

The main tasks facing specialists of "Zaschita" in 2022 should be:

- achieving goals and priorities of medical-social and sanitary-epidemiological safety of the population of the Russian Federation, defined by the National Security Strategy of the Russian Federation, approved by Presidential Decree of 2 July 2021 № 400;
- ensuring readiness of mobile medical formations in the system of medical organizations of FMBA of Russia — FMH, JMD, rapid response brigades of specialized medical care to respond and act in emergency conditions;
- Establishment and operation of mobile medical formations, such as FMH and JMDs, in the system of medical support in emergencies;
- organizing the work of district medical centers and other medical organisations of the Federal Medical and Biological Agency of Russia in emergencies;
- improving the system of organization and provision of medical care, medical evacuation of victims in emergencies at facilities and territories served by FMBA of Russia;
- development and implementation of information technologies in the activities of the Federal Medical and Biological Agency as one of the components of the system of medical and sanitary support of the employees at the

facilities and the population of the territories serviced by the Federal Medical and Biological Agency of Russia;

- methodological support of activities to eliminate medical and sanitary consequences of possible emergencies at facilities and territories serviced by FMBA of Russia;
  - conducting special exercises and training sessions with the district medical centers of the Federal Medical and Biological Agency of Russia to organize medical aid to victims of emergencies at facilities and territories serviced by the Federal Medical and Biological Agency of Russia; improving the quality and efficiency of these exercises;
  - developing a system for providing emergency medical aid and medical evacuation by the Federal Medical and Biological Agency in emergency situations in the Arctic Zone of the Russian Federation;
  - developing requirements for specialists in medical units to provide emergency medical aid and medical evacuations as part of the Arctic Integrated Rescue Centers of the Russian Ministry of Emergency Situations;
  - improving the system for training medical specialists involved in the liquidation of medical and sanitary consequences of emergencies;
  - development of educational and methodological materials for the training of specialists involved in the elimination of medical and sanitary consequences of emergencies.
- Solution of the above tasks will increase the readiness of medical forces of FMBA of Russia to respond and act in emergencies, the availability and quality of medical care and medical evacuation of patients and victims in emergency situations.

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