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Creation and Establishment of the State Emergency Medical Services and Disaster Medicine Services in Russia (to the 100th Anniversary of the N.V. Sklifosovsky Research Institute for Emergency Medicine)

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ABSTRACT After the October Revolution of 1917, the creation of the state healthcare and medical education system in the country played a decisive role in the organization of emergency medical services (EMS) in Moscow on the basis of the former Sheremetev Hospital which later became a large multidisciplinary medical institution — N.V. Sklifosovsky Institute of Emergency Medicine (since 1943 — N.V. Sklifosovsky Research Institute for Emergency Medicine), — and the city EMS station as a part of it.

In the pre-war period, the working out of the main principles for the EMS provision was critically important for the development of the services. It became possible to solve scientific and methodological problems related to the training of specialists. The Institute grew into a large institution, research in the field of emergency medicine was carried out at the world level. This contributed to the organization of a network of EMS institutions in the country during 1926–1935.

The years of the Great Patriotic War of 1941–1945 enriched the practice of providing emergency medical care, including during mass patient admission.

In the post-war years (1946–1970s), the Institute became the leading institution on the problems of EMS in the country. Corresponding divisions were created within the Institute, and on its basis — "Emergency Medicine" scientific and practical association, research and organizational structures of the USSR Ministry of Health, the RSFSR Ministry of Health and the USSR Academy of Medical Sciences. Thanks to this, outstanding results were achieved in the EMS organization: the specialty of "emergency medicine physician" was introduced; emergency hospitals were created in a number of the country's regions; government programs for EMS provision were successfully implemented; a large number of regulatory documents were prepared to facilitate the further EMS development.

N.V. Sklifosovsky Research Institute for Emergency Medicine was among the main initiators of the disaster medicine service, which made it possible to fundamentally solve its organizational and technical problems. Thus, a significant contribution was made to the foundation of this service in Moscow and around the country.

At the current stage (from 1992 to the present), EMS improvement has been continued, many developments turned out to be relevant for this services in the Russian Federation. In particular, the created structure of the Institute's admission and intensive care unit remained the flagship among emergency care institutions in the country for about 20 years. The state program "Improving medical care for road accident victims" was successfully implemented. The Institute's departments are being actively specialized, making it possible to obtain fundamentally new scientific and practical results for widespread implementation.

Since 2011, "Scientific achievements in the field of emergency medical care in the Russian Federation" - collections of research works - have been published annually. The information presented in them can be used throughout the country.

The experience in treatment for the novel coronavirus infection COVID-19 allowed the Institute to begin a new page in the history of emergency medical services.

The recent opening of an emergency inpatient complex at the Institute contributed to optimizing the work of the hospital's resuscitation and intensive care units and expanding their treatment and diagnostic capabilities.

For more than 10 years, the public and consolidating activities of the scientific and practical society of emergency medicine specialists have been effective. Its work primarily concerns the organization and conduct of scientific and practical events, especially congresses of emergency medicine physicians, as well as the publication of Sklifosovsky Journal Emergency Medical Care, which has unifying significance for a large number of Russian specialists in the field of EMS. The decisions made at the congresses and conferences became the basis for expanding the introduction of advanced medical technologies in the Russian regions, as well as for carrying out important structural reforms in EMS institutions.

One of the main achievements of the N.V. Sklifosovsky Research Institute for Emergency Medicine is the creation of the state EMS as a separate branch of healthcare in the country. Over the 100 years of the Institute's activity, the foundations of its theory and practice have been developed, moreover, a contribution of world significance was made to the EMS development, thereby strengthening the scientific foundation for the activities of the Institute for many years to come.

Keywords: history of medicine, emergency medical care, N.V. Sklifosovsky Research Institute for Emergency Medicine

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EMS - emergency medical service
EMSH - emergency medical service hospital
FC - flagship center
EMC - emergency medical care

INTRODUCTION

One of the main achievements of the N.V. Sklifosovsky Research Institute for Emergency Medicine is laying down the foundations of the theory and practice of the state emergency medical service (EMS) as a separate branch of healthcare, which affected both the pre-hospital and hospital stages of its provision in the country.

Until 1917, EMS existed only in 6 cities of the Russian Empire: Moscow, St. Petersburg, Warsaw, Kyiv, Odessa and Kharkov. For emergencies, large city hospitals treated patients. However, medical care in them was insufficiently qualified; in addition, there was a common shortage of medical personnel, premises and beds [1].

In Moscow at that time, EMS also did not cover the entire city. In 1898–1902, only 7 EMS stations were opened at police stations using charitable funds, and medical care was free of charge [2]. At the beginning of the twentieth century, they began to be partially financed from the funds of the City Duma [3].

In 1908, due to the growing needs of the city, on the initiative of prof. P.I. Dyakonov, the Voluntary Ambulance Society was established with the involvement of private capital. However, due to a lack of funds, only in 1912 was it possible to create the Central EMS station on Dolgorukovskaya street. With the outbreak of World War I, all EMS stations in Moscow stopped working [4].

Nevertheless, in April 1917, the secretary of the Voluntary Ambulance Society G.F. Melenevsky submitted a report to the city government with proposals for organizing EMS in Moscow. Interestingly, it was also planned to create a "clinical experimental institute" at the station "for the scientific study of pathology and therapy of traumatic injuries, poisoning and sudden diseases in general" [5].

The Sheremetev Hospital was primarily engaged in providing qualified medical care to the poor thanks to the charitable activities of the Hospice House. However, due to wartime and lack of funds, by 1917 the hospital's bed capacity was reduced to 40 beds [6]

After the October Revolution of 1917, the creation of the state-run healthcare system and medical education in the country played a decisive role in organizing effective medical care for the population [7]. However, for two years, until 1919, there was no EMS in Moscow. At this time, the Sheremetev Hospital was also closed. It resumed its activities only in 1919, but already as the state City Hospital No. 27, headed by surgeon G.M. Gerstein, who

organized round-the-clock emergency medical care in the hospital for sick and injured people who were brought here from all over Moscow.

In turn, EMS formation began in the same 1919, even before the organization of the N.V. Sklifosovsky Research Institute for Emergency Medicine (the Institute), with a memo from the Moscow Post Office doctor V.P. Pomortsov, and taking it into account, the board of the Medical and Sanitary Department of the Moscow City Council chaired by N.A. Semashko decided to organize a city EMS station in Moscow on the basis of the Sheremetev Hospital as the most suitable for this purpose [2, 4]

In the "Basic provisions on the Moscow EMS station", developed by V.P. Pomortsov, it was proposed to separate emergency care into an independent branch of medical science and practice and, again, to create a special institution to develop its theoretical and practical issues. Federal status, free-of-charge basis and general availability were the main principles of the Moscow station's work which began on October 15, 1919 in the premises of the Sheremetev Hospital under the leadership of V.P. Pomortsov. However, since 1920, due to the illness of V.P. Pomortsov, A.S. Puchkov became actively involved in the affairs of the station. A.S. Puchkov came from the ranks of the Red Army and organized the Central Point for the Transportation of Patients – Tsentropunkt, which worked closely with the station; in 1922, A.S. Puchkov was appointed its chief. In 1923, Tsentropunkt became part of the EMS station as its department for transporting patients.

As a result, since 1919, the Sheremetev Hospital began to function as the city emergency hospital in close contact with the central city EMS station (Fig. 1, 2) [2–4].

Fig. 1. V.P. Pomortsov

Fig. 2. A.S. Puchkov

PRE-WAR PERIOD

In the new health care conditions, creating in Moscow a large multidisciplinary medical institution in which patients with acute diseases and victims of injuries could be concentrated became a very important task. This was necessary in order to study acute diseases and injuries in depth, and develop the best methods for their diagnosis and treatment [8].

State support, hiring of the best specialists, convenient location, the availability of opportunities to expand the bed capacity and the well-functioning EMS station constituted a ground for the opening of the Institute of Traumatology and Emergency Care named after N.V. Sklifosovsky (since 1943 - N.V. Sklifosovsky Research Institute for Emergency Medicine) (Decree No. 315 of the Moscow

Health Department of July 23, 1923) on the basis of the Sheremetev Hospital. The new institute was given tasks related not only to the development of methods for diagnosing and treating acute diseases and injuries, but also of a scientific and methodological nature concerning the training of specialists in the field of emergency care [3, 4].

The creation of the first Institute for Emergency Medicine in the USSR with the city EMS station included in its structure quickly led to positive results: if in 1924 1,783 patients were treated at the Institute, then in 1926 - already 5,000 [9, 10].

The further development of EMS was associated with the implementation of the principles of its activities formulated by its first leaders - V.P. Pomortsov and A.S. Puchkov. Prepared by A.S. Puchkov, together with the staff of the Institute, the All-Union Regulations "On Ambulance Stations" (1927), which determined the structure of the station, its staff, tasks, volume, as well as operating procedures and equipment, contributed to the organization of a network of EMS institutions in Moscow and the country in 1926–1935.

A.S. Puchkov played a special role in organizing the pre-hospital stage of EMS. A major healthcare organizer, he was in charge of the Moscow EMS station until 1952. He re-developed the rules and documents regulating EMS activities: accounting books, call forms, sheets for recording the operation of vehicles, etc. Of particular importance was the introduction of an accompanying sheet, returned back from the hospital and serving to monitor the correctness of the diagnosis of emergency doctors, which is still used by all ambulance stations. And a few years after its introduction, the entire out-of-hospital network began using so-called "exchange cards" modeled after A.S. Puchkov's accompanying sheet. He also created a system for monitoring the state of the city's bed capacity. In 1924, A.S. Puchkov introduced a position of senior doctor on duty at the EMS station and developed the status of this position. In 1926, A.S. Puchkov was the first to organize an emergency service for those suddenly ill at home, which had no analogues in the world. In 1927, he created a new emergency psychiatric care service, which was also a global priority in organizing the work of emergency medical services.

A.S. Puchkov also dealt with such important issues of the prehospital stage as problems of splinting and transport immobilization, care for burns and bleeding, poisoning, as well as early diagnosis of acute diseases of the abdominal cavity and other emergency conditions.

It is important that A.S. Puchkov was the first in the country to raise the issue of the role of EMS in preventing accidents, substantiating the need for prophylactic measures of the EMS station to eliminate the causes of accidents and catastrophes, road accidents and domestic injuries. He introduced a number of improvements and rational devices that made it possible to significantly improve the technical equipment of the station and rolling stock, increase the pace and quality of emergency care, and thereby protect many aspects of the life of the urban population [5]. Undoubtedly, A.S. Puchkov is rightfully one of the main creators and reformers of the prehospital stage of EMS.

The fact that the N.V. Sklifosovsky Research Institute for Emergency Medicine included the EMS station played a positive role. This contributed to the rotation of highly qualified medical personnel at the prehospital and hospital stages, the joint use of the latest equipment and diagnostic technologies of the time, as well as continuity in tactics and treatment at these two stages of providing ambulance and emergency medical care to the population.

Meanwhile, the organizational foundations of emergency surgical care in the hospital were formed, for which much of the credit belongs to the first chief surgeon of the Institute, V.A. Krasintsev – a student of N.V. Sklifosovsky, – as well as S.S. Yudin, his students D.A. Arapov, B.A. Petrov and others. At the same time, under the leadership of V.A. Krasintsev, its basic principles were formulated: qualified surgical assistance at any hour of the day, unity in diagnosis, establishing indications, methods and techniques of surgeries, tactics of postoperative management of patients [8]. Adherence to these principles, which can be considered the forerunner of emergency medical standards used today, yielded significant results: the activity of the Surgical Department significantly expanded. By the beginning of the 1930s, it grew from 220 to 425 beds, and in 1932, the Trauma Department, headed by V.V. Gorinevskaya, with 275 beds separated from its composition. Moreover, the overall mortality rate at the Institute decreased from 17.5% in 1931 to 5.0% in 1937 [11].

S.S. Yudin also actively promoted the training of polyvalent surgeons, which turned out to be very valuable during the Great Patriotic War (Fig. 3, 4) [12].

The Institute's director P.N. Obrosov (1927–1931) did a lot for its effective work. He determined the characteristic features of the functioning of the emergency hospital - a huge number of emergency operations at any time of day or night, exceptionally heavy surgical material, rapid bed turnover, and the need to always be ready for immediate admission of a large number of patients. He also made a great contribution to the reconstruction of the Institute and its material equipment. In his opinion, in order for the Institute to successfully cope with its tasks, providing immediate assistance not only in case of isolated accidents, but also in case of mass disasters, it needed appropriate premises – an admission room of a special nature, corresponding to the tasks of the Institute, an operating building, expansion of the hospital, special equipment and supplies, increase in the number of vehicles. Special requirements were imposed on the selection of personnel; it was proposed to establish benefits

for them, and search for staff appropriate to the nature of the Institute's work. The Institute's activity was also supposed to be coordinated with the Military Sanitary Department and Moscow University [13]. All these organizational innovations were extremely important for further improving its structure and developing criteria for material and technical support, and staffing of the civil service of EMS in the near future (Fig. 5).

Fig. 3. V.A. Krasintsev

Fig. 4. S.S. Yudin

Fig. 5. P.N. Obrosov

As a result of the efforts of the outstanding specialists in the 1930s, the Institute grew into a large medical, scientific and educational institution, remaining for many years an example of the emergency medical structure in the country. Even then, scientific research in the field of urgent medicine was carried out here at the world level. The order of the People's Commissariat for Health No. 155 dated March 10, 1935 states that the Institute "has achieved enormous success in research and practical work over the past period, which has ensured it wide popularity not only in the USSR, but also abroad. The Institute conducted a number of very valuable research on traumatology, the treatment of perforated ulcers, and the development of methods for transfusion of cadaveric blood, which were a serious contribution to world science and at the same time of great defense importance." The results obtained were widely published [8].

Subsequently (1935–1941), state provision of EMS to the population expanded, due in particular to the adoption of regulations for the provision of first aid in emergency conditions, developed by the People's Commissariat for Health based on proposals from the Institute and the EMS station. By 1940, the Moscow EMS station included 6 substations, performing the functions of the All-Union Methodological Center. And in 1940, it was separated from the Institute into an independent institution, but with the maintenance of scientific, methodological and practical interaction with the Institute [4, 14].

On the basis of the Institute, training of personnel for the needs of emergency care also began. This process was carried out at three departments of the Central Institute for Advanced Medical Training: the Department of Emergency and Military Field Surgery (head: S.S. Yudin), which trained specialists who could quickly make a diagnosis and operate well on patients with various diseases and traumatic injuries, Department of Emergency Therapy (head: A.N. Kryukov), which developed the problems of diagnosis and treatment of acute circulatory disorders in various internal diseases, myocardial infarction and its complications, acute poisoning and other emergencies, and the Department of Military Field Traumatology (head: V. V. Gorinevskaya), where students and doctors from all over the country were trained [5].

YEARS OF THE GREAT PATRIOTIC WAR (1941–1945)

During these years, the N.V. Sklifosovsky Research Institute for Emergency Medicine remained the only medical institution to provide ambulance and emergency care to residents of the capital. Two departments for treating the wounded were also opened here. Many of the Institute's doctors and paramedics went to the front, and their experience was in high demand in front-line situations [15] and in the work of medical institutions in the rear.

Despite all the difficulties of wartime, scientific research continued at the Institute. In 1941, books by S.S. Yudin "On the treatment of military wounds with sulfonamide preparations", "Notes on military field surgery" (parts 1–2), and in 1942 - "On the treatment of gunshot fractures of the limbs" (co-authored with B.A. Petrov) were published. In 1940, based on the experience of the Soviet-Finnish war, D.A. Arapov published the monograph "Gas Infection", and in 1942 - "Gas Gangrene", which went through several editions and became mandatory for military surgeons. S.S. Yudin himself and students of his scientific school, D.A. Arapov, B.A. Petrov and A.A. Bocharov, occupied major leadership positions in the military medical service of that time.

POST-WAR YEARS (1946–1970S)

At this time, the restoration of EMS in the country was taking place, and new forms of organization and work were being searched for. In this regard, the Institute created: the Organizational and Methodological Department, part of the Trauma Center; Methodological Center for Emergency Care, and Department of Statistics. The Institute became the leader on the problems of emergency care in the USSR and Moscow (Order of the Ministry of Health of the USSR No. 525 dated August 14, 1946, obliging the director of the N.V. Sklifosovsky Research Institute for Emergency Medicine to annually develop and analyze the state of emergency services for the population of the USSR; regulations of the Moscow City Health Department dated April 13, 1949); and, as a result, the Department for Organizing Emergency Services appeared in the Institute (1968–1970s). The Institute's groundwork contributed to the issuance of Order No. 570 of the USSR Ministry of Health dated December 23, 1961, which played a fundamental role in the development of EMS. According to this order, it was prescribed to create appropriate conditions for the placement and operation of ambulance and emergency care stations and departments and equip them accordingly. It was also provided for organizing of radio communications between EMS stations and ambulances, and establishing of direct telephone communications between ambulance and emergency medical care stations and medical institutions. At the polyclinics, it was required to organize round-the-clock emergency departments, to create centers for combating thromboembolic diseases and terminal conditions in republican centers, large regional cities, and also, most importantly, allocate special vehicles for providing specialized medical care. Particular emphasis was placed on the need to organize training for doctors of various specialties in all institutes for advanced training of doctors according to a special program using as training bases the N.V. Sklifosovsky Research Institute for Emergency Medicine and I. I. Dzhanelidze Research Institute of Emergency Medicine.

The order also provided for the creation of scientifically based standards for the need for emergency medical care to the population and staffing standards, improving the designs of ambulances and developing projects for EMS station buildings. In connection with the entry into force of this order, specialized departments were organized within the structure of the Institute: for emergency neurosurgery, treatment of acute poisoning, anesthesiology, emergency surgery of the thoracic cavity, prevention and treatment of purulent complications in surgery, combined and multiple trauma, endoscopic research group and laboratory of acute hepatic-renal failure; surgical departments became specialized; general intensive care units and intensive care units for surgical patients were created. In the 1970s, the N.V. Sklifosovsky Research Institute for Emergency Medicine also played a leading role in training personnel for EMS: the USSR Ministry of Health issued Order No. 471 dated May 11, 1976, prepared by the Institute, on the introduction of the specialty "emergency doctor", thanks to which the status of emergency doctors significantly changed, conditions were created for the constant improvement of their qualifications and the quality of their work.

LEADING THE DEVELOPMENT OF SCIENTIFIC AND ORGANIZATIONAL PROBLEMS OF EMS

The accumulated experience and personnel potential allowed the Institute to become the leading institution for scientific and institutional framework development at all the levels of EMS. To do this, under the leadership of its Director B.D. Komarov, the reorganization of existing scientific departments and the creation of new scientific and auxiliary departments began. A great role in this process belonged to Deputy Director for Scientific Work A.P. Kuzmichev, a student of academician B.V. Petrovsky. To solve scientific problems of emergency care, the Scientific Department for the Organization of Emergency Medical Care was also created (headed by Doctor of Medical Sciences E.A. Kustova) with 3 laboratories - organization and planning of emergency out-of-hospital care, organization and planning of inpatient and specialized care and staffing regulation, and psychophysiological studies of the work of emergency medical workers.

At the same time, the Institute created the Scientific Department for the Application of Economic and Mathematical Methods in EMS (headed by Doctor of Technical Sciences I.M. Beskrovny) with 6 laboratories in its composition.

These departments carried out a large amount of research to develop the scientific foundations for the organization, management and planning of emergency medical care not only in Moscow, but also in the country as a whole. Moreover, the issues of the prehospital stage of emergency medical care - the organization of emergency out-of-hospital care, its volume and nature in cities of different types, as well as the planning of EMS - were studied in detail.

Methods for managing EMS, based on economic and mathematical calculations, with determining the optimal number and capacity of EMS substations, their location, objectifying priorities in serving different categories of patients and victims, as well as criteria for assessing its condition, quality and efficiency were also developed.

Advanced training of doctors and paramedical personnel was organized on the basis of breakthrough technologies.

During these same years, the Institute prepared the Regulations on the EMS Hospital (EMSH), the organization of which was provided for by the resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR "On measures to further improve healthcare and develop medical science in the country" No. 517 dated July 5, 1968, and Order of the USSR Ministry of Health No. 608 dated June 8, 1968. The regulations provided for the organization of EMSH in cities with a population of over 300 thousand people. In cities with a population of 300 to 500 thousand people and from 500 to 1 million people, EMSHs are deployed with 560 and 800 beds, respectively. In cities with a population of over 1 million people, hospitals of this type are organized with 800 and 1200 beds. In cities with a population of 300 to 500 thousand people, the intensive care unit of the EMSH is deployed with 6 beds, and with a population of over 500 thousand people, the number of intensive care beds is determined at the rate of 0.12 beds per 10 thousand inhabitants. In the therapeutic, surgical, traumatology and neurosurgical departments, intensive observation and treatment rooms are organized (10–12% of the departments' bed capacity). When several EMSHs are organized in these cities, the resolution of the executive authorities specifies the forms of interaction between them and EMS. The fundamental materials developed within the walls of the Institute on the organization of EMS stations and EMSHs, their material and technical equipment, methods of providing assistance, personnel training, research methodology found wide application throughout the country and are relevant to this day.

In order to accelerate the implementation of scientific recommendations in healthcare practice, by decision of the board of the USSR Ministry of Health No. 19 of June 17, 1976, and by order of the Main Directorate of Health Care of the Moscow City Executive Committee No. 39 of July 8, 1976, the scientific and practical association "Emergency Medical Care" was created including the N.V. Sklifosovsky Research Institute for Emergency Medicine (headquarters), a number of city hospitals and the Moscow City EMS station. The association was entrusted with the functions of the All-Union Scientific and Methodological Center for Ambulance and Emergency Medical Care, the main goal of which was to optimize the management of the service. The association was headed by B.D. Komarov, Director of the N.V. Sklifosovsky Research Institute for Emergency Medicine (Fig. 6).

Fig. 6. Meeting of the management team of the SPO Emergency Medical Care. The chairman is B.D. Komarov, Corresponding Member of RAS

At this stage, in order to resolve newly emerging organizational issues, it was extremely important to create two Scientific Councils - “Scientific principles of organizing emergency medical care” under the Academic Medical Council of the Ministry of Health of the RSFSR, and “Emergency Medical Care” - under the Presidium of the USSR Academy of Medical Sciences (decision of the board of the USSR Ministry of Health dated July 23, 1977).

By Order of the Ministry of Health of the RSFSR No. 475 of September 15, 1976, the Scientific Council on Emergency Care was created under the Academic Medical Council of the Department of Research Medical Institutions of the Ministry of Health of RSFSR, and the Institute was designated as the lead in the development of scientific recommendations concerning EMS and personnel training for EMS in Russia. Director of the Institute B.D. Komarov was appointed its chairman. The Scientific Council included 5 problem commissions: “Scientific Foundations of the Organization of Emergency Medical Care” (headquarters: N.V. Sklifosovsky Research Institute for Emergency Medicine, chairman: P.M. Isakhanov, Candidate of Medical Sciences); “Resuscitation and Anesthesiology” (headquarters: Moscow Dental Institute, chairman: Prof. V.N. Aleksandrov); “Prevention and Treatment of Acute Poisoning” (headquarters: N.V. Sklifosovsky Research Institute for Emergency Medicine, chairman: Prof. E.A. Luzhnikov); “Burn Disease” (headquarters: Gorky Research Institute for Traumatology and Orthopedics, chairman: Prof. M.G. Grigoriev); “Shock and Collapse” (headquarters: Leningrad Research Institute of Emergency Medicine named after I.I. Dzhanelidze, chairman: Prof. M.P. Gvozdev).

By Decree of the Presidium of the USSR Academy of Medical Sciences No. 95 of March 22, 1978, the Interdepartmental Scientific Council on Emergency Medical Care was also created, with the N.V. Sklifosovsky Research Institute for Emergency Medicine as the head institution, and its chairman - B.D. Komarov. The Interdepartmental Scientific Council included 3 problem commissions: “Scientific Foundations of Resuscitation” (chaired by Academician of the Russian Academy of Medical Sciences V.A. Negovsky), “Scientific Foundations of Organizing Emergency Medical Care” (chaired by Candidate of Medical Sciences P.M. Isakhanov), and “Acute Poisoning” (chaired by Prof. E.A. Luzhnikov).

Both the Republican, and the Interdepartmental Scientific Councils, in addition to actively coordinating scientific research and the work of EMS and EMSHs, conducted analytical work, prepared scientifically based proposals for improving the organization and provision of emergency care to the population of the USSR.

New forms of organizing and conducting scientific work required changing the structure of the Organizational and Methodological Department at the Institute. The Organizational and Methodological Department at that time was headed by Candidate of Medical Sciences A.V. Rumyantseva, and mainly solved the problems of Moscow: developed a system for merging emergency and first aid points in the capital, regulations on specialized mobile teams of ambulance stations, etc.; prepared advanced training programs for ambulance and emergency doctors for linear and specialized mobile teams in Moscow; and organized classes for cadets of the Central Institute for Advanced Medical Training, clinical residents and interns; developed curricula, and held scientific and practical conferences for emergency doctors.

To fulfill the new tasks that arose with the organization of the scientific and practical association “Emergency Medical Care” and the Scientific Councils on EMS problems, a powerful department was required, capable of carrying out scientific, methodological and organizational work on a larger scale, as well as conducting scientific research aimed at improving the forms and methods of planning and coordinating scientific research, identifying priority areas. In this regard, in 1977, the Organizational and Methodological Department was reorganized into the Scientific and Organizational Department, and in 1978, Doctor of Medical Sciences T.N. Bognitskaya was invited to the position of its head. The Department created groups for coordinating and planning research work on ambulance, emergency surgery, introducing research into the practice of EMS, educational and methodological work, planning research work of the Institute and special topics, scientific and medical information, and patent and medical activities, international communications, and editorial team. The Department included a medical library, and a film and photo laboratory (Fig. 7).

Fig. 7. Working meeting of the scientific and organizational department chaired by prof. T.N. Bognitskaya

The Department worked closely with the Ministries of Health of the USSR and the RSFSR, and the Academy of Medical Sciences.

LEADING AND COORDINATING ACTIVITIES OF THE N.V. SKLIFOSOVSKY RESEARCH INSTITUTE FOR EMERGENCY MEDICINE IN THE IMPLEMENTATION OF TWO STATE PROGRAMS FOR EMS

Until 1987, the Institute coordinated specialized research work in the Russian Federation and exercised regular control over their implementation. Every year, visiting plenums of the Scientific Council and problem commissions were held in various cities of Russia, which provided an opportunity to become more familiar with the work of EMS and learn new things. This also stimulated research and contributed to improving the quality of specialist training.

Among other things, the Institute oversaw the preparation of the comprehensive program “Emergency care and resuscitation for emergencies and trauma,” which, before being considered by the USSR Academy of Medical Sciences, went through several stages of discussion, and as a result the State Industry Program was developed with the General Director – B.D. Komarov, director of the leading N.V. Sklifosovsky Research Institute for Emergency Medicine. The program was carried out by 44 scientific and practical institutions of the USSR, the work of which was coordinated by the Interdepartmental Scientific Council. It included five subprograms covering the organization of emergency medical care and its provision in case of traumatic injuries, emergency surgical conditions, burns and acute exogenous poisoning.

The N.V. Sklifosovsky Research Institute for Emergency Medicine, ensuring the implementation of this program, ultimately provided unified national leadership for the implementation of urgent tasks on the problem of “Emergency Medical Care”.

At the same time, there was an active exchange of experience with specialists from other countries, whose heads of EMS showed great interest in the experience of their Soviet colleagues. For this purpose, with the participation of the Institute, international conferences were organized in Bucharest (1971) and Berlin (1972), where they exchanged experience in organizing the work and continuity of mobile ambulance teams and the hospital in case of road traffic accidents.

In addition, in accordance with cooperation agreements with institutions in Germany, Bulgaria, the Czech Republic, Italy and England, as well as within the framework of the Council for Mutual Economic Assistance (CMEA), joint scientific work was carried out on planned topics, including the exchange of specialists.

The main areas of cooperation were the development and improvement of methods for diagnosing and treating mechanical and burn trauma, myocardial infarction, acute poisoning, the use of laser technology in emergency and planned surgery and endoscopy, as well as improving EMS. In this regard, the opening of the Toxicological Center modeled after the Moscow one, operating at the N.V. Sklifosovsky Research Institute for Emergency Medicine, at the N.I. Pirogov Institute for Emergency Medical Care in Sofia (Bulgaria) was a significant event.

The results of the program research were effective and in many ways a priority, as they were protected by a large number of copyright certificates and patents, awarded the State Prize, and the USSR Academy of Medical

Sciences Prize named after Acad. A.I. Abrikosov, and many medals from the USSR Exhibition of Economic Achievements; based on them more than 60 dissertations were defended.

Moreover, specific principles and methods for zonal construction of EMS at the prehospital stage were developed, which made it possible to halve the time it takes for the EMS team to arrive to the patient after receiving a call, as well as significantly reduce the monthly mileage of EMS vehicles. Criteria for evaluating activities were developed and recommendations were scientifically substantiated for improving the organization of work of the structural units of the Moscow EMSHs, which contributed to a significant improvement in the quality of diagnosis and an increase in the capacity of the general intensive care units of these hospitals. A standard plan and program for one-year specialization (internship) for graduates of medical institutes in the specialty "Emergency doctor" was introduced, an interdepartmental program for training students of medical faculties in the course of EMS was developed and tested. A method for the treatment of severe traumatic shock based on the use of assisted circulation and hyperbaric oxygenation was developed; methods for rapid diagnosis and treatment of heart damage and pulmonary complications in severe combined trauma were developed; the leading mechanisms of gas exchange disturbances were identified, and pathogenetically substantiated methods for their correction were developed; risk factors for the development of acute respiratory failure in traumatic shock were established, indications for the use of various methods of mechanical ventilation were determined.

The introduction of new techniques made it possible to speed up the diagnosis of traumatic myocardial dystrophy, improve the results of its treatment due to a noticeable reduction in mortality and the incidence of complications; and the stay of victims in the intensive care unit was reduced. The development of complex means of rehabilitation in the early stages of treatment for combined and multiple injuries ensured a significant reduction in the incidence of bronchopulmonary complications and improved functional results of the therapy. Methods of endoscopic and laser photocoagulation for gastroduodenal hemorrhages were developed, allowing in 97% of cases to stop bleeding and in some cases to avoid abdominal surgery, reduce mortality by 2.4 times and treatment time – by 8–10 days. The developed method of stopping bleeding using temporary occlusion of the great vessels led to a decrease in postoperative mortality in the heaviest group of patients from 80 to 18%. The developed methods of organ-sparing surgeries made it possible to reduce mortality at the height of hemorrhage to 5.5, and to 0.65% in early planned operations, provided good functional results in 95% of cases, contributed to a reduction in the overall period of disability by an average of 1.6 months, and a sharp decrease in the number of cases of disability. The developed method of enteral correction of homeostasis disorders made it possible to improve the results of treatment of intensive care patients. Methods for applying anastomoses between the hollow organs of the gastrointestinal tract were created, in particular in case of acute intestinal obstruction, the use of which made it possible to reduce the incidence of anastomotic suture failure by 3 times compared to manual suture, and to eliminate purulent complications in open intestinal stoma. Detailed methods of surgical and conservative treatment for acute pancreatitis and its complications based on the use of intraportal infusions, hemo- and lymphosorption, ultraviolet irradiation of blood, and hirudotherapy were accompanied by a significant reduction in the frequency of complications of the purulent-necrotic form of pancreatitis, including arrosive bleeding by 3–8 times (up to 3–8%), purulent peritonitis by 7.7 times (up to 12.5%), portal vein thrombosis by 21 times (up to 1.5%), pulmonary embolism by 6 times (up to 3.2%), which ultimately led to a decrease in mortality for this pathology by 3.6 times (up to 18.7%). The introduction of more advanced methods of organizing the treatment for acute pancreatitis on the Leningrad scale made it possible to reduce the mortality rate for acute pancreatitis in the city from 5.5 to 3.6%, and according to the I.I. Dzhanelidze Research Institute of Emergency Medicine – up to 2.8-3.4%. The features of morphology in acute surgical diseases of the abdominal organs were determined, including features of resuscitation pathology, changes in the peritoneum in purulent peritonitis, complicated pancreatitis in conditions of pathogenetically directed treatment, which made it possible to reduce the number and severity of complications during the resuscitation and postoperative periods in surgical patients. For the first time, the possibility of intraoperative diagnosis of bacterial shock was obtained; thanks to the developed comprehensive program for providing emergency medical care for burn injuries, including mass admissions of victims, mortality decreased from 34 to 13.8%. New staff standards were justified to provide specialized medical care for acute exogenous poisonings, and their implementation made it possible to more than halve the mortality rate. A new structure and organizational principles for the work of the city poisoning treatment center, methods of surgical detoxification for acute exogenous poisonings and their combinations with intestinal lavage for use at prehospital and hospital stages were developed. At the prehospital stage, by the time

of hospitalization, this was manifested by a significant (25–50%) decrease in the concentration of toxic substances in the blood from the initial level, and made it possible to reduce mortality by 1.5 times; and in case of poisoning by hepatotropic poisons, to reduce mortality from acute liver failure by 2-3 times; the detoxification process and the incidence of complications were decreased. The work done also led to a significant reduction in the economic costs of treatment.

After the first State program in 1983, the development of the second one followed - "Developing and implementing highly effective methods of providing emergency medical care and resuscitation in emergency conditions", which was entrusted to the N.V. Sklifosovsky Research Institute for Emergency Medicine. The implementation of the program was to be ensured by 83 executing agents. The program included 5 subprograms: "Organization of emergency medical care", "Resuscitation care, diagnosis and treatment for injuries and emergency conditions", "Emergency surgery", "Thermal trauma" and "Acute exogenous poisoning", providing for the further development of topical issues of emergency medical care.

The work carried out by the lead institute culminated in the preparation and submission to the Ministry of Health of the RSFSR of numerous basic and related documents, of which the most important were the following:

1. Regulations on the problem scientific center (PSC) of EMS.
2. The structure of the PSC as part of sections for the organization of EMS, anesthesiology, resuscitation in emergency conditions, emergency surgery, combined and multiple trauma, emergency cardiology, acute exogenous poisoning, neurosurgery (emergency and planned); the personal composition of the sections was determined, which in general constituted the council of experts of the EMS PSC.
3. Composition of the PSC coordination council.
4. Composition of institutions of the EMS PSC and implementing institutions.
5. General concept of a radical solution to specialized problems of emergency medical care.

In general, the main results of the completed research contributed to the improvement of EMS. These included the development of a system of differentiated clinical care for patients with various acute pathologies - myocardial infarction, musculoskeletal trauma, acute poisoning, arterial ischemia of the lower extremities, perforated gastroduodenal ulcers, which is a complex of diagnostic, treatment and preventive measures, necessary and sufficient for a specific stage of medical examination. The Institute also actively contributed to the introduction at the prehospital and hospital stages of EMS of such modern effective technology as thrombolysis for acute myocardial infarction (Academician A.P. Golikov) [16]. In addition, proposals were made to improve the organizational forms of clinical examination, and clinical observation cards were developed. This made it possible to generally reduce disability by 10–15%, prevent the development of complications in 40–50% of cases, reduce the period of temporary disability, and lower the cost of outpatient treatment by 18–20%. Conditional economic efficiency as a result of work carried out only at the N.V. Sklifosovsky Research Institute for Emergency Medicine amounted to 150,000 rubles per year.

As a result of the second program, 73 scientific topics were completed, 5 doctoral and 21 candidate dissertations were defended, certificates were received for 16 inventions, 2 VDNKh diplomas, 27 methodological recommendations, 4 monographs and 275 articles were published, and 3 orders were prepared (2 - the USSR Ministry of Health and 1 - Ministry of Health of the RSFSR).

During this period, on the basis of Resolution of the Presidium of the USSR Academy of Medical Sciences No. 372 of October 15, 1986, a new composition of the Scientific Council on the problems of emergency medical care and problem commissions was formed. The head institution of this Scientific Council (No. 18), which successfully worked up to the reorganization of the system of the Academy of Sciences of the Russian Federation, was again determined to be the N.V. Sklifosovsky Research Institute for Emergency Medicine, and the Institute's director, Prof. V.G. Teryaev, was approved as its chairman.

The Scientific Council included three problem commissions: "Scientific foundations of organizing emergency medical care" (head institution - Research Institute for Complex Problems of Hygiene and Occupational Diseases of the Siberian Branch of the USSR Academy of Medical Sciences, chairman - Prof. T.M. Tavrovsky); "Scientific foundations of resuscitation" (head institution - Institute of General Reanimatology of the USSR Academy of Medical Sciences, chairman - Prof. L.G. Shikunova); and "Acute poisonings" (head institution - N.V. Sklifosovsky Research Institute for Emergency Medicine, chairman - Prof. E.A. Luzhnikov). Since 2003, the new structure of the Council (chaired by director of the N.V. Sklifosovsky Research Institute for Emergency Medicine, Corresponding Member of the Russian Academy of Medical Sciences, Prof. A.S. Ermolov) already included 4

problem commissions: “Emergency Cardiology” (chaired by Academician of the Russian Academy of Medical Sciences A.P. Golikov); “Scientific Fundamentals of Resuscitation” (chaired by Corresponding Member of the Russian Academy of Medical Sciences S.F. Bagnenko); “Acute poisoning” (chaired by Corresponding Member of the Russian Academy of Medical Sciences E.A. Luzhnikov); and “Combined and multiple trauma” (chaired by Prof. V.A. Sokolov). Research was carried out in 30 scientific institutions, and the results were 7 patents for inventions, 12 monographs, manuals and textbooks, more than 800 journal publications; 53 dissertations were defended - 9 doctoral and 44 candidate dissertations.

The Scientific Council continued to coordinate research on problems of Union and republican significance, carried out expert assessment and selection of the most important proposals for inclusion in the all-Union long-term plan for introducing the most important achievements of medical science into health care practice, and monitored the implementation of their results and updating of methodological materials.

At the same time, in the field of cardiology, interventional endovascular methods (coronary artery stenting, coronary balloon angioplasty), and methods of surgical myocardial revascularization were extensively used. A diagnostic algorithm for determining acute coronary pathology in diseases of the cardiovascular system was developed.

In the field of resuscitation, an in-depth study of the mechanisms of traumatic brain injury was carried out, drug therapy for acute renal and hepatorenal failure was improved, and significant results in the treatment for traumatic shock were achieved.

The features of the diagnosis and treatment of combined poisonings were studied, toxicological monitoring of the prevalence and structure of acute poisonings and modern methods of their emergency diagnosis (chemical and toxicological, instrumental ones) were introduced, the information and advisory service for this pathology was improved, and the training of doctors in clinical toxicology was expanded.

More effective surgical tactics for the treatment of peri- and intraarticular polysegmental fractures were proposed. For the first time, the manifestations of mutual aggravation syndrome were established, its scientific definition was given, and treatment tactics were optimized taking into account new information. New approaches to the treatment of combined trauma were identified, and attention was drawn to its social nature associated with high mortality rate, especially at the prehospital stage. This required government authorities to make legislative, administrative and organizational decisions.

Thanks to the activities of the Scientific Councils, a large number of orders of the Ministry of Health of the USSR, the Ministry of Health of the RSFSR and the Ministry of Health of the Russian Federation, as well as other regulatory documents were prepared that contributed to the further development of EMS.

The scientific and organizational experience accumulated by the Institute in the field of EMS was summarized in a number of major works, in the preparation of which its leading specialists took part [5, 17–19].

ESTABLISHMENT OF THE DISASTER MEDICINE SERVICE

The occurrence of large-scale emergencies with large casualties and the absence in the country's healthcare system of a single body for managing the planning and organization of liquidation of their health consequences required the creation of special units to provide emergency medical care (EMC) in case of mass injuries. Prof. V.G. Teryaev, Director of the N.V. Sklifosovsky Research Institute for Emergency Medicine, was among the main initiators of the creation of the new services. In 1987, the Disaster Medicine Department was created at the Institute for the first time in the country. Doctor of Medical Sciences B.M. Gazetov became its first head. Together with V.G. Teryaev, they formed the basic principles for providing medical care during emergencies. Then the Department was headed by Doctor of Medical Sciences V.N. Aleksandrovsky, under whose leadership a lot of work was done to bring the start of medical care as close as possible to the moment of the emergency, its expert assessment, and the development of technical means for phased treatment and evacuation of victims.

Thanks to the research carried out at the Institute, a concept was proposed for the phased organization of medical and evacuation assistance to victims of emergencies, based on the creation of specific action plans in case of mass arrival of victims, compliance with the principles of providing first aid to victims, their triage, transportation, including vehicles developed at the Institute, and material and technical equipment of the stages of medical evacuation, meeting global standards. In the EMC complex, the main role was assigned to mobile medical units and teams as the central structural and functional element of the entire system of medical support for countering the consequences of emergencies (Fig. 8, 9).

Fig. 8. Bashkiria, 1989 prof. V.G. Teryayev (on the right) and V.F. Frolov, Major General of the Medical Service

Fig. 9. Employees of N.V. Sklifosovsky Research Institute for Emergency Medicine. The Head of the Department of Disaster Medicine is V.N. Alexandrovsky, Dr. Med. Sci. (on the right), 1987

The experience of medical care during emergencies was enriched by many employees of the Institute, who actively participated in the elimination of the consequences of mass injuries and poisonings through air ambulances at the scene of the incident, and in the treatment of victims who came to the Institute from emergency situations in the late 1900s and early 2000s (mass ethylene glycol poisoning at a cardboard factory, and a fire at the Rossiya Hotel in Moscow; an earthquake in Armenia, Spitak; a gas pipeline explosion, and a train accident in Bashkiria; events near the White House in 1993; a terrorist attack on Dubrovka; explosions on Pushkin Square, in metro, and Domodedovo airport in Moscow; a fire in the Lame Horse nightclub in Perm; transport accidents, etc.).

As a result, the scientific and organizational principles of EMC during emergencies were formulated at the N.V. Sklifosovsky Research Institute for Emergency Medicine, which made a significant practical contribution to the creation of the state disaster medicine service in the country (the All-Russian Center for Disaster Medicine “Zashchita”, the Center for Emergency Medical Care, and the EMC system in Moscow, which also included the Institute and other regional centers for disaster medicine) [20–23].

MODERN PERIOD

From 1992 to the present, under the leadership of directors of the N.V. Sklifosovsky Research Institute for Emergency Medicine, Corresponding Member of the Russian Academy of Medical Sciences A.S. Ermolov, RAS Academician M.Sh. Khubutia, and Corresponding Member of the RAS S.S. Petrikov, active improvement of EMS continued, and many developments turned out to be relevant for the service in the Russian Federation. In particular, the Admission and Resuscitation Unit was put into operation, the opening of which made it possible to significantly improve the conditions for receiving patients delivered by emergency medical teams, to bring the most informative diagnostic measures, as well as the start of resuscitation and intensive care as close as possible to the time of their arrival. The created structure of the Institute's Admission and Resuscitation Unit remained the flagship among emergency care institutions in the country for about 20 years. Here they tested new diagnostic and organizational technologies for the provision of emergency and urgent medical care, including the determination of the maximum time periods for patients to stay in this block and other parameters, with the subsequent implementation of the results obtained in practice.

The years of perestroika brought changes to the organization of the work of the hospital of the N.V. Sklifosovsky Research Institute for Emergency Medicine. In connection with the increase in the number of victims of terrorist attacks, with mine-explosive trauma, gunshot and mechanical wounds, acute poisoning, especially from narcotic substances, specialized assistance to the civilian population was also improved. The Emergency Cardiology Clinic was reconstructed, laboratories for new surgical technologies, organization of inpatient emergency care, artificial nutrition for intensive care patients, and the Department for the Treatment of Acute Endotoxicosis were opened. A mobile body detoxification team was organized. The city's burn and poison control centers were opened. The Department for Emergency Cardiology and Cardiovascular Surgery was created, including 5 specialized units. 3 newest operating rooms were equipped - two neurosurgical and one for victims of road accidents. The regional vascular center began its work.

In the early 2000s, the state program “Improving medical care for road accident victims” was successfully implemented (solving organizational and clinical problems, training specialists).

Despite the great difficulties that arose after the collapse of the USSR, the Institute continued serious scientific research on the development of effective methods for providing emergency medical care at the hospital stage. In particular, the need for specialization and optimization of the bed capacity and structure of admission departments of the EMSH was identified.

A new strategy for surgical treatment of a number of acute diseases and injuries of the thoracic and abdominal organs with the widespread use of endoscopic and minimally invasive technologies was proposed. Together with the I.I. Dzhanelidze Research Institute of Emergency Medicine, hundreds of methodological recommendations were sent to emergency care institutions in the country to introduce new highly effective and highly informative methods for diagnosing and treating emergency conditions.

In order to coordinate scientific research in the country, by Decree of the Presidium of the Russian Academy of Medical Sciences No. 243 dated October 6, 2010, the personal composition of the Scientific Council on EMS with its problem commissions was approved. The Council was headed by director of the N.V. Sklifosovsky Research Institute for Emergency Medicine Academician of the Russian Academy of Sciences M.Sh. Khubutia. The competence of the Council, which was in force until the Russian Academy of Medical Sciences became part of the Russian Academy of Sciences in 2013, included issues related to the provision of EMS at the hospital stage. Since 2008, the development of organizational issues of EMS has been carried out by a specialized commission of the Ministry of Health of the Russian Federation in the specialty “Emergency Medical Care”, headed by chief specialist of the Ministry of Health of the Russian Federation for emergency medical care, Academician of the Russian Academy of Sciences S.F. Bagnenko, one of whose deputies is Corresponding Member of the RAS S.S. Petrikov (Fig. 10, 11).

Fig. 10. The Board in the Intensive Care Unit of N.V. Sklifosovsky Research Institute for Emergency Medicine. M.Sh. Khubutia, Member of RAS, and A.S. Ermolov, Corresponding Member of RAS, are in the foreground

Fig. 11. S.F. Bagnenko, Member of RAS (offsite scientific and practical conference of SPO Emergency Medical Care in Naberezhnye Chelny, 2023)

Since 2012, on the initiative of the N.V. Sklifosovsky Research Institute for Emergency Medicine, the annual scientific and information collection “Scientific achievements in the field of emergency medical care in the Russian Federation” has been published. Its compilers are the N.V. Sklifosovsky Research Institute for Emergency Medicine, St. Petersburg Research Institute of Emergency Medicine named after. I.I. Dzhanelidze, and the Research Institute of Emergency Pediatric Surgery and Traumatology of the Department of Health of the City of Moscow.

Release of the collection with a circulation of 150 copies is carried out by the Editorial and Publishing Department of the N.V. Sklifosovsky Research Institute for Emergency Medicine.

The collection consists of 2 sections. The first is information about scientific achievements in the field of EMS in Russia over the past year, which includes subsections covering areas of scientific research, the main results of the implementation of government tasks included in the scientific plans of the above institutions, as well as

information about scientific products, scientific and organizational, and publishing activities. The second section contains a scientific review of abstracts of doctoral and candidate dissertations (up to 160–170) in 12 scientific specialties, posted on the website of the Higher Attestation Commission of the Russian Federation for the past year, concerning achievements in the field of emergency medical care.

This collection is received by regional branches of interregional public organization "Scientific and Practical Society of Emergency Medicine Doctors" in the Russian Federation and specialized scientific institutions of the Russian Federation. The collection is in demand among research staff of scientific institutions, teachers of medical universities, chief specialists in regions and cities of Russia, as well as practicing doctors.

The information presented in the collections concerns a wide range of studies focused on providing care for critical conditions using modern diagnostic systems and highly effective treatment technologies, as well as improving the management system of a multidisciplinary hospital in the context of digitalization of healthcare; they can be successfully used for implementation throughout the country.

The recent epidemic of the novel coronavirus infection COVID-19 became a serious test for the Institute. Its staff took an active part in helping this category of patients. For this purpose, the Institute repurposed two buildings with a total capacity of 98 intensive care beds. In addition, two full-fledged operating rooms, an angiography operating room, and a computed tomography room were deployed in them. A Roder with 43 beds for less severe patients was also installed on the territory of the Institute. The laboratory service of the Institute successfully coped with the sharply increased workload.

About 700 employees of the Institute participated in the treatment of patients, including 98 doctors; they all remained in service. In total, since March 20, 2020, effective assistance has been provided to about 10 thousand patients. Moreover, it was repeatedly possible to save the lives of patients with almost complete lung damage.

Despite the complexity of the situation, the Institute's staff carried out a lot of scientific work aimed at improving treatment for COVID-19. Its results were regularly presented at 12 on-line webinars held at the Institute, conferences at various levels and published in the press. The clinical picture of COVID-19 was intensively studied, and treatment results were analyzed. Developed at the Institute new approaches to COVID-19, such as the use of the thermoheliox procedure, hyperbaric oxygenation, and convalescent plasma transfusion, have received practical application. In addition, organizational measures were improved [24–28]. All this has placed the Institute among the leading centers in the fight against the novel coronavirus infection, where some of the best clinical indicators for this pathology were achieved. For their dedicated work during the epidemic, 7 employees of the Institute were awarded high professional awards: 5 of them received the Order of Pirogov, and 2 received the Luka Krymsky Medal. Thus, the Institute has opened a new chapter in the history of EMS (Fig. 12).

Fig. 12. Online conference during the epidemic of the new coronavirus infection COVID-19. Chaired by M.Sh. Khubutia, Member of RAS, and S.S. Petrikov, Corresponding Member of RAS, 2020

The recent opening of an emergency inpatient complex, the Flagship Center (FC), designed to optimize the work of the hospital's resuscitation and intensive care units and expand their capabilities in treating patients at the Institute, has become a fundamental organizational moment. For this purpose, 90 beds were deployed on its

premises, including 30 intensive care beds, and 9 operating rooms, including 2 hybrid ones. The complex is designed to receive 200 patients per day, including their delivery by air ambulance to a helipad equipped on the roof of the FC building.

In addition, there are currently 156 intensive care beds in the Institute's hospital, which is more than 15% of its bed capacity. Therapeutic units of the N.V. Sklifosovsky Research Institute for Emergency Medicine continue their noble mission of providing free round-the-clock highly qualified emergency medical care to all sick and injured people who seek it.

PUBLIC AND CONSOLIDATING ROLE OF THE SPS EMD

A significant role in improving the quality of emergency medical care now belongs to the Scientific and Practical Society of Emergency Medicine Doctors (SPS EMD) created in 2011 by an initiative group of employees of the N.V. Sklifosovsky Research Institute for Emergency Medicine and Regional Clinical Hospital No. 1 (now the Research Institute - Regional Clinical Hospital No. 1) named after Professor S.V. Ochapovsky in Krasnodar, and today numbering 43 regional branches and more than 1.5 thousand members in the Russian Federation, as well as in Uzbekistan and Tajikistan. Academician of the Russian Academy of Sciences M.Sh. Khubutia has been the President of the SPS EMD from the moment of its organization to the present day, with vice-presidents RAS Academicians S.F. Bagnenko and V.V. Krylov, and Corresponding Member of the RAS S.S. Petrikov (Fig. 13).

Fig. 13. The meeting of the board of SPO Emergency Medical Care. 2019

Fig. 14. The 1st (founding) congress of SPO Emergency Medical Care. 2012

The Society's activities primarily concern the organization and conduct of scientific and practical events, especially congresses of emergency medicine doctors. A total of 5 congresses have been held (Fig. 14).

Their topics included current issues of emergency medicine with the discussion of such hot spots as erosive and ulcerative gastroduodenal bleeding in emergency conditions, pneumonia as a complication at the stages of emergency medical care, acute coronary syndrome, as well as acute blood loss and blood transfusions (1st Congress, 2012); the role of the Institute in the creation of the state emergency medical service in the country, including discussion of historical issues and government tasks for the development, financing and further improvement of the EMS structure in the country, identification of the most important medical technologies for their implementation at the EMS stage (2nd Congress, 2013); provision of ambulance and emergency medical care to the wounded and victims in case of mass admission with identification of points of interaction between various medical services in the event of an emergency with the conduct of interdepartmental demonstration exercises dedicated to the organization of transportation and assistance to the wounded and victims of emergencies by various departments (3rd Congress, 2016); the role of EMSHs and EMS research institutes in reducing preventable mortality among the population with the identification of widespread, most significant social diseases with a high mortality rate in working age (4th Congress, 2018); the main directions and features of the development of emergency medical care at the present stage with the discussion of such issues as shock conditions, acute surgical, neurosurgical and cardiovascular pathology, chemical, thermal, and mechanical (combined and multiple) trauma, as well as the improvement of management technologies in the medical institution (5th Congress, 2021) (Fig. 15).

Fig. 15. The 5th Congress of SPO Emergency Medical Care (Moscow, 2021). Plenary session. S.S. Petrikov, Corresponding Member of RAS, and A.Sh. Revishvili, Member of RAS

Currently, preparations are underway for the 6th Congress, dedicated to the 100th anniversary of the Institute, the agenda of which will include issues related to the development and implementation of highly effective technological standards at the hospital stage of providing emergency medical care at the present time.

In addition, a significant part of the Society's work was devoted to organizing visiting scientific events, at which high medical technologies used in ambulance and emergency medical care, and the features of its provision at the present stage in the large industrialized region, as well as the features of the development of these technologies at the hospital stage of providing emergency and urgent medical care, and the role of the diagnostic complex and X-ray endovascular technologies, issues related to solving new problems, and organizational problems of emergency medical care provision, including in the regions, and new requirements for the training of scientific and medical personnel for emergency medicine in modern realities were discussed.

These conferences were held in Suzdal (2016), Kazan (2017), Ryazan (2019), Vladikavkaz (2019) and Naberezhnye Chelny (2023) (Fig. 16, 17).

Fig. 16. Offsite scientific and practical conference of SPO Emergency Medical Care (Kazan, 2017)

Fig. 17. Offsite scientific and practical conference of SPO Emergency Medical Care (Naberezhnye Chelny, 2023)

In 2012–2022, the Society also organized and held about 20 specialized scientific conferences on emergency medicine, positively influenced the increase in the efficiency of emergency care in the country: I Russian Congress on Emergency Endoscopy with international participation; scientific and practical conferences dedicated to the treatment of peritonitis and its complications; diagnosis, prevention and treatment of sepsis; diagnostic and therapeutic tactics for combined trauma of the chest and abdomen; current issues of emergency surgery; emergency care for acute cerebrovascular accidents; problems of acute and chronic pain syndrome; current issues of planned and emergency surgery; modern view on the problem of injury in emergency medicine; stages and prospects for the development of emergency clinical toxicology, and other topics. Up-to-date information on COVID-19 was widely presented in relevant forums.

The decisions made at the scientific and practical events served as the basis for the organizational integration of ambulance and emergency medical care specialists in solving their professional problems, expanding the introduction of high medical technologies in the regions, developing diagnostic and treatment algorithms, analyzing the technologies used in providing medical care at the prehospital and hospital stages, increasing the level of medical training, performing economic calculations with appropriate recommendations for optimizing the activities of medical institutions, as well as for structural changes at the Institute (for example, the creation of the regional vascular center, pain treatment services, reorganization of the admission of emergency patients with the opening of the emergency inpatient complex, etc.).

It was important that at these events the Society hosted plenums of the Board of the Society, meetings of the Scientific Council of the Russian Academy of Medical Sciences on the problems of emergency medical care, problem commissions of the Ministry of Health of the Russian Federation on emergency medical care and disaster medicine, as well as round tables on issues of continuing medical education, including the use of simulation methods in training, and the Student Olympiad on the provision of pre-medical and first aid in case of emergency conditions.

About 15 thousand specialists took part in these scientific events, while their number increased from congress to congress, their specialization, geography and topics of discussed issues expanded. This was also facilitated by the fact that most of the activities were carried out in accordance with the orders of the Ministry of Health of the Russian Federation and the Moscow Department of Health with their accreditation as educational ones in the Coordinating Council for the Development of Continuing Medical and Pharmaceutical Education of the Ministry of Health of the Russian Federation.

Materials of all the events held by the Society were published in the form of collections.

The improvement of the professional level of specialists is also facilitated by free training of the Society's members on the job at the Institute for 5 working days according to an individual program with the subsequent issuance of the SPS EMD certificate indicating the acquired competencies. Experts highly appreciate this form of professional development.

In March 2012, the Board of the SPS EMD established a public award - the S.S. Yudin Memorial Medal "For Merits in Emergency Medicine" in 7 categories (scientific, pedagogical, practical, organizational, administrative, public and charitable activities) which are regularly awarded at congresses and conferences initiated by the Society (Fig. 18).

Fig. 18. Presentation of the commemorative medal of S.S. Yudin "For merits in emergency medicine" to R.Sh. Khasanov, Corresponding Member of RAS

The SPS EMD together with the N.V. Sklifosovsky Research Institute for Emergency Medicine is a co-founder of the N.V. Sklifosovsky Emergency Medical Care Journal which has been published since 2011. Members of the SPS EMD play a major role in the scientific, organizational and information promotion of the journal (Fig. 19).

Fig. 19. Sklifosovsky Journal “Emergency Medical Care” and the annual scientific and information collection “Achievements in the field of emergency medical care in the Russian Federation”

During its existence, the journal has become a multidisciplinary modern publication, and in 2015 it was included in the list of the Higher Attestation Commission of the Russian Federation of leading peer-reviewed scientific publications published in the Russian Federation and recommended for publication of dissertation research results (since 2019 - in 12 specialties). The journal is also included in the similar list in the Republic of Uzbekistan. Since 2018, the journal has already been included in the bibliographic and abstract international database Scopus. Year after year, the citation index of this publication, its popularity and informational significance among the medical community, including foreign ones, have been growing. Its portfolio has significantly increased. The geography of both article authors and members of the journal's editorial board and editorial council is expanding. These structures include the largest scientists of the Russian Federation, members of the Russian Academy of Sciences. As a result, the journal has gained a unifying and consolidating significance for a large number of researchers and doctors of the Russian Federation engaged in scientific and medical activities in the provision of ambulance and emergency care, not only in scientific and informational, but also in educational terms.

The majority of the journal consists of original articles prepared in accordance with modern research standards (methodology and statistical apparatus). The publication's materials are indexed in more than 20 scientific databases. In 2020–2021, the journal’s Russian Science Citation Index impact factor increased sharply. Full versions of the journal’s articles are available in both Russian and English.

In general, this modernization of the scientific and organizational activities of the Institute, as time has shown, continues to unite scientists, doctors, science and healthcare organizers to solve modern problems of EMS in Russia.

CONCLUSION

Laid down by the founders of the N.V. Sklifosovsky Research Institute for Emergency Medicine, directions of its scientific and practical activities have been actively developing and multiplying throughout the 100 years of its existence.

The successes of the Institute’s staff were repeatedly encouraged by the leadership of the country and Moscow healthcare, as evidenced by the awards of the Institute: the rolling Red Banner of the Moscow City Health Department and the Moscow Regional Union of Medical Labor back in 1944 (Order of the Moscow City Health Department No. 627 of November 5, 1944), as well as high government awards which are rarely awarded to medical institutions - the Order of the Red Banner of Labor (1960), and the Order of Lenin (1973) (Decrees of the Presidium of the Supreme Soviet of the USSR of July 22, 1960, and August 14, 1973) (Fig. 20).

Fig. 20. Presentation of the Order of Lenin to N.V. Sklifosovsky Research Institute for Emergency Medicine. 1973

Over the 100 years of the Institute's activity, its specialists have created the foundations of the theory and practice of emergency medicine as a special branch of healthcare; they have an undeniable priority in many areas of emergency medicine, while making a contribution of world significance to its development and thereby strengthening the scientific foundation of the Institute's activities for many years to come (Fig. 21, 22).


Fig. 21. Celebrating the 90th anniversary of N.V. Sklifosovsky Research Institute for Emergency Medicine in the Grand Kremlin Palace. 2013

Fig. 22. Celebrating the 95th anniversary of N.V. Sklifosovsky Research Institute for Emergency Medicine. Always together! 2018

And today, celebrating the 100th anniversary of the Institute, we rely on many years of experience of our predecessors, directing our efforts to further improve and develop the public emergency medical services in this country.

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