

## WORK OF SCIENTIFIC AND PRACTICAL CENTRE FOR EMERGENCY MEDICAL CARE OF MOSCOW CITY HEALTH DEPARTMENT IN CONTEXT OF COVID-19 PANDEMIC

S.A.Gumenyuk<sup>1</sup>, A.M.Shchikota<sup>1</sup>, V.I.Vechorko<sup>2</sup>

<sup>1</sup> Scientific and Practical Centre for Emergency Medical Care of Moscow City Health Department, Moscow, Russian Federation

<sup>2</sup> Filatov Municipal Clinical Hospital No.15 of Moscow City Health Department, Moscow, Russian Federation

**Abstract.** The activity is analyzed of specialists of the Scientific and practical centre for emergency medical care (CEMP) of Department of health of the city of Moscow (DZM) in the context of the COVID-19 pandemic. The structure of trips of CEMP teams in the fight against COVID-19 from March 1 to July 1, 2020 is presented. It is noted that although all the structures under the jurisdiction of the DZM, starting from March 2020, are working on high alert in connection with the threat of the spread of coronavirus, CEMP specialists continue to work on providing emergency medical care (EMP) and medical evacuation of victims of road accidents and other emergencies, as well as emergency somatic patients with various nosologies.

**Key words:** computer tomography centers, COVID-19 pandemic, inter-hospital medical evacuation, medical organizations, sample transportation, Scientific and Practical Centre for Emergency Medical Care in Moscow, thermometry

**Conflict of interest.** The authors declare no conflict of interest

**For citation:** Gumenyuk S.A., Shchikota A.M., Vechorko V.I. Work of Scientific and Practical Centre for Emergency Medical Care of Moscow City Health Department in Context of COVID-19 Pandemic. *Meditsina Katastrof* = Disaster Medicine. 2020; 4: 13–15 (In Russ.). <https://doi.org/10.33266/2070-1004-2020-4-13-15>

## РАБОТА НАУЧНО-ПРАКТИЧЕСКОГО ЦЕНТРА ЭКСТРЕННОЙ МЕДИЦИНСКОЙ ПОМОЩИ ДЕПАРТАМЕНТА ЗДРАВООХРАНЕНИЯ ГОРОДА МОСКВЫ В УСЛОВИЯХ ПАНДЕМИИ COVID-19

С.А.Гуменюк<sup>1</sup>, А.М.Щикота<sup>1</sup>, В.И.Вечорко<sup>2</sup>

<sup>1</sup> ГБУЗ «Научно-практический центр экстренной медицинской помощи Департамента здравоохранения города Москвы», Москва, Россия

<sup>2</sup> ГБУЗ «Городская клиническая больница №15 им. О.М.Филатова Департамента здравоохранения города Москвы», Москва, Россия

**Резюме.** Проанализирована работа специалистов Научно-практического центра экстренной медицинской помощи (ЦЭМП) Департамента здравоохранения г.Москвы (ДЗМ) в условиях пандемии COVID-19. Представлена структура выездов бригад ЦЭМП в рамках борьбы с COVID-19 с 1 марта по 1 июля 2020 г. Отмечено, что хотя все структуры, подведомственные ДЗМ, начиная с марта 2020 г., работают в режиме повышенной готовности в связи с угрозой распространения коронавируса, специалисты ЦЭМП продолжают вести работу по оказанию экстренной медицинской помощи (ЭМП) и проведению медицинской эвакуации пострадавших в дорожно-транспортных происшествиях (ДТП) и других чрезвычайных ситуациях (ЧС), а также экстренных соматических больных с различными нозологиями.

**Ключевые слова:** лечебные медицинские организации, межбольничная медицинская эвакуация, Научно-практический центр экстренной медицинской помощи г.Москвы, пандемия COVID-19, термометрия, транспортировка проб, центры компьютерной томографии

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

**Для цитирования:** Гуменюк С.А., Щикота А.М., Вечорко В.И. Работа Научно-практического центра экстренной медицинской помощи Департамента здравоохранения города Москвы в условиях пандемии COVID-19 // Медицина катастроф. 2020. №4. С. 13–15. <https://doi.org/10.33266/2070-1004-2020-4-13-15>

### Contact information:

**Sergey A. Gumenyuk** – Cand. Sci. (Med.), Deputy Director of Scientific and Practical Centre for Emergency Medical Care  
**Address:** 5/1 bldg. 1, Bolshaya Sukharevskaya square, Moscow, 129090, Russia  
**Phone:** +7 (495) 608-75-55  
**E-mail:** cemp75@yandex.ru

### Контактная информация:

**Гуменюк Сергей Андреевич** – кандидат медицинских наук, заместитель директора ГБУЗ «НПЦ ЭМП ДЗМ»  
**Адрес:** Россия, 129090, Москва, Большая Сухаревская пл., д. 5/1, стр. 1  
**Тел.:** +7 (495) 608-75-55  
**E-mail:** cemp75@yandex.ru

In December 2019, an outbreak of a new coronavirus infection was recorded in Wuhan (People's Republic of China). Later it was named COVID-19 – after the name of the new coronavirus strain that caused it – SARS-CoV-2. On March 11, 2020, taking into account the disease spread rate, the World Health Organization (WHO) rated the outbreak of COVID-19 as a pandemic [1]. At the beginning of July 2020, the total death toll from COVID-19 was more than 500 thousand people in the world. [2].

Moscow, being the capital, megalopolis and the largest transport hub of the country, naturally became the first and the main "target" of the new coronavirus in the Russian Federation. At the beginning of June the number of cases in the city exceeded 220 thousand people. The first case of COVID-19 in Moscow was recorded on March 2 in a tourist who returned from Italy. On March 5, Moscow Mayor Sergei Sobyenin signed a decree "On the introduction of a high alert regime in connection with the threat of the coronavirus spread." Subsequently, the number of cases of the new coronavirus infection in Moscow increased rapidly, reaching a "peak" in April / May 2020, which required mobilization of significant medical resources, a joint coordinated work and significant efforts of all structures of the Moscow Department of Health (MDH). As the head institution of the territorial Disaster Medicine Service (DMS) of Moscow, the Scientific and Practical Center for Emergency Medical Aid (TsEMP) provides medical support in situations of crisis and in high-risk events, which include the COVID-19 pandemic, during which Moscow healthcare system operates in a high readiness.

According to the orders of MDH, a number of city hospitals were redesigned to receive patients with coronavirus. Other medical institutions work in compliance with all anti-epidemic measures that prevent the spread of infection, and in constant interaction with COVID centers and computed tomography centers (CT centers). The work of the TsEMP and other institutions of the MDH during the COVID-19 pandemic is regulated by orders of the Ministry of Health of Russia dated March 16, 2020 No. 171, dated March 19, 2020 No. 198n and dated May 18, 2020 No. 459n, as well as by the Order of the Government of the Russian Federation dated March 21, 2020 No. 710-r. In addition, the order of the MDH "On further improvement and development of the emergency medical service of Moscow Department of Health (territorial service of disaster medicine)" dated November 1, 2016 No. 894 as well as a number of other orders and orders of the DZM [3] is the normative basis that determines the provision of primary health care and medical evacuation of patients with COVID-19 and other pathologies during the pandemic. It regulates the measures taken to prevent the emergence and spread of a new coronavirus infection in Moscow.

Since the beginning of March 2020, the TsEMP teams, together with employees of medical organizations (MO) of Moscow public health system, have been transporting in 24/7 regime to Moscow laboratories the pharyngeal swabs taken from passengers coming from countries of Europe and Asia, which are epidemiologically dangerous for COVID-19, arriving at the international airport "Sheremetyevo", then to the airports "Domodedovo", "Vnukovo" and "Zhukovsky". In the first half of March, the TsEMP teams transported from 300 to 2 thousand COVID-19 samples per day from the aforementioned airports. Since mid-March, af-

ter the termination of sampling in airports, the transportation of samples was continued from the city's laboratories, adapted for taking swabs for SARS-CoV-2. In addition, the TsEMP employees carried out the thermometry at the railway stations of the capital region. Among other matters they worked on the Sapsan trains, which followed the Leningrad direction of the railway.

With the increase in the number of SARS-CoV-2 infected, the medical teams of the TsEMP began to carry out medical evacuation of patients with COVID-19. First of all, it was an interhospital medical evacuation of clinically severe patients with respiratory failure from non-core medical institutions to hospitals repurposed to work with COVID-19. From March to June 2020, about 500 such medical evacuations were carried out. Also, patients with suspected new coronavirus infection or with confirmed COVID-19 were transported to CT centers in Moscow to confirm or exclude viral pneumonia and to clarify the extent of the lesion of the pulmonary parenchyma, which was important for the treatment tactics and for further routing of the patient. Within 4 months – March, April, May and June 2020 – about 1,000 visits to CT centers were made.

The structure of visits of the TsEMP teams in the framework of the fight against the COVID-19 pandemic from March 1 to July 1, 2020:

- transportation of pharyngeal smears from Moscow airports – over 60 thousand;
- transportation of pharyngeal smears from laboratories in Moscow – 0;
- medical evacuation of patients to CT centers – 121 people;
- interhospital medical evacuation of severe patients with COVID-19 – 115 people, including 3 children;
- thermometry at the railway stations of Moscow – over 1 million people.

Working with severe patients with confirmed or highly probable COVID-19 infection and transporting samples to SARS-CoV-2 did not cancel the usual obligations of the TsEMP to provide emergency medical assistance (EMA) and to ensure medical evacuation of injured in road traffic accidents (RTA) and other emergencies (ES), as well as of emergency somatic patients with various nosologies. Despite certain limitations associated with the pandemic, the TsEMP interaction with the network of vascular centers in Moscow to provide emergency care to patients with myocardial infarction and stroke did not stumble. From March to June 2020, about 30 patients were evacuated to the invasive vascular centers of the "heart attack" and "stroke" networks of the city to provide emergency endovascular care.

In the context of the pandemic, the 24-hour duty of the aviation medical helicopter brigades (AMB) of the TsEMP continued; unfortunately, for objective reasons, the scope of activity of the aviation medical service was limited during several months of the active spread of coronavirus infection. From January 1 to June 17, 2020, AMS medical specialists performed 81 flights; the reasons were: in 44% of cases – burns and injuries; in 66% of cases – somatic pathology.

The structure of flights of the TsEMP aviation medical teams from January 1 to July 1, 2020: patients with acute trauma and burns – 36 (44.0%); with acute coronary syndrome – 23 (16.0%); with acute impairment of cerebral circulation – 25 (31.0%); other reasons – 7 (9.0%).

When comparing the number of calls of the TsEMP aviation medical teams in 2020 with the same period of previous years, we can note a negative trend, partly confirming the concern of WHO experts about the decrease in the provision of medical care to patients with noncommunicable diseases [4]. Thus, compared with 2018 and 2019 the number of flights over the same time period in 2020 decreased by 66 and 73%, respectively. Such dynamics are explained not so much by a decrease in the number of hospitalizations for non-infectious pathologies, but by the redistribution of resources of the TsEMP medical personnel from helicopter teams to specialized resuscitation vehicles equipped with everything necessary to provide emergency specialized, including high-tech, medical care using modern artificial ventilation devices (IVL), extracorporeal membrane oxygenation (ECMO), defibrillators, perfusers, sealed transport boxes BIO-BAG for long-term transportation of patients.

In accordance with MHD orders on working with patients with COVID-19, the TsEMP medical teams work using personal protective equipment (PPE) – special protective suits – in compliance with all anti-epidemic safety standards [3]. Unfortunately, this does not provide 100% protection in case of contact with a highly contagious virus, so the risk of infection of medical personnel remains quite high. After a visit, the car undergoes special treatment, and the medical

staff leaves the "dirty" area of the hospital or observation, leaving PPE there. According to MHD order, every week all the TsEMP personnel undergo examination (pharyngeal smears, blood test for IgG) to exclude infection with SARS-CoV-2. Strict adherence to anti-epidemic measures that prevent the spread of infection naturally increases the amount of time spent by medical teams on each trip – as a rule, it takes at least 2.5 hours to complete a visit.

In the context of the COVID-19 pandemic, only the well-coordinated work of all structures of Moscow health care under the MHD guidance, constant interaction between hospitals, outpatient clinics, diagnostic centers, emergency medical services and the Disaster Medicine Service can successfully oppose the spread of the new coronavirus infection. The mortality rate from SARS-CoV-2 for June 2020 – 1.5% – one of the lowest in the world – serves as an evidence of the effective operation of the Moscow health care system. However, the pandemic has not ended, and although the COVID-19 vaccine elaboration is on the clinical trials stage, all the MHD structures are on high alert. During the pandemic, the TsEMP medical teams continue to carry out the full scope of work to provide medical care and to ensure the medical evacuation of those injured in emergencies and of emergency somatic patients, as well as the medical evacuation of severe patients with COVID-19.

#### REFERENCES

1. Profilaktika, Diagnostika i Lechenie Novoy Koronavirusnoy Infektsii COVID-19. Vremennye metodicheskie rekomendatsii Minzdrava Rossii. Versiya 7 ot 03.06.2020 = Prevention, Diagnosis and Treatment of the New Coronavirus Infection (COVID-19). Temporary Methodical Recommendations of the Russian Ministry of Health. Version No. 7 June 3, 2020 (In Russ.).
2. COVID-19 Coronavirus Pandemic – View by country: URL: <https://www.worldometers.info/coronavirus/#countries>.
3. URL: <https://mosgorzdrav.ru/ru-RU/document.html> (In Russ.).
4. URL: <https://www.who.int/ru/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>.

#### СПИСОК ЛИТЕРАТУРЫ

1. Профилактика, диагностика и лечение новой коронавирусной инфекции (COVID-19): Временные методические рекомендации Минздрава России. Версия 7 от 03.06.2020.
2. COVID-19 Coronavirus Pandemic – View by country: <https://www.worldometers.info/coronavirus/#countries>.
3. Сайт Департамента здравоохранения города Москвы: <https://mosgorzdrav.ru/ru-RU/document.html>.
4. Сайт Всемирной организации здравоохранения: <https://www.who.int/ru/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>.

*Материал поступил в редакцию 14.10.20; статья поступила после рецензирования 23.11.20; принята к публикации 30.11.20*

*The material was received 14.10.20; the article after peer review procedure 23.11.20; the Editorial Board accepts the article for publication 30.11.20*