

# THE MODERN SITUATION WITH EMERGENCY MEDICAL CARE IN UKRAINE IN THE CONDITIONS OF REFORM: PROBLEMS AND PERSPECTIVES

Iryna A. Holovanova, Svitlana S. Kasinets, Oksana I. Krasnova, Maxim V. Khorosh

HIGH STATE EDUCATION ESTABLISHMENT OF UKRAINE «UKRAINIAN MEDICAL DENTAL ACADEMY», POLTAVA, UKRAINE

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Emergency medical care, health care system in Ukraine, reformation of health care system

## Abstract

**Introduction:** Emergency medical care – is the most important part of the health care system in the country. Improving the work of emergency medical care can actually increase the life expectancy of patients, reduce the primary outflow of disability, prolong the active workable period of people and improve their quality of life. One of the most important problems is a large number of non-core challenges (70%), the lack of qualitative technical requirements for dispatchers and a paper form of reporting.

**The aim:** To study and analyze the dynamics of the indicators of the Ukrainian emergency medical service in the context of the reforms of the healthcare system in Ukraine.

**Material and methods:** in this work the indicators of the activity of the emergency medical care service for the period 2014–2016 were studied and analyzed.

**Results:** In Ukraine, 2,945 emergency medical teams provide emergency medical care, which includes 997 general medical care professionals (34%), medical paramedics – 1812 (61%) and specialized ones – 136 (5%). During the period of 2014–2015, an increase in paramedic brigades was observed and an increase in the number of retirement age workers (7,016 people – 16.6%) was observed.

The activities of the emergency medical care system in Ukraine in 2016 were provided with 3118 units of transport, which is distributed according to the period of operation as follows: up to 5 years of operation – 56%, over 10 years – 23%.

**Conclusions:** Emergency medical care reform should be aimed at increasing the efficiency of the use of resources; availability and quality; provision of the EMC system by the relevant vehicles; qualitative training of doctors in emergency medicine; informatization of the EMC system; holding an information and communication company.

## INTRODUCTION

Emergency medical care (EMC) – is the most important part of the health care system in the country, with which our citizens are faced when there is a threat to their life or health. This is due to the fact, that the government is paying particular attention to improving this part of the medical sector. According to world experience, it is known that improving the work of emergency medical care can actually increase the life expectancy of patients, reduce the primary outflow of disability, prolong the active workable period of people and improve their quality of life [1].

In the number of deaths per 100 thousand population our country ranks second among all countries. In 2016, there is 392 thousand of Ukrainians died in a cause of circulatory system diseases and another 31.7 thousand – from external causes of death (accidents, road accidents, violent actions) [2]. One of the reasons for this situation is the weakness and imperfection of the emergency medical care system. Despite the extremely high incidence of coronary heart disease in Ukraine, the hospitalization rate for acute myocardial infarction in

2016 was only 1.3 per 1,000 population, which is significantly lower than in European countries [3].

In 2016, only 8.5% of resuscitation cases performed in Ukraine by emergency-care workers at the pre-hospital stage for patients with an extra-hospitalized cardiac arrest proved to be successful (that is, they were allowed to recover their own blood circulation). Recovery of a patient in the event of an accident or heart attack, most often depends on the operation of the emergency medical care, from the earliest initiation of medical care, the conduct of necessary manipulations at the pre-hospital stage [2].

Emergency medical care is a type of medical care provided by the emergency medical care staff whose main task is to save and preserve a person's life in an urgent condition and minimize the consequences of such a condition on her health. Emergency medical care team is a structural unit of EMC station, the basic task of which is to provide urgent medical care to a person in urgent situations directly at the site of an accident and during transportation of such person to the institution of health care.

One of the most important problems in the emergency medical care system is a large number of non-core challenges (about 70% of a total amount of calls per year), the lack of qualitative technical requirements for dispatchers and a paper form of reporting that cannot be quickly and qualitatively verified and digitized.

At the current stage of development of the health care system of Ukraine, the reform of the system of provision of medical care to the population is carried out. One of the priority tasks in conducting of modern medical reform in Ukraine is to improve the work of emergency medical care. Against this backdrop, there are many challenges ahead of the updated system of emergency medicine. Among these tasks should be highlighted the following one:

- creation of high-quality legal and regulatory framework;
- automation of the collection of statistical data and digitization/scanning of paper forms of documentation;
- creating of the opportunities for domain coordination and electronic transfer of calls for emergency medical teams;
- the possibility of providing of the emergency medical care with the involvement of the first responders;
- integration of emergency medicine with other medical services;
- providing of emergency medical assistance with non-voice messages.

An important element of the emergency medicine reform is the comprehensive automation and operational exchange of information among all the participants in the emergency care process.

#### THE AIM

The aim is to study and analyze the dynamics of the indicators of the Ukrainian emergency medical service in the context of the reforms of the healthcare system in Ukraine.

#### MATERIAL AND METHODS

During the investigation, an analytical method of research were used. The indicators of activity of the emergency medical care service for the period of 2014–2016 have been studied and analyzed.

#### REVIEW AND DISCUSSION

The study examined and analyzed the dynamics of the main indicators of structure and activity of emergency medical care in Ukraine.

In Ukraine, 2,945 emergency medical teams provide emergency medical care, which includes 997 general medical care professionals (34% of the total), medical paramedics – 1812 (61% of the total) and specialized ones – 136 (5% of the total).

The capacity of the emergency medical aid, which consists of the number of brigades and brigade arrival speed, is given in Table 1.

Table 1. The dynamics of the number of emergency medical teams and staffing of emergency medical care transport in 2014–2016.

Year	Emergency medical teams (absolute number)				The arrival time of the emergency medical brigade [%]	
	Total	Specialized ones	General medical care professionals	Medical paramedics	Done	Up to 20 min
2014	2955	149	1010	1795	93,7	89,5
2015	2920	139	991	1790	93,3	87,8
2016	2945	136	997	1812	91,6	88,8

Table 2. Dynamics of the regular positions of EMC workers and the indicators of their qualification for 2014–2016.

Year	Established posts of EMC workers (for 10 thousand people)			Work experience of EMC workers		Qualification of EMC workers (%)		
	Total	Doctors	Paramedics	Up to 3 years	Retirement age	Highest category	I category	II category
2014	508323	5944	18746	5973	6436	49,3	14,5	9,9
2015	52368,2	7960,5	18751,25	6291	6952	49,2	14,3	10
2016	52102	7868,75	18759,75	5672	7016	49	13,3	10

As can be seen from Table 1, the number of EMC teams for the period under investigation remained almost unchanged (2955 in 2014 and 2945 in 2016), but there was an increase in paramedic brigades due to the reduction of medical and specialized ones.

The call of the EMD brigade and the terms of arrival are approved by Order No. 1119 of November 21, 2012 “On the norm of arrival of teams of emergency medical care at a place of incident”, according to which, the arrival of EMC brigades in the place of the event for appeals belonging to the category of emergency, is in cities – 10 minutes, in settlements outside the city – 20 minutes from the time of receipt of the appeal to the dispatcher of the operational and control center EMC and disaster medicine. The obtained statistical data indicate an increase in the timely arrival of brigades of EMC.

The dynamics of available staffing positions for workers of emergency health care service and their qualifications for period of 2014–2016 is shown in Table 2.

As can be seen from Table 2, the number of positions of the emergency care system by staffing has almost not changed. In 2016, the number of posts was 52,102, of which: doctors – 7868.75 (15%), junior specialists with medical education (paramedics) – 18759.75 (42%). Only 5 672 persons (13%) is workers with a work experience of up to 3 years, including: doctors – 17,2% and junior specialists with medical

education – 15,1% of the total number of employees. Workers of retirement age of 7016 people – 16.6%, including doctors – 29%. During the period under study, there is a gradual increase in the number of retirement age employees in the emergency care system.

As for the qualification data, among the employees of the institutions of the EMC system, the qualification categories are 17 271 persons (72.4%), among them with highest category – 49% (in 2015 – 49.2%), the first category – 13.3% (in 2015 – 14.3%), the second category – 10% (in 2015 – 10%) [4].

One of the factors that affects to the quality of medical care is the indicators of staffing of emergency medical care by specialized transport and medical equipment, as it shown in table 3. Specialized sanitary transport – a vehicle intended for the transport of people in urgent condition and equipped to provide EMC and in accordance with national standards, equipped with special light and sound signaling devices. The activities of the emergency medical care system in Ukraine in 2016 were provided with 3118 units of specialized sanitary transport, of which: type “B” – 80% of the norm, type “C” – 28.4% of the norm. For the period of operation, the existing specialized sanitary transport is distributed as follows: up to 5 years of operation – 56%, over 10 years – 23%.

Concerning the staffing of the emergency medical teams by medical products and medical equipment, it was determined that 100% of the brigades were

Table 3. The provision of the emergency medical care services by necessary medical equipment for 2014–2016.

Year	Medical equipment [%]				Specialized sanitary transport				
	defibrillators	suction cups	intubation sets	electrocardiographs	Total (absolute)	Type B, % of norm	Type C, % of the norm	Up to 5 years, % (for the term of operation)	Over 10 years, % (for the term of operation)
2014	75	66	38	100	3220	85	30	56,5	24
2015	81,2	78	50,4	100	3259	93	31,5	54	24,5
2016	81,7	79,2	48,5	100	3118	80	28,4	56	23

Table 4. Dynamics of main indicators of the emergency medical care activities for 2014–2016.

Indicator	Year		
	2014	2015	2016
The number of hits for emergency medical care, the absolute number	9246778	9579168	10091801
Number of unreasonable calls, absolute number	402537	439413	554312
The number of people who receive medical care, absolute number	612121	607562	554312
Departures for sudden illness and conditions, %	76	76,6	76,3
Departures for accidents, injuries, poisoning, %	7,9	8,1	8,2
The number of trips of EMC brigades to cases that ended lethally, %	1,5	1,5	1,5

equipped with ECG devices, 81.7% – with defibrillators, 48.5% – with intubation sets, 79.2% – with suction cups.

The dynamics of the main indicators of the emergency medical care service for 2014–2016 is outlined in Table 4. With regard to the dynamics of the structure of the departure of emergency medical teams, statistics show that the number of appeals to the emergency services has increased, and the number of persons who received emergency medical care has decreased to 554312 people. This indicator behavior is positive and may indicate the effectiveness of the treatment facilities that provide primary health care. However, from year to year there is an increase in the number of unreasonable calls for emergency care: 554312 calls in 2016 against 402537 calls in 2014.

As can be seen from Table IV, during the study period, the structure of the outburst teams of emergency medical care improved. Thus, the most frequent part in the structure of the departure of teams of emergency medical care was occupied by conditions caused by sudden illnesses. At the same time, their share during the years of research decreased and amounted to 76.6%. The share of departures to accidents, injuries, poisoning almost did not change.

## CONCLUSIONS

Consequently, the main problems of the emergency medical care should be as follows: a significant proportion of unreasonable calls for emergency, insufficient level of use of modern medical and organizational technologies, insufficient availability of quality EMC for rural population, low level of availability by skilled personnel resources, high level of wear and tear of basic material and technical means.

Despite the presence of problems in the EMC system, the solution of which in the vast majority requires for significant financial expenditures of budget funds, the Ministry of Health of Ukraine is focusing on the gradual formation of a truly effective EMC system in Ukraine. The Ministry of Health of Ukraine, as the central part of the executive authority, which ensures the formation and implementation of state health policy, determines the priority directions of the EMC system development, and coordinates the annual plans for the functioning and development of EMC in each region.

In 2016, the Ministry of Health of Ukraine carried out significant work in the part of organizational, methodological and regulatory support for the development of the EMC system, in particular: an order No. 612 of the Ministry of Health of Ukraine dated 21.06.2016 “On approval and implementation

of medical-technological documents for the standardization of emergency medical aid” was issued. With this order were approved the Unified clinical protocols of emergency medical care in highly hazardous urgent situations. Alongside with this were developed qualification requirements for new professions “Instructor for provision of pre-medical assistance”, “Paramedic”, “Emergency medical technician”, which are awaiting for approval by the Ministry of Social Policy of Ukraine. Appropriate training programs for these specialties have been developed with further approval by the Ministry of Education and Science of Ukraine. Also developed and published “Adapted Guideline” Tactical Emergency Medical Aid”. In April 2018, an order was passed by the Cabinet of Ministers of Ukraine “On approving the concept of emergency medical care reform” in Ukraine.

In the future, the reform of emergency medical care should focus on: increasing of the effectiveness of using EMC resources; increasing of availability and quality of the EMC; increasing EMC contribution to improving the health of the population; the formation of a positive attitude of the population and health care workers towards the reformation (modernization) of the EMC; provision of the EMC system by the relevant vehicles; ensuring the quality training of emergency medicine physicians in the amount necessary for population service, taking into account the outflow of EMC doctors and the hidden deficit of EMC doctors (retirement age); provision of training and retraining of junior medical specialists working in the EMC system; creation of incentives for strengthening of personnel (first of all doctors) in EMC; informatization of the EMC system; holding an information and communication company.

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**Conflict of interest:**

The Authors declare no conflict of interest.

**Address for correspondence:**

Oksana I. Krasnova  
High State Education Establishment of Ukraine  
Ukrainian medical dental academy  
Shevchenko 23, 36000, Poltava, Ukraine  
tel.:+380984673750  
e-mail: krasnovaoksana197@gmail.com

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