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In Various Countries, the Organization of Emergency Medical Services and the Proficiency of Paramedics May Vary

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Abstract: Various countries organize emergency medical services and provide quick medical assistance in different stages of medical emergencies, involving professionals such as doctors, paramedics, nurses, and medical assistants. The importance of their service and some historical aspects of emergency medical care are discussed in this paper.

Keywords: emergency medical care, ambulance service, paramedics, performance evaluation.

Emergency Medical Services (EMS) is a form of medical assistance provided when a patient suddenly develops illnesses, conditions, or exacerbations of chronic conditions requiring urgent or emergent medical intervention.

Currently, EMS has gained significant experience worldwide, and its provision varies from country to country. [1, 8, 9, 10, 14, 16, 25].

In the structure of emergency medical services, sudden illnesses, mainly cardiovascular diseases, prevail, being the main causes of disability and mortality. Thus, the effective operation of EMS and the coordination with other medical organizations play a crucial role in improving public health indicators. [21, 23, 27].

In the Republic of Uzbekistan, a unified system of providing high-quality emergency medical care has been established. [26[.

In the capital city of Tashkent, emergency medical services commenced in 1918. The aim was to promptly deliver medical assistance to the population. The first "Opel" sanitary vehicle was introduced in 1922 to facilitate timely assistance. In Samarkand, the emergency medical service was established in 1921 with two vehicles, and in 1924, they were equipped with "Opel" sanitary vehicles.

In 1949, sanitary aviation was organized in the Republic, which transported seriously ill patients from remote areas to medical facilities.

From 1998 until recently, emergency medical care in Uzbekistan was provided through medical stations, rural medical clinics, rural health centers, district central hospitals, and emergency medical services. President's decree No. 2107 of November 10, 1998, led to the establishment of the Republican Center for Emergency Medical Assistance and its branches in regions and all urban and district medical associations, incorporating emergency medical departments and sanitary aviation services. Emergency medical services for the population were financed by the state and provided free of charge, both on an outpatient and inpatient basis.

The introduction of "Damas" rapid medical assistance vehicles in the country has significantly improved the provision of emergency medical services. [11, 13, 14].

The evolution of emergency medical services dates back to 1897 when the first station was opened. Over the years, the system underwent several structural and qualitative changes. By the 1950s and 1960s, two main models of emergency medical care were established in the former USSR.

In recent years, the composition of emergency medical brigades has been determined based on certain criteria, including the number of residents they serve. [3, 6, 19].

The primary goal of modern emergency medical services is to preserve and strengthen the vital functions of the organism in patients, provide timely medical assistance, and transport patients to medical facilities within a short period, ensuring qualified medical care. [1, 2, 3, 5, 6, 8, 10, 11, 17].

However, in rural areas, where the healthcare system is less developed, the paramedic model of emergency medical care is predominant, but it often lacks medical professionalism. Paramedics often fail to provide timely medical assistance, make diagnostic errors, and may not promptly refer patients to hospitals. Thus, compared to the doctor model, the paramedic model of emergency medical care can be more costly. [20].

In Russia, the analysis of emergency medical service activities shows that nearly every resident has applied for emergency medical assistance at least once a year. The majority of calls are related to acute illnesses and upper respiratory viral infections. Approximately 25% of the total volume of emergency medical services are provided to patients with acute illnesses. [15].

Overall, 15-20% of emergency medical care is provided by professionals directly involved in patient care, mainly doctors and paramedics, while the remaining 80-85% is related to the system, medical equipment, and management [5].

Most emergency calls are serviced by medical technicians. The key difference between medical technicians and paramedics is the level of training required. Medical technicians can obtain certification through courses lasting from 120 to 1800 hours, while paramedics undergo longer training, typically 3 years and 10 months, allowing them to issue sick leave and prescriptions [10].

An important factor in the effectiveness of the emergency medical service (EMS) is the formation of the personnel of the EMS. In the emergency medical service of the Republic of Uzbekistan, about 21,000 people work, including 9,000 doctors and 12,000 mid-level medical workers. Over the period of 2017-2018, the number of doctors working in the EMS increased by 30%. In the republic, 85% of EMS doctors are general practitioners, while the remaining 15% are specialists (cardiologists, pediatricians, etc.). The ratio of the number of doctors to mid-level medical personnel in the EMS by occupied positions was 1:1.25 (in 2015 - 1:2.1) [26].

Analyzing the indicators of the work of medical and paramedical brigades in St. Petersburg reveals that paramedic brigades are ahead of brigades consisting only of doctors in terms of the most important performance indicators of work. The number of diagnostic errors among paramedics is 1.5 times higher, and paramedics often transfer patients to hospitals without medical supervision. When the provided information is evaluated correctly, it becomes clear that despite the cheapness of adhering strictly to the paramedic model of the EMS, taking a step back would still be beneficial, but in the process of providing paramedic services and training them, the expansion of medical knowledge will undoubtedly contribute to its effectiveness.

EMS and EMT services operate in separate ways. The EMT service includes EMT stations, each of which has brigades consisting of doctors (148 units), intensive care (28 units), paramedics (24 units), psychiatric (14 units), cardiological (32 units), neurological (6 units), anesthesiology-resuscitation (20 units) [4,25.].

Improving the quality of EMT services is one of the problems, and it is considered as the problem of unfounded calls. When analyzing the basedness of EMT calls, it was revealed that unfounded calls accounted for 21.8% of all calls, of which 17.7% were made by USH brigades, 4% by specialists-doctors from polyclinics, and 0.1% by mid-level medical staff [24].

When organizing the system of calls to paramedic brigades of the EMT service, it was found that almost 20% were correct calls to circulatory system diseases and injuries, 12.5% to respiratory system diseases, 10.8% to nervous system diseases, and 7.5% to digestive system diseases.

The issue of professional training of EMT paramedics is considered one of the leading problems today. Paramedics, being considered as the main part of the EMT service, in many cases do not have the necessary qualification to provide emergency medical assistance.

The further education of paramedics after graduation, according to A. N. Naginbedanin (2007), should be conducted in local bases and specialized departments of the education system after graduation, including at higher education institutions [17].

The development of emergency medical services (EMS) plays a crucial role in improving the healthcare system in Uzbekistan, which has been reinforced by various documents of the government. Its enhancement focuses on two main objectives: ensuring the availability and convenience of the minimum package of emergency medical services free of charge and increasing efficiency [26].

In French law, the provision of emergency medical care to any individual is guaranteed. This law allows the appeal of any physician for medical assistance [10].

In the United States, rapid medical assistance services are primarily provided by paramedics - emergency medical technicians (EMTs) [10].

In countries like the UK, Sweden, and Switzerland, EMS services are provided by mixed crews, who provide medical assistance to the population in situ [18].

In some foreign countries, the system of providing emergency medical care operates successfully in two or three stages (paramedics - doctors - specialized brigade doctors) [10, 18].

In 2018, EMS teams served 9.8 million calls. An analysis of the frequency and structure of reasons for EMS dispatches in 2017 showed that 166 dispatches per 1000 of the total population were related to sudden illnesses and pathological conditions; 4.6 - with accidents; 9.8 - with the transportation of patients, pregnant women, and women in labor, and 4.5 - with deliveries and pregnancy pathology [26].

Over 2017-2018, the number of hospitalized patients transported by EMS teams increased from 27.9 to 35.1 per 1000 population, accounting for almost 95% of the total number of hospitalized patients. An analysis was conducted on the main indicators of the EMS field brigades' activities, the provision of stations with vehicles. In 2017, 2125 brigades operated in emergency medical aid stations (1937 in 2016, 2305 in 2018). Paramedic brigades accounted for 19% of EMS brigades (25% in 2017). Over 2017-2018, the availability of EMS field brigades of all profiles was 0.72 per 10 thousand population [26].

On average worldwide, the call rate per year is 0.13 per capita (in France, about 7 million services are provided - visits to patients out of 65 million population). In the Republic of Uzbekistan, this rate is 0.27 (in 2017, 8.6 million calls were served out of 32 million people), which is almost twice the global rate, negatively affecting the timely provision of assistance to the population in life-threatening conditions. Therefore, full automation of the EMS workflow with the adaptation of dispatcher and call sorter protocols to international standards will allow for timely response to emergency calls (within 20 minutes), reduce the number of non-profile (non-emergency) calls, improve the quality of medical care, and more efficiently utilize the material and technical base of the service [26].

In conclusion, all reforms and changes implemented in our country contribute to the improvement of emergency medical services and the provision of quality medical care to the population, as well as the social protection of the population.

In some foreign countries, the practice of paramedics in organizing emergency medical care is absent, and paramedics are replaced by automatonized algorithms for providing emergency medical care. In some countries, the practice of paramedics is preserved, and in our fast medical assistance brigades, 19% are paramedic brigades. The organization of paramedic brigades, increasing their efficiency in providing emergency medical care, and improving their education process was carried out in accordance with the goal of cooperation with Higher Medical Institutions.

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