

**On measures to improve the trauma service of the Republic of Sakha (Yakutia) on the basis of the National project «Health» and Modernization of the health of the Russian Federation.
Andreev B.V., Palshin G.A., Fedorov T.S., Potapova K.N., Chirikova O.A.,**

Andreev V.B.

Annotation: Injuries are a major health and social problems of our time, for most countries of the world. Throughout the XX century. relevance of injuries grew, while noting growth of the fatal accident, with the transition to disability, temporary disability.

The epidemiological situation with injuries in the world is extremely tense - each year from various injuries kill nearly 1.5 million people. According to World Health Organization (WHO), European Region each year about 80 million casualties.

It's necessary opening Trauma centers, equipped according to the standards of trauma care to reduce mortality from injuries.

A key issue for the development of a specialized trauma care is the development of a network of Trauma centers from level III to I, the timely re-equipment, modernization of medical equipment, developing new modern high-tech diagnostic technologies.

On the basis of the national project "Health" and Modernization of the health of the Russian Federation, the issues of creating trauma centers I, II, III levels in the Republic of Sakha (Yakutia) were considered.

First, Trauma centers I level are created on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center and Trauma centers II level are created in Mirny, Neryungri, Nyurba, Maya. In Trauma center of level I are hospitalized victims with combined injuries, including supplies from a place of road accident with injuries of any severity and localization, the victims are transported from Trauma centers II, III levels, and patients for the staging of surgical treatment of consequences of injuries received in accident.

Keywords: Trauma, Trauma Center I, II, III level, Traffic accident, pre-hospital and hospital phase of care, Republic of Sakha (Yakutia)

Injuries in connection with its worldwide growth and the severe consequences of a priority health problem requiring urgent solution [8, 9]. Every year in the world from various injuries kill about 1.5 million people. [7]. According to World Health Organization (WHO), European Region each year about 80 million casualties. The burden of injuries in an average of almost 2200 injuries per day, or 90 cases per hour. For every death from injuries account for approximately 30 hospitalizations and 300 applying for outpatient treatment. [18]

In the world, every year 1.3 million people die in road accidents. Another 20-50 million people are injured in accidents. However, about 90 percent of all accidents occur in countries with



low and middle-income countries, although there is only 48 percent of registered vehicles of the total number of cars in the world. The lower the standard of living in a country, the higher the figure, according to the WHO report. [20]

In the European Council, each year only road accidents leading to death 75 thousand people, while 3 million are living with serious injuries. [21] Mortality from multiple and combined injuries ranges from 15 to 59% in the world [12, 22]. In Russia only in road accidents annually injured more than 300 thousand people, of which more than 30 thousand dies. The number of deaths in our country on the order above, than in Japan or the UK. According to the presented to the Collegium of the health Ministry of Russia data, the annual economic loss from injury reach 2.6% of GDP [7]. In the structure of injuries special place is occupied by the combination of injuries, which are currently one of the three major causes of mortality of the population, with people under the age of 40 years this cause comes in the first place [1, 3, 11].

Of special social significance in the Russian Federation the problem of injuries attaches high level of disability of the victims is to 25-45% [12, 14]. Disability caused by the consequences of the damage, takes the third place, it is noted its annual growth by 10% [15, 19]. For injuries is characterized by long periods of temporary disability of patients. Due to injuries and various pathologies of the musculoskeletal system every year in the country do not participate in the labour force of more than 6 million people [18]. Annually marked increase in injuries among the population of the Republic of Sakha (Yakutia): in 2006 registered a total of patients with injuries and poisonings 107,6 per 1000 population (the Russian Federation - 86,8; Far Eastern Federal District - 92,2), in 2010. is 110.6 (the Russian Federation 2009. - 86,6; Far Eastern Federal District 2009.- 94,0) [2, 16]. With a total population of 949,3 thousand persons at the beginning of 2010, all treatment-and-prophylactic institutions of the Republic of Sakha (Yakutia) for 2010, registered 105037 different in character and localization of injuries, which is 0.7% more than in 2009. (104341) [2].

In the structure of injuries as in previous years, in 2010, the leading place belongs to the superficial injury and open wounds (46,2%), in the second place - sprains and strains (of 11.2%), in the third place - the fractures of the bones of the upper extremities (8,7%). Injury rate among children (0-17 years) increased by 8.5% and reached 107,2% [2]. In 2010, the adult population injury rate in the Republic in comparison with 2009 decreased by 1.7%, with the largest growth rates were fractures of the spine and bones of the body (by 4.4%).

The vast number of injuries, poisoning and certain other consequences of external causes among adults accounts for accidents not related to production activities (95.9%). Children



dominated household and street injuries (90.9%) [2].

Among the injured men received traumatic injury in 60.2% of cases, the boys - in 62.7% of cases.

Injury rate for men was 141,9 per 1000 population (Republic of Sakha (Yakutia) 2009. - 145,3; Russian Federation 2009. - of 112.9), women - 84,8 (Republic of Sakha (Yakutia) 2009. - 85,2; Russian Federation 2009. - 67,8), i.e. men got injuries in 1.7 times more often than women. Injury rate of boys constituted 131.6 per 1000 population (2009 g. - 121,0), girls - 81,7 (2009 g. - 75,6). Thus, the boys got injuries in 1.6 times more often than girls. Stable second place after the death rate from cardiovascular diseases in terms of public health of the Republic takes mortality from injuries and poisonings (2000-2010) [2]. Road accidents are one of the most significant death and disability in the population of the Russian Federation and the Republic of Sakha (Yakutia). Only on the official data of Management of State inspection of road safety Ministry of internal Affairs of the Russian Federation for the year 2011 in our country happened 199 868 road traffic accidents, as a result of which 251 848 people received injuries of varying degrees of severity, were killed 27 953 people [17, 5].

The demographic damage from road accidents and their consequences for 2004-2010 in the Russian Federation amounted to 506 246 people. The size of the socio-economic damage in the Russian Federation from the consequences of road accidents and their consequences for the years 2004-2010 is estimated at 7326,3 billion rubles [6].

Annually in the Republic of Sakha (Yakutia) are approximately 1000 road traffic accidents, which killed up to 180 people (2010. - 119, 2011. - 157). Injuries of varying degrees of severity up to 1500 people. The mortality rate from road accidents in the Republic of Sakha (Yakutia) for 2010. 12,4 per 100 000 population (Russia - 18,6), in 2011. -16,4 (Russian Federation -19,5) [13]. According to the Department of state inspection of road safety Ministry of internal Affairs for the Republic of Sakha (Yakutia) for the period from 2009 to 2011 in the Republic of Sakha (Yakutia) was 2843 road traffic accidents, which killed 405 and of various severity 3517 people have got wounds [13].

The forecasts of development of transport show that the number of vehicles is growing rapidly, which increases the probability of growth of the number of road accidents and creates problems for the organization of medical assistance to the victims. Along with this, the causes of the growth in the number of traffic accidents and the severity of the injury when they can be and other factors, including the "human factor". For example, in Russia the main reasons is the neglect of the road traffic rules of road traffic regulations; the lack of training and lack of discipline of vehicle drivers; imperfection of the management system and disadvantages of maintenance of safety of road

movement; the lag of development of road infrastructure from an average annual growth of the vehicle fleet; unsatisfactory technical condition of motor roads and rolling stock; insufficient level of active, passive and поставарийной security produced in the country vehicles.

The difficult situation of road safety is largely determined by the ever increasing mobility of the population with the available modal shift from public transport to personal, growing disproportion between the increase in the number of vehicles and increase the length of the road network is not designed for modern traffic flows. The existing road infrastructure in cities corresponds to 60-100 cars per 1 thousand inhabitants, while the current level of the vehicle in Yakutsk has exceeded 200 cars per 1 thousand inhabitants. [13]

In view of the surprises of accidents in health care is often a mismatch situation capabilities health to their needs. This disparity is exacerbated by the lack of logistics and supply the current national health care.

Difficulties of organizing and providing health care in road accidents, especially with the massive number of victims, their lack of study requires the most careful analysis of each such case. To solve the problems of the organization of effective medical care, rapid and targeted resourcing health needs rapid collection and analysis of information received.

Organizational and clinical issues of medical maintenance of road accident victims certainly relevant not only for disaster medicine, because the problem of road traffic injuries defines one of the major areas of daily activities of regional and especially local Emergency Medical Center. Increased requirements for pre-hospital medical maintenance of road accident victims. Implementation of this direction is not possible in practice to use a brand new approach to the preparation of professionals providing emergency medical care in emergency situations.

Rational organization of emergency medical aid to victims of road accidents is only possible within the system, linking pre-hospital and hospital units together. Such an organization of patient care, taking into account the specifics of the current structure of public health, can provide medical assistance to the optimal quantity and quality of each individual injured in the accident. You must make the transition from the "health worker - patient" to the principle adopted in disaster medicine, "medical officer - a contingent of victims." In this aspect, the need is to develop criteria for the effectiveness of medical support at the pre-hospital period, based on a comprehensive analysis of the current post-traumatic period, especially the "golden hour" and the first two days of hospital stay.

The problem of effective medical care of road accident victims remains relevant for decades. This is largely due to the high prevalence and severity of modern road traffic injuries. The measures to reduce road traffic injuries in Russia give hope to reduce their consequences. In 1995, the State

Duma of the Federal Law "On safety of road users." In 1998, in accordance with this law is developed and adopted a federal target program "Improving road safety." Similar programs have been adopted at the regional and local levels of the executive branch. Existing government and territorial commissions to ensure road safety. At the same time, experience shows that these measures do not yield significant results, suggesting the need for further research and scientific evidence, including at regional and local level, programs to improve road safety. To accomplish this urgent task must be carried out not only to analyze the causes of accidents, but also to identify weak links in the organization of medical support to the victims.

Another important aspect to improve the organization of medical care to victims of accidents, improvement of material and technical base of medical-quality training for the subjects of the Russian Federation is the implementation of the national project "Health".

Next, we consider the project «Ensuring provision of timely high-quality medical aid to the injured in road and transport incidents» in conditions of Republic of Sakha (Yakutia). Centre of emergency medical aid is the leading medical institution on rendering of highly qualified emergency medical assistance to the population of the Republic, including on the line of sanitary aviation. The capacity of the hospital - 500 beds (one of them 370 surgical beds), 100 appeals in the admission and diagnostic Department of the day (2 or 3 of them for road accidents), 22 surgical operations per day; the coverage of the population - 950 thousand people per year.

According to the data of the Yakut Republican medical information-analytical center of the Ministry of health of the Republic of Sakha (Yakutia) provision of doctors-traumatologists-orthopedists on Republic of Sakha (Yakutia) comprised in 2010. 0.9 per 10 000 population. The Republic has 225 trauma beds, of which 90 beds deployed in the city of Yakutsk. Density of adult beds of the population of the Republic in 2010 amounted to 2.5 per 10 000 population, children's beds and 1.2, respectively, and orthopedic beds for adults - 0,3 that are below the national average [4].

Medical care in case of accident in stages. It has not been canceled concept of military medicine, ie medical evacuation. The first - the scene is carried first aid. Great help in this should give the people around, the employees of traffic police and emergency medical services. It's time to teach people the basics of first aid. Particular emphasis on the need to make employees of traffic police. Teach them not only in the imposition of tow bleeding, but as paramedics in all developed countries that for 114 hours (tracheostomy, intubation, crowded to the damaged artery, a pressure bandage, overlay fixation on broken limbs, etc.). To do this well include the Centre of disaster medicine, emergency medical care, district health. At the level of Ministry of Internal Affairs to put questions of equipping vehicles of of traffic police kits first aid. The introduction of in-depth

medical questions in the exams for driver's licenses for young people would be targeted. In cases of accidents in remote areas, especially in the Far North, with their climatic characteristics and distance from each other settlements, the effectiveness and efficiency of emergency medical aid to the victims is extremely important.

It is well known that 30% of victims of various accidents and disasters are killed by the late delivery of the first and adequate medical care, from unjustified extension phase insulation (the concept of the "golden hour" in medicine). Extension of specialized medical care increases the percentage of disability and prolongs the healing process and recovery.

At present, the development of Health are the discovery of "en-route" health posts along the roads of the federal and republican values in existing hospitals with modern medical equipment and sanitary transport. Goes to the next level training of medical staff providing ambulance and emergency medical care.

The latest issue of better qualified and specialized medical care is to create Trauma centers I, II, III levels, as one of the main ways to reduce the high mortality from accidents and injuries.

A key issue for the development of a specialized trauma care is the development of a network of Trauma centers from level III to I, the timely re-equipment, modernization of medical equipment, developing new modern high-tech diagnostic technologies.

Reduce deaths from injury will help bringing specialized care by opening the inter-trauma centers, in addition, equipping of trauma according to the standards of trauma care.

Trauma centers III level are on the bases of central district hospitals with surgical department with the release of trauma beds in which doctors work trauma and anesthesiology and resuscitation or intensive care unit.

Trauma centers II level are created on the bases of the Central district hospital acting as inter-hospital having basic profile department (Department of Traumatology, Anesthesiology and Critical Care Medicine), except for separation of combined injuries, and should have the basic profile experts.

Trauma centers I level - a division of the medical organization in the structure of the republican, territorial (regional) hospitals, emergency hospital or other General Hospital, providing organization and delivery of the full range of medical care at the hospital stage with co-victims, multiple and isolated injuries, accompanied by shocks, their complications and consequences.

In Trauma center of level I are hospitalized victims with combined injuries, including supplies from a place of road accident with injuries of any severity and localization, the victims are transported from Trauma centers II, III levels, as well as patients for the staging of surgical treatment of the consequences of the injuries received in the accident.

In the Republic should be opened Trauma centers:

III level on the bases of Central Regional Hospital: Suntar, Verkhnevilyuisk Vilyuisk, Tattinsky; the district hospital: Ilbenge, Magaras, Tyungyulyu, Kachikattsy, Nijniy Bestyakh.

II level on the bases Mirny, Neryungri, Aldan, Nyurba, Megino-Kangalassky, Churapcha, Oymyakon, Tomponsky central district hospitals;

I level on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center

To provide pre-hospital (first) medical care is necessary to organize the training and retraining of medical personnel providing medical aid to the victims on the site of injury and during transportation, staffing necessary sanitary transport (reanimation of class "B" in accordance with the order of the Health Ministry of Russia of 01.12.2005 № 752 "On equipping ambulances"), medical facilities (including the acquisition of CT, MRI, devices for artificial respiration, anesthesia and respiratory devices, etc.) and related materials, medicines.

To provide assistance to victims and hospital patients should organize training and retraining of medical personnel providing medical aid to the victims the trauma hospital, staffing sanitary transport (reanimation of class "B" and "C" in accordance with the order of the Health Ministry of Russia from 01.12.2005 № 752 "On equipping ambulances"), medical equipment, supplies, and pharmaceuticals divisions Trauma centers to adopt the standard of care to victims with trauma in Trauma centers at various levels.

Ensure Trauma centers II and III levels of qualified staff support diagnostic services: doctors radiologists with the necessary technical support.

For the operation of the Trauma center I level based on Republican Hospital № 2-Center of Emergency Medical Services is necessary to increase staff units at 284.75, including doctors - 71.25; nurses - 108.75, medical orderlies - 103.00; Other - 1.75 introduction of advanced medical technologies, in accordance with the provision of medical assistance to the victims with combined, multiple and isolated injuries, accompanied by shock, approved by Health Ministry of Russia from 15.10.2009, № 991n, specialized staff to provide specialized, including high-tech medical care for patients and victims of road accidents.

The proposed arrangements for medical assistance to victims of road accidents in the full advantages for inclusion in the federal target program "Improving road safety in 2013-2020 years" or program-oriented method of financing of the budget of the Russian Federation.

Conclusion:

1. Trauma centers in the Republic of Sakha (Yakutia) will be created in stages as funding from the national project "Health" and Modernization Program of Health, and other special



programs.

2. First, Trauma centers I level are created on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center and Trauma centers II level are created in Mirny, Neryungri, Nyurba, Maya.

3. Combine the creation of en-route medical facilities along federal roads with Trauma centers II and III levels, as a complementary health structures without duplication.

4. Revised staffing Trauma centers, according to the order of care based on an order from the Health Ministry of Russia 15.10.2009g, № 991n.

5. From 2013 to begin implementation of standards for injury.

6. Consider the development of air ambulance in the region, as a way of routing trauma patients.



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Information about authors

Name of Institution: Medical Institute of the North-Eastern Federal University named after M.K. Ammosov, 677016 Oiunskii St., 27, tel.: 8 (4112) 36-30-46, Yakutsk.

Andreev Boris, Phd, chief medical officer of Republican Hospital № 2-Center of Emergency Medical Services, Yakutsk, Pyotr Alexeyev St. 83A. Tel: 43-24-92, e-mail: 1015kapital@mail.ru

Palshin Gennady - North-Eastern Federal University, Medical Institute. Yakutsk Oiunskii St. 27, deputy director for research. MD, Phd, professor. Tel: 43-24-63, cell-phone: 89142265937, e-mail: palgasv@mail.ru

Fedorov Timur - North-Eastern Federal University, Medical Institute. Yakutsk, Oiunskii St. 27, a Senior lecturer of department of general surgery, traumatology, orthopedics and disaster medicine.

Tel: 43-24-63, cell-phone: 89241765901, e-mail: tisfe@mail.ru

Potapova Kapitalina - Republican Hospital № 2-Center of Emergency Medical Services Yakutsk Pyotr Alexeyev St. 83A, Head of organizational and methodological department

Tel: 43-24-92, e-mail: 1015kapital@mail.ru

Chirikov Olga - Republican Hospital № 2-Center of Emergency Medical Services Yakutsk Pyotr Alexeyev St. 83A, MD methodist of organizational and methodological department.

Tel: 43-24-92, e-mail: 1015kapital@mail.ru

Andreev Vitaliy - 6th year student of Medical Institute of North-Eastern Federal University