

## ALGORITHM FOR FIRST AID FOR TRAUMA

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**Abstract:** All the damage that is inflicted on a person is called trauma. They can be divided into mental (affecting the psyche and behavior) and physical (injury to various organs or parts of organs). Physical injury is a general term that refers to bodily injury caused by accidents, falls, blows, burns, sprains and more. Trauma is the sixth leading cause of death worldwide, accounting for 10% of all deaths, which requires timely promotion and prevention.

The aim of the present study is to develop an algorithm for the possibilities for organizing and providing first aid to victims, behavior of health care professionals in emergency care centers and provides information for training and giving instructions for timely primary care with trauma. For the purpose of the research we studied the available literature on the problem.

In the dynamics of injuries in the first place is the production related to daily work in industry and agriculture. The second is the one that includes all injuries caused by traffic, domestic and sports accidents. This type of injury is characterized by the variety of injuries, severity or quantity. Last but not least are the injuries from burns. According to the International Labor Organization, every year 120 million people in the world suffer from accidents at work, and hundreds of thousands die or become permanently disabled. Occupational injuries in our country are higher than the European Union average. The causes of occupational injuries are numerous. The level of accidents at work is one of the most important indicators of the quality of working conditions and activities to ensure health and safety at work. According to statistical data, the leading place is occupied by road traffic injuries. Providing rescue and emergency medical care within the first minutes after a car accident is key to controlling trauma, reducing disability and reducing mortality. The period 2011-2020 has been declared a decade of active action to improve road safety. Coordinated actions of the competent crisis management authorities are at the heart of the process of managing and dealing with the consequences of road accidents. Burn injuries are a major global public health problem with serious consequences for the lives and health of victims, which requires raising the awareness and professional competence of health professionals. Burns are easy to diagnose but difficult to treat. The process starts from the place of the defeat and lasts for months and years until the complete recovery of the victim.

The fast-paced modern life requires the search for methods and means to prevent injuries. The prevention of injuries in order to reduce them is a matter of public policy and can hardly be solved. There remains the possibility of prevention of complications of injuries, which depends on properly organized activities to provide first aid to victims, qualified and specialized medical trauma care.

**Keywords:** trauma, first aid, emergency medical care

### 1. INTRODUCTION

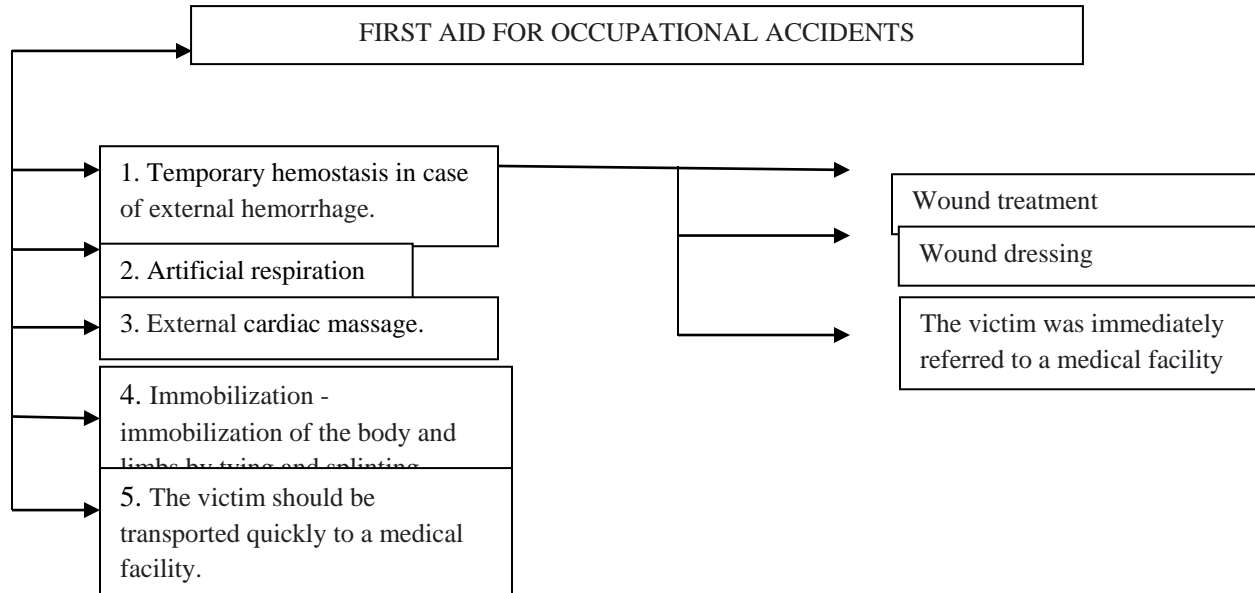
The rapid development of civilization - the scientific and technical process, mechanization, automation of production processes, the huge increase and concentration of vehicles, high speeds, led to a rapid and progressive increase in traumatic injuries among all ages. Physical injury is a general term that refers to bodily injury caused by accidents, falls, blows, burns, sprains and more. Trauma is the sixth leading cause of death worldwide, accounting for 10% of all deaths, which requires timely promotion and prevention.

The purpose of this report is to develop an algorithm for the possibility of organizing and providing first aid to victims, the behavior of health professionals in emergency care centers and provides information for training and giving instructions for timely primary care with trauma. For the purpose of the research we studied the available literature on the problem.

Trauma in Bulgaria follows global trends. Hospitals report an increase in injuries annually. By its nature and features, modern trauma is demonstrated by severe injuries, craniocerebral injuries, severe polyfragmentary fractures, vertebral fractures, a combination of fractures with chest and abdominal injuries and various complications. Injuries to the musculoskeletal system are also characterized by damage to the pelvis and hip joints, not spared a single joint or bone, and often fractures are fragmented, with concavity of soft tissues and damage to main vessels.

In the dynamics of injuries in the first place is the production related to daily work in industry and agriculture. The second is the one that includes all injuries caused by traffic, domestic and sports accidents. This type of injury is characterized by the variety of injuries, severity or quantity. Last but not least are the injuries from burns.

According to the International Labor Organization, 120 million people in the world suffer from accidents at work each year, with hundreds of thousands dying or permanently disabled. The level of accidents at work is one of the most important indicators of the quality of working conditions and activities to ensure health and safety at work. Under project BG051PO001-5.3.01-0001-C0001 of the Ministry of Health in the Republic of Bulgaria, the problem of occupational accidents was considered. Occupational injuries in our country are higher than the European Union average. In recent years, more than 3,000 accidents at work occur in Bulgaria each year, with about 4% of them ending in death and 2% disability. The causes of occupational injuries are numerous - technical, technological, lack of control and technical safety training; improper organization of work; failure to conduct or formally conduct instruction and training on occupational safety; poor maintenance in the workplace.



Significant efforts are being made at global, European and national level to reduce road casualties. The period 2011-2020 has been declared a decade of active action to improve road safety. Numerous initiatives have been launched to promote and strengthen the safety culture, improve general knowledge about the causes of road accidents and propose preventive solutions. The National Strategy for Improving Road Safety of the Republic of Bulgaria for the period 2011-2020 is the third framework document prepared for the first time with a ten-year horizon. The aim is to reduce the consequences of road accidents by 2020 compared to 2010: 50% of the dead and 20% of the seriously injured. In 2019, 628 people died and 1,937 were seriously injured on Bulgarian roads as a result of traffic accidents. These statistics reveal the enormous scale of insurmountable human loss. The main influencing factors on road safety are: regulatory framework, road infrastructure, car fleet, behavior of road users, control, rescue and emergency medical care. The study of factors influencing road accidents and injuries is an important aspect in road safety management. Coordinated actions of the competent crisis management authorities are at the heart of the process of managing and dealing with the consequences of road accidents. This process includes organization, coordination, communication and control between institutions with uniform principles, standard operating procedures, adequate distribution of responsibilities and an integrated communication and information system.

Road accidents are characterized by rapid flow, limited information and experience of the participants in them, polyetiological (for many reasons) the main factor affecting, the need for urgent technical and medical assistance. Providing rescue and emergency medical care within the first minutes after an accident is key to managing trauma, limiting disability and reducing mortality. Traffic accidents occur unexpectedly and suddenly. Research shows that reducing the time between receiving a traumatic injury and providing competent rescue and medical care is of particular importance in reducing the severity of road traffic injuries. According to the WHO, the provision of competent medical care within the first 10-15 minutes after traffic accidents is key to reducing mortality and limiting disability. At the scene of the accident, an assessment is made of the nature and type of accident, release and triage of the victims, initial rapid assessment "ABC", including checking airway patency, type of breathing and circulatory disorders. A scale is then used to give a point-by-point assessment of the injuries that have occurred in the individual anatomical areas of the body. When closed and exposed ENT injuries and bleeding are combined with TBI, they should be classified according to the generally accepted GCS - Glasgow Coma Scale as mild, moderate and severe.

Glasgow Coma Scale was originally used to assess the level of consciousness after head injuries, and is currently used in emergency and intensive care in patients with acute trauma and disease, as well as in chronically ill terminally ill patients. The scale was published in 1974 by two professors of neurosurgery from the Institute of Neurological Sciences at Glasgow University.

- Presence of GCS > 14 points mild TBI
- The presence of GCS from 9 to 13 points of moderate TBI
- The presence of GCS < 9 points is an indicator of severe TBI

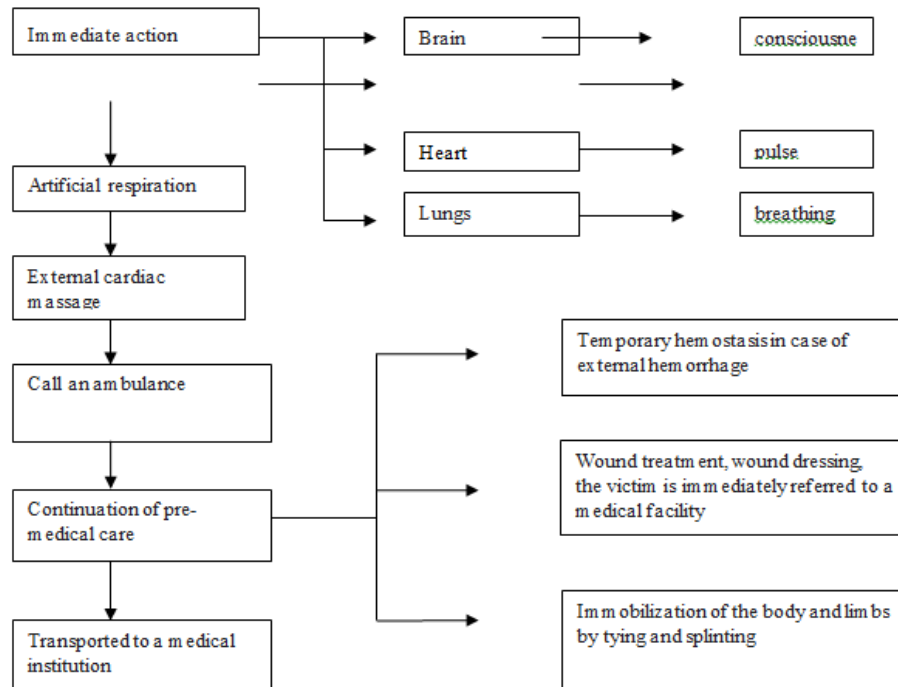
Scale elements:

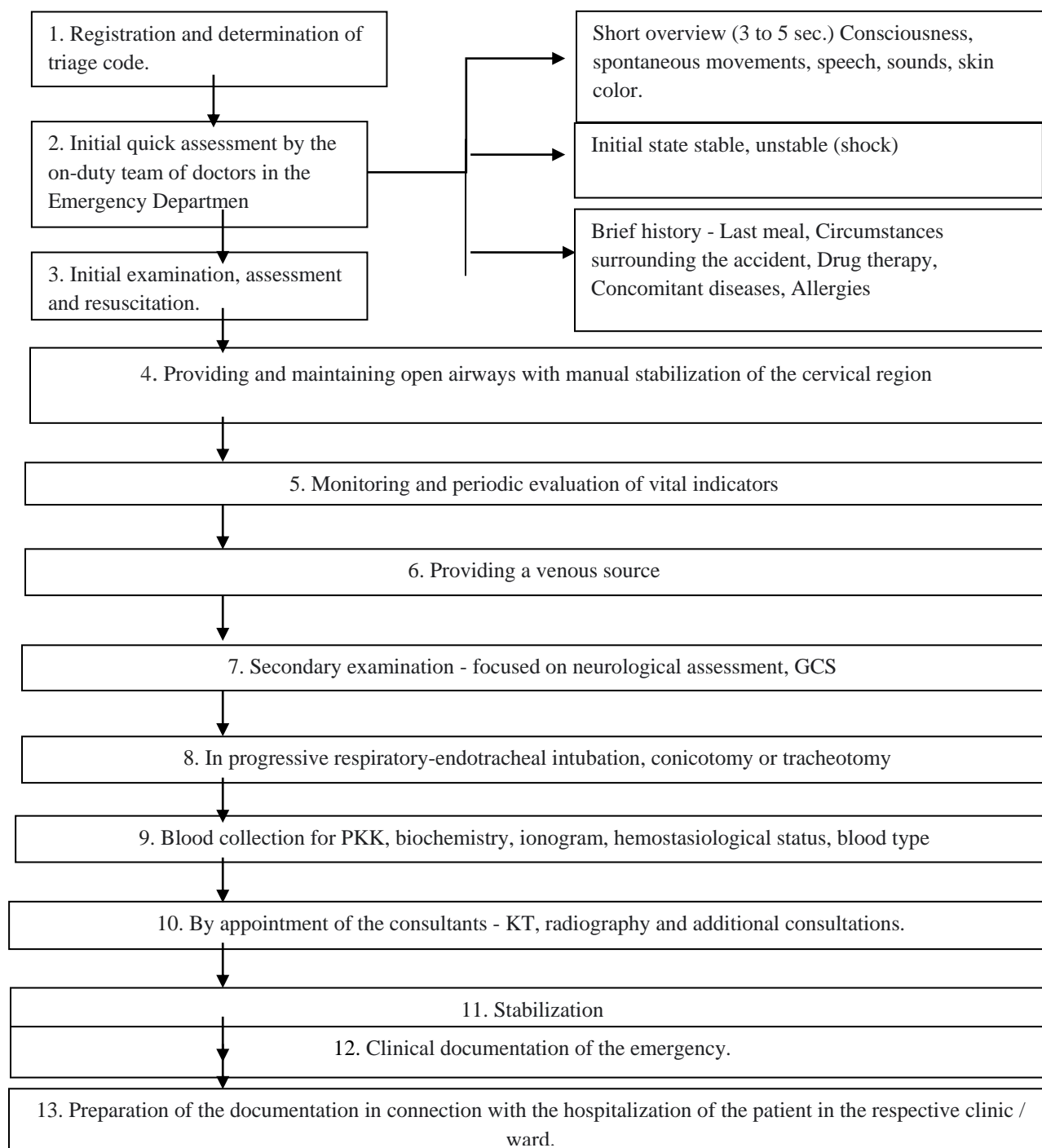
	1	2	3	4	5	6
Eyes	He doesn't open his eyes	He opens his eyes in response to pain	He opens his eyes when he hears a speech	He opens his eyes spontaneously	-	-
Verbal response	It does not make sounds	Makes incomprehensible sounds	Says unrelated words	Confused, disoriented	Oriented, speaks normally	-
Motor response	Does not make movements	Responds with pain extension	Abnormal flexion in pain	Flexion / withdrawal in pain stimulus	Protective response to pain stimulus	Executes commands

Road accidents lead to very serious injuries, causing suffering to victims and their families. In addition, these traumas have a major impact on society as a whole.

First aid in case of a traffic accident is a set of simple but sufficiently appropriate and effective measures designed to save the life of the victim and prevent the development of possible complications related to the trauma.

## 2. FIRST AID IN CASE OF A TRAFFIC ACCIDENT

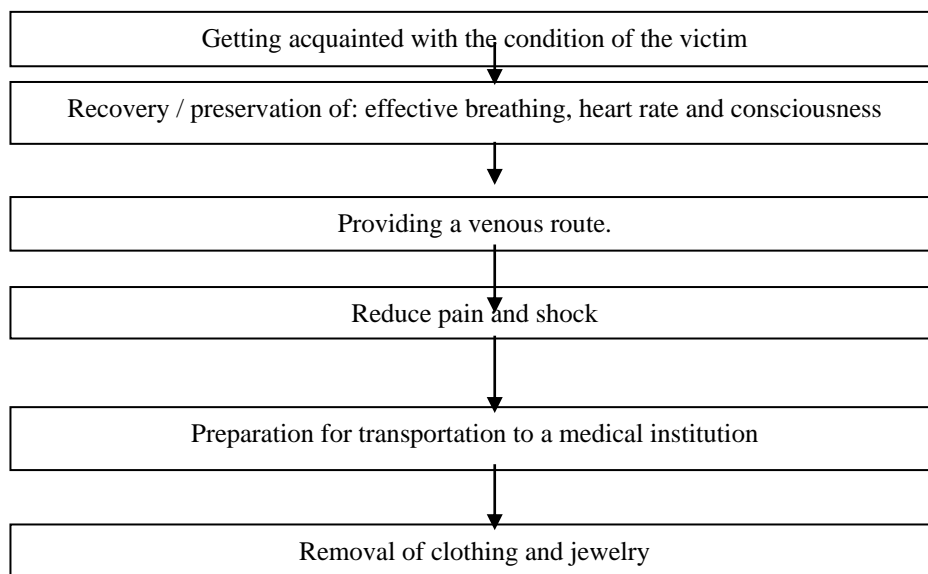




Burn injuries are a major global public health problem with serious consequences for the lives and health of victims, which requires raising the awareness and professional competence of health professionals. Burns are easy to diagnose but difficult to treat. The application of effective health care in the treatment of burns largely depends on the competence and professionalism of health care professionals, theoretical knowledge, assessment skills and individual approach. Pre-hospital behavior is subject to the restoration and maintenance of vital functions of the body, immobilization and transport. The medical assistance provided at the scene of the accident is extremely important for the forthcoming therapeutic process and for the life of the victim and the consequences of the trauma. The process starts from the place of the defeat and lasts for months and years until the complete recovery of the

victim. The effective organization of health care in the healing process of trauma should be achieved through the use of modern methods and tools for the application of good medical practice.

Algorithm of first aid for burns:



Successful and differentiated treatment of modern severe injuries, combined injuries, burn injuries and others requires cooperation between surgeons, traumatologists, resuscitators, who examine the victim and solve life-saving manipulations, specify which damage is leading, which operation is life-saving start treatment with it. Treatment of musculoskeletal injuries is usually performed simultaneously or after completion of treatment for head, chest and abdominal injuries.

The prevention of injuries in order to reduce them is a matter of public policy and can hardly be solved. There remains the possibility of prevention of complications of injuries, which depends on properly organized activities to provide first aid to victims, qualified and specialized medical trauma care. Without the necessary physiotherapy and rehabilitation - hospital, home, outpatient and sanatorium, it is unthinkable the successful treatment of traumatically ill and their return to work and life. The prevention of injuries in order to reduce them is a matter of public policy and can hardly be solved. There remains the possibility of prevention of complications of injuries, which depends on properly organized activities to provide first aid to victims, qualified and specialized medical trauma care. Without the necessary physiotherapy and rehabilitation - hospital, home, outpatient and sanatorium, it is unthinkable the successful treatment of traumatically ill and their return to work and life.

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