

# SAFETY IN EMERGENCY ENVIRONMENT БЕЗОПАСНОСТЬ В ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ

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## TOPICAL ISSUES OF PROVIDING MEDICAL ASSISTANCE TO VICTIMS OF ROAD TRANSPORT EMERGENCIES IN THE ALTAI KRAI

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**Abstract.** *The aim of the research was:*

- to elaborate organizational and methodical bases of medical evacuation for the population of the Altai region in cases of traffic accidents including emergency situations, in conditions of healthcare optimization, namely, under the process of merging of the territorial center for disaster medicine with the emergency medical aid station;

- to determine starting points for further development of the Emergency Medicine Service of the Altai Krai.

**Materials and research methods.** The statistical data of registration and reporting form no.55 "Information on the Activity of Healthcare Institution (Medical Formation) which took part in liquidation of medical and sanitary consequences of emergencies" of Altai Krai Disaster Medicine Service approved by the Order of the Ministry of Healthcare and Social Development of Russia dated February 3, 2005, no.112, and official statistical data of Altai Krai State Road Safety Department were analyzed. The sample included statistical data for 2019-2021.

The study used a set of analytical and statistical methods, which made it possible to process and to analyze the data obtained, to assess the system of medical care and to develop a set of measures to improve the medical evacuation system in Altai Krai using the data about victims of traffic accidents, to predict the duration of their treatment and rehabilitation. The statistical data were processed by means of Statistica 10.0 program complex with the calculation of intensive indices, mean representativeness error ( $\pm m$ ) and significance of differences by Fisher's method.

**Results of the study and their analysis.** The results of the analysis of organizational and methodological bases of medical evacuation of the population of Altai Krai in road traffic accidents in the conditions of optimization of healthcare in 2019-2021 are presented. The prospects for further development of the regional Disaster Medicine Service, directions of interdepartmental planning and conducting of special tactical exercises, which are one of the basic tools ensuring readiness of managers and personnel of territorial medical institutions for actions on liquidation of consequences of traffic accidents and emergencies, were determined. The necessity of training the population and interested persons in rendering first aid, which is carried out within the framework of the work of the training center of disaster medicine, has been substantiated.

**Key words:** : Altai Krai, ambulance crews, ambulance station, dead, emergency situations, injured, medical and sanitary consequences, medical evacuation, organization of medical aid, tactic-specific drills, territorial center of disaster medicine, traffic accidents, traffic emergencies, wounded

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

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## АКТУАЛЬНЫЕ ВОПРОСЫ ОКАЗАНИЯ МЕДИЦИНСКОЙ ПОМОЩИ ПОСТРАДАВШИМ В ДОРОЖНО-ТРАНСПОРТНЫХ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ В АЛТАЙСКОМ КРАЕ

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**Резюме.** *Цели исследования* – разработать организационно-методические основы лечебно-эвакуационного обеспечения (ЛЭО) населения Алтайского края при дорожно-транспортных происшествиях (ДТП), в том числе отнесенных к чрезвычайным ситуациям (ЧС) – ДТП-ЧС, в условиях оптимизации здравоохранения и, в частности, объединения территориального центра медицины катастроф (ТЦМК) и станции скорой медицинской помощи (СМП); определить точки дальнейшего развития Службы медицины катастроф (СМК) Алтайского края.

**Материалы и методы исследования.** Проанализированы статистические данные о деятельности СМК Алтайского края, содержащиеся в учетно-отчетной форме №55 «Сведения о деятельности учреждения здравоохранения (медицинского формирования), принимавшего участие в ликвидации медико-санитарных последствий чрезвычайных ситуаций», утвержденной приказом Минздравсоцразвития России от 3 февраля 2005 г. №112, а также официальные статистические данные ГИБДД Алтайского края. В выборку вошли статистические данные за 2019–2021 гг.

В исследовании был использован комплекс аналитических и статистических методов, позволивший обработать и проанализировать полученные данные, оценить систему оказания медицинской помощи и разработать комплекс мероприя-

тий по совершенствованию системы ЛЭО в Алтайском крае на примере пострадавших в ДТП, по прогнозированию продолжительности их лечения и реабилитации. Обработка статистических данных осуществлялась с использованием программного комплекса Statistica 10.0 с расчетом интенсивных показателей, средней ошибки репрезентативности ( $\pm m$ ) и достоверности различий методом Фишера.

**Результаты исследования и их анализ.** Представлены результаты анализа организационно-методических основ лечебно-эвакуационного обеспечения населения Алтайского края при дорожно-транспортных происшествиях в условиях оптимизации здравоохранения в 2019–2021 гг. Определены перспективы дальнейшего развития региональной Службы медицины катастроф, направления межведомственного планирования и проведения тактико-специальных учений (ТСУ), являющихся одним из базовых инструментов обеспечения готовности руководителей и персонала краевых медицинских учреждений к действиям по ликвидации последствий ДТП-ЧС. Обоснована необходимость обучения населения и заинтересованных лиц оказанию первой помощи, осуществляемого в рамках работы учебного центра медицины катастроф.

**Ключевые слова:** Алтайский край, бригады скорой медицинской помощи, дорожно-транспортные происшествия, дорожно-транспортные чрезвычайные ситуации, лечебно-эвакуационное обеспечение, медицинская эвакуация, медико-санитарные последствия, организация оказания медицинской помощи, погибшие, пораженные, пострадавшие, станция скорой медицинской помощи, тактико-специальные учения, территориальный центр медицины катастроф, чрезвычайные ситуации

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Road safety is one of the strategically important issues in our country. Road traffic injuries cause significant material, physical and moral damage, lead to disability and death of people of different ages. Road traffic accidents with medical and sanitary consequences (dead, injured, disabled) require constant attention to the problems of first and emergency medical care in accidents and emergencies [1]. Improvement of the organization of medical care for victims of road accidents should be carried out after a deeper study of the situation on the roads, taking into account the territorial features of different subjects of the Russian Federation [2].

In the northern and eastern "peripheral" regions of the country, which are characterized by low population density, significant distances between settlements and between medical treatment organizations, road traffic injuries have certain features. And they necessitate different approaches to medical care for victims of traffic accidents [3]. Altai Krai belongs to such regions according to a number of indicators.

In the Russian Federation, when assessing the state system of road safety, it is customary to consider 2004 as the baseline year. In this year goals were set, tasks and main tools to improve road safety were defined, including the program-targeted approach to its provision [4].

The goals and target indicators of the Road Safety Strategy were reflected in the Decree of the President of the Russian Federation of May 7, 2018 № 204, which consolidated the status of the indicator "mortality in road accidents", which is among the indicators that characterize the achievement of national development goals of the Russian Federation<sup>1,2</sup> [5, 6].

In the Road Safety Strategy, Decree of the President of the Russian Federation (2018), and the National Project, the target is presented only as a "social risk" indicator. At

the same time, federal target programs have established a set of absolute and relative indicators of road safety. This set allows to more objectively assess the state of road safety on a particular territory and to make objective comparisons, taking into account the population and its motorization: social risk — the number of deaths in road accidents per 100 thousand people; transport risk — the number of deaths in road accidents per 10 thousand vehicles; severity of road accident consequences — the share (%) of deaths in the total number of victims (dead + injured) in road accidents per 100 victims<sup>3</sup> [7].

In December 2019, in order to implement the Strategy of development of air ambulance in Altai Krai until 2024, as well as to optimize the healthcare system of Altai Krai, the "Regional Clinical Hospital" was reorganized. On its basis there were created a department of emergency consultative medical aid and medical evacuation of "Regional Clinical Hospital" and Altai Krai Center of Disaster Medicine of "Emergency Medical Aid Station"<sup>4-7</sup>. When territorial centers for disaster and emergency medicine were united, a unified dispatching service of the region was created. This led to a significant reduction in response time, in time of getting to the place of an accident and providing medical aid to the victims of accidents and emergencies [5]. At the same time, there is still no normative legal base regulating the work of the unified center and the ambulance station [1, 5].

<sup>3</sup> On Amendments to the Rules of Accounting for Road Accidents: Decree of the Government of the Russian Federation dated November 19, 2008, № 859 (In Russ.)

<sup>4</sup> On the Reorganization of the Regional Clinical Hospital: Decree of the Government of the Altai Krai dated October 15, 2019, No. 392 (In Russ.)

<sup>5</sup> On the Establishment of the Department of Emergency Advisory Assistance and Medical Evacuation of the Regional Clinical Hospital: Order of the Ministry of Health of the Altai Krai dated November 11, 2019, No. 302 (In Russ.)

<sup>6</sup> On the Establishment of the Altai Regional Center for Disaster Medicine: Order of the Ministry of Health of the Altai Krai dated October 31, 2019, No. 286 (In Russ.)

<sup>7</sup> On the Strategy for the Development of Sanitary Aviation in the Altai Territory until 2024: Decree of the Government of the Altai Krai dated July 03, 2019 No. 250 (In Russ.)

<sup>1</sup> On the Approval of the Road Safety Strategy in the Russian Federation for 2018-2024: Decree of the Government of the Russian Federation dated January 08, 2018, No. 1-г (In Russ.)

<sup>2</sup> On National Goals and Strategic Objectives of the Development of the Russian Federation for the Period up to 2024: Decree of the President of the Russian Federation dated May 07, 2018, No. 204 (ed. dated July 21, 2020) (In Russ.)

It should be noted that failure to provide first aid significantly affects the occurrence of complications after injuries sustained in traffic accidents. In this regard, the organization of regular training in first aid plays an important role. First aid is not medical, it is given before medical specialists arrive or before the injured person is taken to the hospital. First aid can be given by any person who is near the victim at the critical moment. For some categories of citizens (police officers, employees of the Road Traffic Police and the Ministry of Emergency Situations of Russia, drivers, etc.) rendering first aid is an official duty [6].

In modern conditions the exercises held with the participation of forces and means of the Disaster Medicine Service have specific features. They serve as a form of research and verification of methods of solving problem tasks, theory and practice of civil defense, as well as actions for prevention and liquidation of the consequences of emergencies. Exercises and drills are a form of training medical specialists and a method of testing their readiness to perform their assigned tasks in an environment as close as possible to the real one [7].

All of the above aspects that have a significant impact on the organization of the stages of medical evacuation support were taken into account in the study.

**The purpose of the study** is to develop organizational and methodological bases for medical and evacuation support of the Altai Krai population in case of traffic accidents. Including in accidents referred to emergencies\*, in the conditions of optimization of healthcare, and, in particular, uniting the territorial center of disaster medicine and the station of emergency medical care and determine points for further growth of the Service of medicine of catastrophes of Altai Krai.

**Materials and research methods.** The statistical data on the activities of Altai Krai Disaster Medicine Service included in the registration and reporting form No.55 "Information on the activities of health care institution (medical formation) in accordance with the order of the Ministry of Health and Social Development of Russia dated February 3, 2005 No. 112 as well as the official statistical data of Altai Krai Traffic Police Department were analyzed. The sample included statistical data for 2019-2021.

The victims were distributed by age (adults, children under 18), as well as by lethality (those who died at the scene of the accident, those who died in the hospital). As the primary documentation we used the form № 165/-05 "Report of emergency situation (primary, subsequent, final)" and data of the daily monitoring of the victims of traffic accidents hospitalized in the krai medical organizations.

Theoretical and methodological basis of the study are the works of domestic and foreign scientists in the field of organization of medical care to victims of road accidents, normative legal acts of the Government and the Ministry of Health of the Russian Federation.

The study used a set of analytical and statistical methods that allowed: processing and analyzing the data obtained; evaluating the system of medical care; developing a set of measures to improve the system of medical and evacuation support in Altai Krai, to predict the duration of their treatment and rehabilitation on the example of victims of traffic

accidents. The statistical data were processed by means of Statistica 10.0 program complex with the calculation of intensive indices, mean representativeness error ( $\pm m$ ) and significance of differences by Fisher's method.

**Results of the study and their analysis.** According to the data obtained, in 2019-2021 in the Altai Krai in the total number of emergencies accidents referred to emergencies prevailed. During this period, 146 emergencies occurred in the region, of which 143 were man-made, including 69 accidents referred to emergencies, which is  $(50.68 \pm 4.14)\%$  of the total number of emergencies. The rate of traffic accidents in the structure of man-made emergency situations was  $(48,25 \pm 4,18)\%$ ; fire —  $(47,55 \pm 4,18)$ ; the rate of other emergencies —  $(2,8 \pm 1,38)\%$ . The prevalence of traffic accidents is connected with the fact, that Altai Krai ranks first in the Siberian Federal District by length of roads (16814,028 km); and the distance between victims and medical institutions is from 5-10 km (within such big cities as Barnaul, Biysk, Slavgorod, Rubtsovsk, Aleisk and others) up to 400 km.

In 2021, the total number of victims of emergencies compared to 2019 decreased by 25.54%; compared to 2020 — increased by 16.85%. In 2021, the proportion of fatalities in the total number of victims decreased: compared to 2019, by 21.00%; compared to 2020 — by 6.00%. In 2021, the proportion of medical casualties decreased by 30.95% (1.3 times) compared to 2019 and increased by 44.05% (1.8 times) compared to 2020. In 2021, more affected persons were hospitalized compared to 2019, by 39.68%; compared to 2020 — by 41.26%. In 2021, there was a 242.85% decrease in the number of affected individuals who received medical care on an outpatient basis, a 3.4-fold decrease, compared to 2019; compared to 2020 — increased by 52.38%, a 1.8 – fold increase (Table 1).

The decrease in the number of the injured, killed and wounded in emergencies in 2020 is connected with the implementation of the special order of movement of citizens and vehicles, introduced by the executive authorities of the subjects. It was introduced to ensure a set of restrictive measures for the sanitary and epidemiological well-being of the population, established in accordance with paragraph 1 of Decree No.316<sup>8</sup> of the President of the Russian Federation of May 11, 2020.

The increase in the number of those injured in emergencies in the mentioned period was due to a 1.2 times increase in the number of people injured in road traffic accidents. Thus, according to Altai Krai traffic police, in 2021 the number of accidents decreased: as compared to 2019 — by 22.52%; as compared to 2020 — by 10.12%; the number of victims decreased by 4.9%; the number of fatalities increased by 0.9%. With a three-year downward trend in the number of reported accidents referred to emergencies cases, the total number of fatalities decreased: in 2021, compared to 2019, by 27.65%; compared to 2020 — by 17.02%. At the same time, the number of children killed in accidents referred to emergencies situations increased: 2.25 times in 2021 compared to 2019; compared to 2020 — by 1.8 times. In 2021, the total number of traffic accident victims decreased by 18.91% compared to 2019; compared to 2020 — by 5.07%. In 2021, the total number of

\* According to point 1.1.5. of the Order "On establishment of criteria of information on emergency situations of natural and man-made character" of Ministry of Emergency Situations of Russia from July 5, 2021 № 429 (entered into force on January 1, 2022) the road traffic accident include such road traffic accidents, in which 5 people and more died or 10 people and more suffered harm to health

<sup>8</sup> On the determination of the procedure for extending measures to ensure the sanitary and epidemiological well-being of the population in the constituent entities of the Russian Federation in connection with the spread of a new coronavirus infection (COVID-19): Decree of the President of the Russian Federation of May 11, 2020 № 316 (In Russ.)

**Данные о ЧС, произошедших в Алтайском крае в 2019–2021 гг.**  
Data on Emergencies that Occurred in the Altai Territory in 2019–2021

Год Year	Кол-во ЧС, абс. Number of emergencies, abs.	Число пострадавших, чел. Number of victims, people	Из них, чел./(%±m) Of them, people/(%±m)		Получили медицинскую помощь, чел./(%±m) Received medical care, people/(%±m)	
			погибли died	сан. потери sanitary losses	в стационаре in hospital	амбулаторно outpatient
2019	51	231	121/52,4	110/47,6	38/34,5	72/65,5
2020	44	153	106/69,3	47/30,7	37/78,7	10/21,3
2021	51	184	100/54,4	84/45,6	63/75,0	21/25,0

accidents referred to emergencies victims increased: compared to 2019, by 15.83%; compared to 2020 — by 23.33% The increase in 2021 of this indicator is associated with an increase in the number of injured children compared to 2020 — 1.9 times; compared to 2019 — 4 times (Table 2).

In 2021 there was an increase in the number of children killed at the scene of a traffic accident, with a decrease in the total number of those killed in traffic accidents. For example, in 2021, the proportion of children killed at the scene of a traffic accident was 2.9 and 2.1 times higher than in 2019 and 2020, respectively.

In 2021, there were 1.8 times the number of medical care cases compared to 2019 and 2 times the number of medical care cases compared to 2020. In 2021, there was a 37.5% increase in the number of victims hospitalized in extremely serious condition from the scene of an accident referred to emergency, compared to 2019.

In 2019-2021, there was a large increase in the number of victims hospitalized in moderate severity condition from the scene of an accident referred to emergency. In 2021, there was a 2.8 and 1.9-fold increase compared to 2019 and 2020, respectively. The number of hospitalizations increased annually. Thus, in 2021, 1.8 times as many accident-affected persons were hospitalized as in 2019. The proportion of children affected in accidents referred to emergencies who received outpatient care was 21% (Table 3).

Thus, we can conclude that in 2019-2021, the number of accidents referred to emergencies remained stable despite a decrease in the total number of accidents, as well as the total number of victims and fatalities in accidents. At the same time, we should note a decrease in the number of deaths in traffic accidents and an increase in the proportion of children killed.

One of the most important indices (indicators) under the section "Improvement of emergency medical care and activities of the Altai Krai Disaster Medicine Service" is the time of ambulance crews' arrival to the place of the accident. Thus, the indicator "time of arrival" (less than 20 minutes) of emergency ambulance crews to the place of accident

achieved +1.16% (plan 2019 - 96.6%) in 2019. In 2020 and 2021 (target - 96.5%) this indicator was not achieved and was: in 2020. -1.38% in 2020 and 2.73% in 2021.

As part of the study, calculations were made on the time of arrival of emergency ambulance crews to the site of the accidents referred to emergencies in 2020 and 2021. Due to the merger of the Territorial Center for Disaster Medicine and ambulance, the statistics for 2019 on the time of arrival of teams of the Territorial Center for Disaster Medicine from 1.12.2019 were not found. The calculation of emergency ambulance crew arrival times for accidents referred to emergencies medical care is based on the calculation of emergency ambulance crew arrival times to the scene of an accident in 2020 — 54.17%, which is 28.7% less than the 2021 figure of 76.0% (Table 4).

Hospital mortality among those injured in traffic accidents was: in 2021, 7.3% (4 persons, including one child); in 2020 — 3.3 (one person, 0 children); in 2019 — 25.0% (8 people, including one child). The decrease in the percentage of fatalities in 2020 is associated with restrictive measures to prevent the spread of the new coronavirus infection COVID-19.

It should be noted that in 2021, the hospital mortality rate decreased 3.4-fold compared to the same rate for 2019 (Figure).

The obtained data indicate an increase in the quality criteria of medical care for accident victims using the developed interaction algorithms in the pre-hospital period.

#### Discussion

The results of the research showed that the creation of the united dispatching service when uniting the territorial center for disaster medicine and the ambulance service was timely. It reduced the time of response to an emergency by the forces and means of the Disaster Medicine Service and, in particular, the time of arrival of ambulance teams, which in turn allowed to provide medical aid in the shortest possible time and to increase the proportion of survivors among victims of traffic accidents.

Taking into account the data from scientific publications on the issues of timely first aid and its impact on the condition

Таблица 2 / Table No. 2

**Данные о ДТП, в том числе ДТП-ЧС, произошедших в Алтайском крае в 2019–2021 гг.**  
Data on Road Accidents / Road Accidents-Emergences in Altai Territory that Occurred in 2019–2021

Год Year	Кол-во ДТП, абс. Number of accidents, abs.		Число погибших в ДТП, чел. The number of deaths in road accidents, pers.				Число пострадавших в ДТП, чел. Number of victims in road accidents, pers.			
	всего* total	из них ДТП-ЧС of which road accidents - emergency	всего/ total		из них в ДТП-ЧС /of which road accidents - emergency		всего/ total		из них в ДТП-ЧС of which in road accidents - emergency	
			всего* total	в т.ч. детей including children	всего* total	в т.ч. детей including children	всего* total	в т.ч. детей including children	всего* total	в т.ч. детей including children
2019	2796	24	252	12	60	4	3584	414	101	7
2020	2513	25	226	8	55	5	3167	383	92	15
2021	2282	25	228	12	47	9	3014	395	120	28

\* Данные ГИБДД Алтайского края / Data from the traffic police of the Altai Territory

**Распределение пораженных в ДТП-ЧС по степени тяжести состояния и оказанной медицинской помощи в 2019–2021 гг., чел.**

Distribution of Victims in Road Accidents – Emergency of those Affected in to the Severity of the Lesion in 2019–2021, pers.

Год Year	Число пораженных The number of people affected in the emergency		Распределение по степени тяжести состояния Distribution of those affected in to the severity of the lesion								Число пролеченных амбулаторно Number of victims treated on an outpatient basis		Число госпитализированных Number of hospitalized	
			крайне тяжелое extremely heavy		тяжелое heavy		среднее medium		легкое light					
	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children	всего total	в т.ч. детей including children
2019	41	3	5	1	14	0	13	2	9	0	9	0	32	3
2020	37	10	1	0	7	1	19	6	10	3	7	1	30	9
2021	73	19	8	1	13	5	36	9	16	4	18	4	55	15

Таблица 4 / Table No. 4

**Доля вызовов бригад СМП, ранжированных по времени доезда (до 20 мин) до места события, в 2019–2021 гг., %**

The Share of Calls to Ambulance Teams, Ranked by the Time of Arrival (up to 20 minutes) to the Place of the Event, in 2019–2021, %

Время доезда Time of arrival	Доля указанных вызовов / Percentage of specified calls								
	в общем количестве всех вызовов на место ДТП/ДТП-ЧС in the total number of all calls to the scene of an accident/accident-emergency						в общем количестве всех вызовов бригад СМП in the total number of all calls of ambulance teams		
	2019		2020		2021		2019	2020	2021
	ДТП road accident	ДТП-ЧС road accident - emergency	ДТП road accident	ДТП-ЧС road accident - emergency	ДТП road accident	ДТП-ЧС road accident - emergency			
До 20 мин Up to 20 min	97,76	–	95,12	54,17	93,77	76,00	92,41	90,02	85,46
Целевой показатель Target	96,6	–	96,5	–	96,5	–	89,5	90	90,5

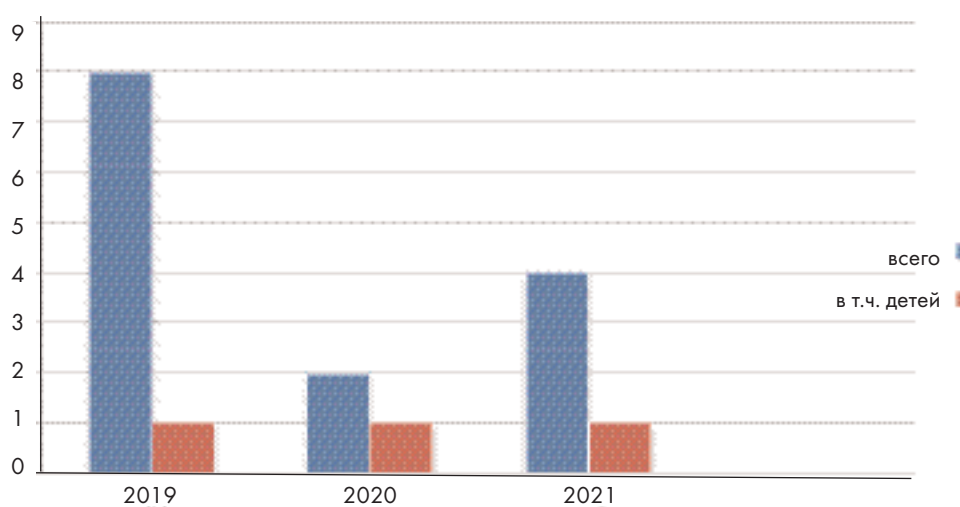
and recovery of victims of traffic accidents, including accidents referred to emergencies, it is concluded that it is necessary to further expand the training of citizens in first aid. In particular, a training center for disaster medicine using the simulation center of Altai State Medical University was opened. Creation of the training center has become a special direction in the activities of the interregional project "University-Region". It is planned to train all categories of citizens interested in obtaining the skills of first aid to victims of road accidents.

When the territorial Center for Disaster and Emergency Medicine was united, specialists of the Center developed and put into practice algorithms of interaction from the

moment of receiving a call to hospitalization of victims in the territorial medical institutions. In January 2022, the interaction algorithms were revised in accordance with the recommendations of the Russian Ministry of Health, adopted at the meeting of the Commission on Emergency Situations of the Government of the Russian Federation on December 28, 2021<sup>9</sup>.

The practice of using these algorithms has made it possible to transmit information clearly and in the shortest

<sup>9</sup> On Approval of the Response Algorithms of the Altai Krai Disaster Medicine Service of the Altai Krai Ministry of Health: Order of the Altai Krai Ministry of Health of January 24, 2022 #119



**Рисунок.** Летальность среди пострадавших в ДТП-ЧС, госпитализированных в медицинские учреждения в 2019–2021 гг., чел.

**Figure.** Mortality among victims of road accidents hospitalized in medical institutions in 2019–2021, people

possible time. This has increased the speed of rapid response of Altai Krai medical forces to road accidents and reduced time losses in the pre-hospital period. In order to optimize the process of evacuation in the pre-hospital period it is planned to introduce the triage sheet and the reporting form 167/-05 into the automated reporting and accounting program "Open ambulance". The specialists of the Disaster Medicine training center planned to organize training of medical personnel in the framework of additional professional and continuous medical education under the program "Reporting and Record-Keeping Documentation of the Disaster Medicine Service". During the command-staff and tactical-specialized exercises it is planned to practise the skills of applying the above mentioned algorithms by the disaster medicine service at all stages of evacuation.

### Conclusion

1. The effectiveness of the unified territorial center for disaster and emergency medicine will be increased by the de-

velopment of a regulatory and legal framework at the federal and regional levels. It has to take into account the specifics of the tasks of the Disaster Medicine Service, including elaboration of functionally precise model of the united center, staff standards and equipment tables for subdivisions.

2. Training programs should be developed for different categories of citizens, taking into account their professional duties (policemen, GIBDD and EMERCOM staff, servicemen, firemen, teachers) as well as for all participants of the road traffic (drivers, passengers, pedestrians) to teach the population first aid skills.

3. Joint inter-agency planning of tactical and special exercises should be carried out in order to practice emergency skills. They are one of the basic tools to ensure the readiness of managers and staff of the regional medical institutions to act to eliminate the consequences of emergencies, as well as to achieve coherence in the work of structural units and management bodies as a whole.

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