

**MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY**

**Контрольный
экземпляр**



APPROVED

First Vice-Rector, Professor

S.V. Gubkin

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Reg # *УД-л. 533а/1617/уч.*

MEDICINE OF EXTREME SITUATIONS

**Curriculum of higher educational institution
in the educational discipline for the specialty:**

1-79 01 01 General Medicine

Minsk, BSMU 2016

Curriculum is based on the standard educational program “Medicine of Extreme Situations”, approved 17.03.2016, registration # TD-L. 533/tip

COMPILERS:

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RECOMMENDED FOR APPROVAL:

by the Department of organisation of medical service of armed forces and extreme medicine of the Educational Institution “Belarusian State Medical University”
(protocol # 1 of 08.12.2015);

by the Methodological Commission of the Military-Medicine Sciences of the Educational Institution “Belarusian State Medical University”
(protocol # 1 of 21.12.2015)

EXPLANATORY NOTE

“Medicine of extreme situations” is the educational discipline containing systematized scientific knowledge and techniques in the field of Medicine of extreme situations, according to the prevention of emergence of affected citizens in extreme situations, the organisation of medical care at the population in emergency situations, and also event on preservation and recovery of health of victims.

The curriculum of the discipline “Medicine of extreme situations” includes the latest scientific data about the organisation of medical provision at citizens in emergency situations.

The aim of teaching and learning the discipline Medicine of extreme situations is to provide the students with the scientific knowledge about the abilities necessary for the organisation and carrying out actions for providing medical care at citizens in various extreme situations.

The tasks of studying the discipline are to develop the students’ academic competences, based on the ability to self-search educational and information resources, as well as acquire and understand the knowledge of:

- the main concepts characterising emergency situations and principles of the organisation of rendering medical care in emergency situations;
- principles of rendering medical care by the struck in emergency situations at a pre-hospital stage;
- the most important clinical manifestations of affected by poisoning and highly toxic substances;
- the factors influencing the organisation of rendering medical care by the struck in emergency situations;
- etc.

The tasks of teaching the discipline include the formation of students’ social, personal and professional competences, based on the knowledge and application of:

- the ability and development to get and use new knowledge;
- an interdisciplinary approach to the solution of problems;
- the ability to operate independently;
- such personal qualities as patriotism, ability to come to the rescue of another person in an extreme situation, to keep medical secret, etc.;
- ideological and moral values of the society and state, and the ability to follow them;
- acquisition of special knowledge and abilities necessary for carrying out professional activity under conditions of emergency situations.

Specific features of training doctors in the specialty 1-79 01 07 Dentistry require purposeful study of “Medicine of extreme situations”.

Teaching and successful learning of the discipline “Medicine of extreme situations” is carried out on the basis of the knowledge and skills previously acquired by the students in the following disciplines:

Human anatomy. The bones of the skeleton system. The cardiovascular system. The respiratory system. The digestive system. The central, peripheral and autonomic nervous system.

Normal physiology. Blood system. Physiology of excitable tissues. Nervous regulation of physiological functions. Physiology of circulation.

Biological Chemistry. Biochemical mechanisms provide cells with energy.

General hygiene. Environment and its hygienic value. Occupational Health. Hygiene water. Food hygiene.

As a result of studying the discipline “Medicine of extreme situations” the student should

know:

- the basic concepts (principles) of Medicine of extreme situations;
- the task and the organisation of civil defence in Republic of Belarus in modern conditions, the state system of the prevention and elimination of extreme situations in accidents and natural disasters;
- the task and organizational structure of urgent (emergency) medical care, the fundamentals of the organisation of medical care and evacuation of victims in emergency situations;
- medicotactical characteristics of natural and technogenic accidents;
- symptomatology and the main principles of rendering emergency medical care in case of poisonings and critical conditions;
- actions for the protection of the population in accidents at nuclear and power plants;
- the basic principles of the organisation of sanitary-hygienic and antiepidemic measures in emergency situations.;

be able to:

- to carry out medical assessment of an emergency situation;
- to organise medical sorting, rendering urgent help to the victim in an emergency situation;
- to develop a platform of special processing and to organise work at a stage of medical evacuation.

master:

- to use collective and individual means of protection;
- to render primary medical care (urgent measures for rescue of citizens) to the victims in a critical condition who have a thermal or chemical burn, frostbite, an electrotrauma or poisoning.

The structure of the curriculum in the educational discipline Medicine of extreme situations:

«Fundamentals of medicine of disasters»;

«Medical protection in emergency situations»;

«Military toxicology and toxicology of extreme situations».

Total number of hours for the study of the discipline is 152 academic hours. Classroom hours according to the types of studies: lectures - 26 hours, laboratory

studies (practical classes - 6 hours, group classes - 59 hours)¹, student independent work (self-study) - 57 hours.

Current assessment is carried out according to the syllabus of the specialty in the form of a credit (6th semester), graded credit (7th semester).

Form of higher education – full-time.

ALLOCATION OF ACADEMIC TIME ACCORDING TO SEMESTERS OF STUDY

Code, name of the specialty	semester	Number of academic hours					Form of current assessment
		total	in-class	including		out-of-class self-studies	
				lectures	laboratory studies (practical classes and seminars)		
1-79 01 01 General Medicine	6	74	42	12	30	32	Credit
	7	78	49	14	35	29	Graded credit

¹ According to the syllabus of a particular discipline.

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	practical (laboratory or seminars)
1. Section "Fundamentals of medicine of disasters"	12	20
1.1. Medico-tactical characteristic of emergency situations	2	2
1.2. Medico-tactical characteristic of accidents on chemically-hazardous objects and radiation-hazardous objects	2	2
1.3. Public health system	2	2
1.4. The All-hazards Approach – Comprehensive Emergency Management	2	4
1.5. Triage	2	6
1.6. Emergency Management System	2	4
2. Section "Medical protection in emergency situations"	4	20
2.1. The characteristic of striking factors at nuclear explosions	2	
2.2. Organisation and carrying out radiation and chemical survey	2	
2.3. Means of individual and collective protection		4
2.4. Medical means of protection from chemical and radiation affection		2
2.5. Means of radiation survey, radiometric and radiation control		4
2.6. Means of chemical investigation and indication of poison gases		4
2.7. Special processing		4
2.8. Assessment of a chemical situation		2
3. Section "Military toxicology and toxicology of extreme situations"	10	25
3.1. Concept about military toxicology and toxicology of extreme situations	2	2
3.2. Modern methods of diagnostics and treatment of acute poisonings	2	3
3.3. Poisoning and highly toxic substances of neurotoxic action		4
3.4. Poisoning and highly toxic substances of cytotoxic action		3
3.5. Poisoning and highly toxic substances of pulmonotoxic and irritating action		3
3.6. Poisoning and highly toxic substances the all-poisonous action	2	3
3.7. Toxicological characteristic of technical liquids widespread in national economy	2	4
3.8. Toxicological characteristic of poisons and toxins phyto-genesis and animal origin	2	3
Total hours	26	65

CONTENT OF THE EDUCATIONAL MATERIAL

1. Fundamentals of medicine of disasters

1.1. Medico-tactical characteristic of emergency situations

Medicine of extreme situations: definition, contents, main concepts. Classification of emergency situations. Medico-tactical characteristic of the emergency situations which are most typical for the Republic of Belarus.

1.2. Medico-tactical characteristic of accidents on chemically-hazardous objects and radiation-hazardous objects

Chemical and dangerous objects. The medico-tactical characteristic of failures on chemical and dangerous objects. Radiation and dangerous objects. The major striking factors at radiation failures. The basic principles of radiation safety ensuring the medico-tactical characteristic of failures on radiation and dangerous objects.

1.3. Public Health System

Definition, tasks and structure of the state system of the prevention and elimination of emergency situations. Definition, tasks and structure of a branch subsystem of the state system of the prevention and elimination of emergency situations of Ministry of Health of the Republic of Belarus. Definition and problems of civil defense.

1.4. The All-hazards Approach – Comprehensive Emergency Management

The system of stage treatment of victims in emergency situations. The organisation of medical care rendering in emergency situations. The Organisation and carrying out medical sorting of victims at emergency situations. Organisation of medical evacuation.

1.5. Triage

Algorithm 1 «Procedure of rendering urgent medical care». Algorithm 2 «Primary inspection of the patient (ABCD)». Heart and pulmonary and brain reanimation. Main techniques of rendering of emergency (medical) care. Thorough examination of the patient, repeated assessment of the situation and decision-making.

1.6. Emergency Management System

Emergency care service. The organisation of work of a health care establishment in emergency in this health care establishment. The organisation of work of health care establishments at mass arrival of victims. The organisation of work of medical formations in emergency situations. Planning and organisation of rendering of medical care to the population in emergency situations.

Principles of ensuring sanitary and epidemic well-being in zones of emergency situations. Organisation and characteristic of main sanitary-hygienic and antiepidemic actions. The organisation of work of formations and health care establishments in the centers of mass infectious diseases.

2. Medical protection in emergency situations

2.1. The characteristic of striking factors at nuclear explosions

Types of the nuclear weapon. Striking factors of nuclear explosion.

2.2. Organisation and carrying out radiation and chemical survey

Organisation and carrying out radiation survey. Organisation and carrying out chemical investigation.

2.3. Means of individual and collective protection

Classification of means of individual protection. Means of individual protection of respiratory organs of filtering and isolating types, their operating and physiology-hygienic characteristic. Medical control of antigas training. Use of means of individual protection of respiratory organs at medical evacuation stages. Means of individual protection of skin, operating and physiology-hygienic characteristic. Collective means of protection, purpose, device. Sanitary and hygienic requirements to medical shelters.

2.4. Medical means of protection from chemical and radiation affection

Medical means of protection from chemical lesions (antidotes). Main groups of antidotes, their mechanism of action. Medical means of protection from external radiation. Main groups of radio protectors. Mechanism of radio protective action of radioprotectors. Means of long maintenance of the increased radio resistance of an organism. Prophylactics of primary reaction to radiation, early incapacity. Means of pre-hospital treatment of an acute radiation sickness.

2.5. Means of radiation survey, radiometric and radiation control

Purpose, tasks of radiation survey, radiometric control. Technical means of radiation survey and radiometric control (DP-5, DP-64, IMD-1r). The principle of the device and the rule of work with devices of radiation survey, monitoring of radioactive infection and measurement of exposure doses (DKP-50, ID-1, ID-11). Organization and monitoring procedures of exposure doses of the military personnel, wounded and patients at stages of medical evacuation.

Organization and carrying out examination of water and food as to radioactive substances impurity. Admissible sizes of radiocontamination of various objects in wartime. Methods of measurement and calculation of radiocontamination degree of surfaces of various objects (medical property, food, water) on gamma radiation.

2.6. Means of chemical investigation and indication of poison gases

Purpose, tasks of chemical investigation. Methods of indication of poison gases. Technical means of chemical investigation and indication of poison gases in field conditions: film indicator (AP-1), army device of chemical investigation (ADCI), gas-signaling device (GSD-11), their purpose, structure.

Organization and carrying out chemical investigation and monitoring in subdivisions and units of health care service. Selection rules of samples for analysis on poison gases. Detection of poison gases in water, foodstuff. Safety measures when carrying out indication of poison gases.

2.7. Special processing

Types of special processing. Ways and methods of disinfection applied to carrying out special processing. Solutions (formulation) for decontamination, deactivation and dysinfection.

Technical means of special processing. The organization of special processing at stages of medical evacuation. Organization of work of a partial special processing platform. Purpose, structure, technical means of special processing, the order of

cleansing wounded and affected patients by the poisonous and radioactive substances. Safety measures when carrying out special processing.

2.8. Assessment of a chemical situation

Purpose and methods of a chemical situation assessment. Initial data for an assessment of a chemical situation in the interests of the organization of emergency medical care in emergency situations. Solution of situational tasks on an assessment of a chemical situation.

3. Military toxicology and toxicology of extreme situations

3.1. Concept about military toxicology and toxicology of extreme situations

Definition and tasks of common toxicology. The role and place of military toxicology and toxicology of extreme situations in common toxicology. History of toxicology development. Classification of PHTS. Toxicokinetics and toxicodynamics of poisons. Chemical weapon: definition, classification. Requirements put forward to fighting toxic agents, diversionary poisons. Concept about the center of chemical infection. Features of carrying out medical sorting of victims.

3.2. Modern methods of diagnostics and treatment of acute poisonings

Acute poisonings: definition, classification. Common principles of diagnosis of acute poisonings. Main syndromes of acute poisonings: psychoneurological violations, convulsive, toxic hyper- and hypothermias, dysfunction of respiration, dysfunction of cardiovascular system, toxic damage of the liver and kidneys, damages of the digestive tract. Clinical manifestations, diagnostics, rendering medical care at a pre-hospital stage. Common principles of acute poisonings treatment. Actions at peroral and inhalation poisonings, damages of the skin.

The doctrine about antidotes, brief characteristic and classification of modern antidotes.

Modern methods detoxication of actions: methods of stimulation of natural detoxication, artificial diuresis, hyperbaric oxygenation, methods of simulated physical and chemical detoxication, methods of detoxication of blood plasma, enterosorbption, dialysis and filtration methods of detoxication, methods detoxication physio- and chemotherapies.

3.3. Poisoning and highly toxic substances of neurotoxic action

Concept about neurotoxicity and main neuromediators. Classification of PHTS of the neuroparalytic action. Brief toxicological characteristic of PHTS of convulsive action: organophosphorous poison gases (OPG), carbamates. Main mechanisms of toxic action of PhOS, clinical manifestations of acute intoxication, main directions of antidotal therapy.

Brief characteristic of PHTS of paralytic action.

Classification of PHTS of psychotomimetic action.

Brief toxicological characteristic, mechanisms of toxic action, clinical manifestations of affection, rendering medical help at DI.K intoxication.

Brief toxicological characteristic of BZ. Medicotactical characteristic of the centre of BZ chemical infection. Mechanisms of toxic action, clinical manifestations affection, antidotal therapy at BZ intoxication.

3.4. Poisoning and high-toxic substances of cytotoxic action

Classification of PHTS of cytotoxic action. Toxicological characteristic of yprites. Medicotactical characteristic of the centers of chemical infection with yprites. Pathogenesis of pyritycal intoxication. Clinical characteristic of lesions by sulphurous yprite of the skin, eye, respiratory organs and digestion. Periods of general resorptive effect of yprites. Early and late complications of affection by yprite. Features of a clinical course of lesions by nitrogenous yprite.

Toxicological characteristic of lewisite. Medicotactical characteristic of centers of chemical infection with lewisite. Pathogenesis, clinical picture of local and general resorptive affection by lewisite. Antidotal therapy at poisoning with thiol poisons — compounds of arsenic.

Toxicological characteristic of dioxine. Pathogenesis, clinical picture of local and general resorptive affection of dioxine. Forecasting.

Mechanisms of toxic action, clinical manifestations of affection, antidotal therapy at BZ intoxication.

3.5. Poisoning and high-toxic substances of pulmonotoxic and irritant action

Classification of PHTS of pulmonotoxic and irritant action.

PHTS of suffocating action: phosgene, diphosgene. Mechanism of toxic action. Clinical picture of the respiratory distress syndrome of adults of a chemical etiology. Emergency aid at a pre-hospital stage. Periods of affection of suffocat action. Diagnosis, complications, forecasting PHTS.

Toxicological characteristic of lacrimators, sternites, combined (CS) and algagenny (CR) of actions. Mechanisms of toxic action. Clinical manifestations and diagnosis of affection. Emergency medical care at a pre-hospital stage.

Medicotactical characteristic of the centers of chemical infection formed by pulmotoxicant, lacrimators, sternites.

3.6. Poisoning and high-toxic substances of all-poisonous action

Classification and common features of PHTS poisonings of all-poisonous action. Medicotactical characteristic of the centers of chemical infection formed by Cyanidums.

Toxicological characteristic of a cyanhydric acid, Cyanidums and monoxide of carbon. Pathogenesis and clinical characteristic of separate forms of affection. Features of clinical manifestations at cyanogen chloride affection. The main directions of antidotal therapy at lesions by cyanhydric acid, carbon monoxide.

3.7. Toxicological characteristic of technical liquids widespread in national economy

Toxicological characteristic, mechanisms of toxic action, clinical manifestations of acute intoxication, rendering emergency aid at a pre-hospital stage at affection by technical liquids widespread in national economy (ammonia, chlorine, trichloroethylene, hydrogen sulfide, hydrogen dioxide, carbon disulfide, acrylonitrile, sulfuric and hydrochloric acids, sulfur oxides, nitrogen oxides).

Toxicological characteristic, mechanisms of toxic action? clinical manifestations of acute intoxication, rendering emergency aid at a pre-hospital stage

EDUCATIONAL DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	Emergency medicine	26	65	49	3.1
1	Fundamentals of disaster medicine	12	20	15	3.1
1.1	Medicotactical characteristics of emergency situations	2	2	2	
	Medicine of emergency situations: definition, content, main concepts. Classification of emergency situations. Medicotactical characteristics of emergency situations which are most typical for the Republic of Belarus.	2			
	Emergency Medicine: definition, content, main concepts. Classification of emergency situations. Medicotactical characteristic of emergency situations which are most typical for the Republic of Belarus.		2		1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
1.2	Medicotactical characteristics of accidents at chemically-hazardous sites and radiation-hazardous objects	2	2	2	
	Chemically dangerous objects. The medicotactical characteristic of failures at chemically dangerous objects. Radiational dangerous objects. The major striking factors in radiation failures. The basic principles of radiation safety ensuring the medicotactical characteristics of failures at radiation dangerous objects.	2			
	Chemically dangerous objects. The medicotactical characteristics of failures at chemically dangerous objects.		2		1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	Radiation dangerous objects. The major striking factors in radiation failures. The basic principles of radiation safety ensuring the medicotactical characteristic of failures at radiation dangerous objects.				
1.3	Public Health System	2	2	1	
	Definition, tasks and structure of the state system of the prevention and elimination of emergency situations. Definition, tasks and structure of the branch subsystem of the state system of the prevention and elimination of emergency situations of Ministry of Health of the Republic of Belarus. Definition and problems of civil defense.	2			
	Definition, tasks and structure of the state system of the prevention and elimination of emergency situations. Definition, tasks and structure of the branch subsystem of the state system of the prevention and elimination of emergency situations of Ministry of Health of the Republic of Belarus. Definition and problems of civil defense.		2	1	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
1.4	The All-hazards Approach – Comprehensive Emergency Management	2	4	3	
	The system of stage treatment of victims in emergency situations. The organisation of medical care in emergency situations. The Organisation and carrying out medical sorting of victims in emergency situations. Organisation of medical evacuation.	2			
	The system of stage treatment of victims in emergency situations. Organization of medical care in emergency situations.		4	3	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	Organisation and carrying out medical sorting of victims in emergency situations. Organisation of medical evacuation.				
1.5	Triage	2	6	4	
	Algorithm 1 «Procedure of rendering urgent medical care». Algorithm 2 «Primary inspection of the patient (ABCD)». Heart and pulmonary and brain reanimation. Main techniques of rendering emergency medical care. Thorough examination of the patient, repeated assessment of the situation and decision-making.	2			
	Algorithm 1 «Procedure of rendering urgent medical care». Algorithm 2 «Primary inspection of the patient (ABCD)». Heart and pulmonary and brain reanimation. Main techniques of rendering emergency medical care. Thorough examination of the patient, repeated assessment of the situation and decision-making.		6	4	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
1.6	Emergency Management System	2	4	3	
	Emergency care service. The organisation of work of a health care institution in emergency. The organisation of work of health care institution in case of mass arrival of victims. The organisation of work of medical formations in emergency situations. Planning and organisation of medical care to the population in emergency situations. Principles of ensuring sanitary and epidemic well-being in zones of emergency situations. Organisation and characteristics of main sanitary-hygienic and antiepidemic actions.	2			

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	The organisation of work of formations and health care institutions in the centers of mass infectious diseases.				
	Emergency care service. The organisation of work of a health care institution in emergency. The organisation of work of health care institutions in case of mass arrival of victims. The organisation of work of medical formations in emergency situations. Planning and organisation of medical care to the population in emergency situations. Principles of ensuring sanitary and epidemic well-being in zones of emergency situations. Organisation and characteristics of the main sanitary-hygienic and antiepidemic actions. The organisation of work of formations and health care institutions in the centers of mass infectious diseases.		4	3	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
2	Medical protection in emergency situations	4	20	15	
2.1	The characteristics of striking factors in nuclear explosions	2			
	Types of the nuclear weapon. Striking factors of nuclear explosions.	2			
2.2	Organisation and carrying out radiation and chemical survey	2			
	Organisation and carrying out radiation survey. Organisation and carrying out chemical investigation.	2			
2.3	Means of individual and collective protection		4	3	
	Classification of means of individual protection. Means of individual protection of respiratory organs of filtering and isolating types, their operating and physiology-hygienic characteristic.		4	3	1.1, 1.2, 1.4, 2.1, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	<p>Medical control of antigas training.</p> <p>Use of means of individual protection of respiratory organs at medical evacuation stages.</p> <p>Means of individual protection of skin, operating and physiology-hygienic characteristics.</p> <p>Collective means of protection, purpose, device.</p> <p>Sanitary and hygienic requirements to medical shelters.</p>				
2.4	Medical means of protection from chemical and radiation damage		2	2	
	<p>Medical means of protection from chemical lesions (antidotes).</p> <p>Main groups of antidotes, their mechanism of action.</p> <p>Medical means of protection from external radiation.</p> <p>Main groups of radioprotectors.</p> <p>Mechanism of radioprotective action of radioprotectors.</p> <p>Means of long maintenance of the increased radio resistance of an organism.</p> <p>Prophylactics of primary reaction to radiation, early incapacity.</p> <p>Means of pre-hospital treatment of an acute radiation sickness.</p>		2	2	1.1, 1.2, 1.4, 2.1, 4.1
2.5	Means of radiation survey, radiometric and radiation control		4	3	
	<p>Purpose, tasks of radiation survey, radiometric control. Technical means of radiation survey and radiometric control (DP-5, DP-64, IMD-1r).</p> <p>The principle of the device and the rule of work with devices of radiation survey, monitoring of radioactive infection and measurement of exposure doses (DKP-50, ID-1, ID-11).</p> <p>Organization and monitoring procedures of exposure doses of the military personnel, wounded and patients at stages of medical evacuation.</p>		4	3	1.1, 1.2, 1.4, 2.1, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	<p>Organization and carrying out examination of water and food as to radioactive substances impurity.</p> <p>Admissible sizes of radiocontamination of various objects in wartime.</p> <p>Methods of measurement and calculation of radiocontamination degree of surfaces of various objects (medical property, food, water) on gamma radiation.</p>				
2.6	Means of chemical investigation and identification of poisonous gases		4	3	
	<p>Purpose, tasks of chemical investigation.</p> <p>Methods of identification of poisonous gases.</p> <p>Technical means of chemical investigation and identification of poisonous gases in field conditions: film indicator (AP-1), army device of chemical investigation (ADCI), gas-signaling device (GSD-11), their purpose, structure.</p> <p>Organization and carrying out chemical investigation and monitoring in subdivisions and units of health care service.</p> <p>Selection rules of samples for analysis of poisonous gases.</p> <p>Detection of poisonous gases in water, foodstuff.</p> <p>Safety measures when carrying out identification of poisonous gases.</p>		4	3	1.1, 1.2, 1.4, 2.1, 4.1
2.7	Special processing		4	2	
	<p>Types of special processing.</p> <p>Ways and methods of disinfection applied to carrying out special processing. Solutions (formulation) for decontamination, deactivation and dysinfection.</p> <p>Technical means of special processing.</p> <p>The organization of special processing at stages of medical evacuation.</p> <p>Organization of work of a partial special processing platform.</p> <p>Purpose, structure, technical means of special processing, the order of cleansing the</p>		4	2	1.1, 1.2, 1.4, 2.1, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	wounded and patients affected by the poisonous and radioactive substances. Safety measures when carrying out special processing.				
2.8	Assessment of chemical situation		2	2	
	Purpose and methods of chemical situation assessment. Initial data for assessment of a chemical situation in the interests of the organization of emergency medical care in emergency situations. Solution of situational tasks in the chemical situation.		2	2	1.1, 1.2, 1.4, 2.1, 4.1
3	Military toxicology and toxicology of emergency situations	10	25	19	
3.1	Concept of military toxicology and toxicology of emergency situations	2	3	2	
	Definition and tasks of general toxicology. The role and place of military toxicology and toxicology of emergency situations in general toxicology. History of toxicology development. Classification of PHTS. Toxicokinetics and toxicodynamics of poisons. Chemical weapon: definition, classification. Requirements put forward to fighting toxic agents, diversionary poisons. Concept of the center of chemical infection. Specific features of carrying out medical sorting of victims.	2			
	Definition and tasks of general toxicology. The role and place of military toxicology and toxicology of emergency situations in general toxicology. History of toxicology development. Classification of PHTS.		3	2	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	<p>Toxicokinetics and toxicodynamics of poisons.</p> <p>Chemical weapon: definition, classification.</p> <p>Requirements put forward to fighting toxic agents, diversionary poisons.</p> <p>Concept of the center of chemical infection.</p> <p>Specific features of carrying out medical sorting of victims.</p>				
3.2	Modern methods of diagnosis and treatment of acute poisonings	2	5	3	
	<p>Acute poisonings: definition, classification.</p> <p>Common principles of diagnosis of acute poisonings.</p> <p>Main syndromes of acute poisonings: psychoneurological violations, convulsive, toxic hyper-and hypothermias, dysfunction of respiration, dysfunction of cardiovascular system, toxic damage to the liver, kidneys and damages of the digestive tract.</p> <p>Clinical manifestations, diagnosis, rendering medical care at the pre-hospital stage.</p> <p>General principles of acute poisonings treatment.</p> <p>Actions in peroral and inhalation poisonings, damage to the skin.</p> <p>The doctrine about antidotes, brief characteristic and classification of modern antidotes.</p> <p>Modern methods of detoxication of actions: methods of stimulation of natural detoxication, artificial diuresis, hyperbaric oxygenation, methods of simulated physical and chemical detoxication, methods of detoxication of blood plasma, enterosorbition, dialysis and filtration methods of detoxication, detoxication methods physio- and chemotherapies.</p>	2			
	<p>Acute poisonings: definition, classification.</p> <p>General principles of diagnosis of acute poisonings.</p> <p>Main syndromes of acute poisonings: psychoneurological violations, convulsive, toxic hyper-and hypothermias, dysfunction of respiration, dysfunction of cardiovascular</p>		5	3	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	<p>system, toxic damage to the liver, kidneys and the digestive tract. Clinical manifestations, diagnosis, rendering medical care at the pre-hospital stage. General principles of acute poisonings treatment. Actions in peroral and inhalation poisonings, damages to the skin. The doctrine about antidotes, brief characteristics and classification of modern antidotes. Modern methods of detoxication of actions: methods of stimulation of natural detoxication, artificial diuresis, hyperbaric oxygenation, methods of simulated physical and chemical detoxication, methods of detoxication of blood plasma, enterosorbition, dialysis and filtration methods of detoxication, detoxication methods of physio- and chemotherapies.</p>				
3.3	Poisoning and highly toxic substances of neurotoxic action	2	4	2	
	<p>Concept of neurotoxicity and main neuromediators. Classification of PHTS of the neuromediation action. Brief toxicological characteristics of PHTS of convulsive action: organophosphorous poisonous gases (OPG), carbamates. Main mechanisms of toxic action of PhOS, clinical manifestations of acute intoxication, main directions of antidotal therapy. Brief characteristics of PHTS of paralytic action. Classification of PHTS of psychotomimetic action. Brief toxicological characteristics, mechanisms of toxic action, clinical manifestations of damage, rendering medical help in DLK intoxication. Brief toxicological characteristics of BZ. Medicotactical characteristic of the centre of BZ chemical infection.</p>	2			

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	Mechanisms of toxic action, clinical manifestations of damage, antidotal therapy in BZ intoxication.				
	<p>Concept of neurotoxicity and main neuromediators.</p> <p>Classification of PHTS of the neuromediation.</p> <p>Brief toxicological characteristics of PHTS of convulsive action: organophosphorous poisonous gases (OPG), carbamates.</p> <p>Main mechanisms of toxic action of PhOS, clinical manifestations of acute intoxication, main directions of antidotal therapy.</p> <p>Brief characteristics of PHTS of paralytic action.</p> <p>Classification of PHTS of psychotomimetic action.</p> <p>Brief toxicological characteristics, mechanisms of toxic action, clinical manifestations of damage, rendering medical help in DLK intoxication.</p> <p>Brief toxicological characteristics of BZ. Medicotactical characteristic of the centre of BZ chemical infection.</p> <p>Mechanisms of toxic action, clinical manifestations of damage, antidotal therapy in BZ intoxication.</p>		4	2	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
3.4	Poisoning and high-toxic substances of cytotoxic action		2	2	
	<p>Classification of PHTS of cytotoxic action.</p> <p>Toxicological characteristics of yprites.</p> <p>Medicotactical characteristics of the centers of chemical infection with yprites.</p> <p>Toxicological characteristics of lewisite.</p> <p>Toxicological characteristics of dioxine.</p> <p>Mechanisms of toxic action, clinical manifestations of damage, antidotal therapy in BZ intoxication.</p>		2	2	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
3.5	Poisoning and high-toxic substances of pulmonotoxic and irritant action		2	2	
	Classification of PHTS of pulmonotoxic and irritant action. PHTS of suffocating action: phosgene, diphosgene. Emergency aid at the pre-hospital stage. Toxicological characteristics of lacrimators, sternites, combined (CS) and algagenny (CR) of actions. Emergency medical care at the pre-hospital stage. Medicotactical characteristics of the centers of chemical infection caused by pulmotoxicant, lacrimators, sternites.		2	2	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
3.6	Poisoning and high-toxic substances of general-poisonous action		2	2	
	Classification and common features of PHTS poisonings of all-poisonous action. Toxicological characteristics of a cyanhydric acid, cyanidums and monoxide of carbon. The main directions of antidotal therapy in lesions by cyanhydric acid, carbon monoxide.		2	2	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
3.7	Toxicological characteristics of technical liquids widespread in national economy	2	4	3	
	Toxicological characteristics, mechanisms of toxic action, clinical manifestations of acute intoxication, rendering emergency aid at the pre-hospital stage in case of damage by technical liquids widespread in national economy (ammonia, chlorine, trichloroethylene, hydrogen sulfide, hydrogen dioxide, carbon disulfide, acrylonitrile, sulfuric and hydrochloric acids, sulfur oxides, nitrogen oxides). Toxicological characteristics, mechanisms of toxic action, clinical manifestations of acute intoxication, rendering emergency aid at the pre-hospital stage in case of damage by widespread technical liquids: methanol, ethylen glycol, perchloromethane, ethylene dichloride.	2			

Section, topic #	Section (topic) name	number of hours		Self-studies	Form of control
		lectures	practical classes		
	Prophylaxis of poisonings with technical liquids.				
	Toxicological characteristics, mechanisms of toxic action, clinical manifestations of acute intoxication, rendering emergency aid at the pre-hospital stage in case of damage by technical liquids widespread in national economy. Toxicological characteristics, mechanisms of toxic action, clinical manifestations of acute intoxication, rendering emergency aid at the pre-hospital stage in case of damage by widespread technical liquids: methanol, ethylen glycol. Prophylaxis of poisonings with technical liquids.		4	3	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1
3.8	Toxicological characteristics of poisons and toxins of vegetable and animal origin	2	3	3	
	General characteristics of poisons and toxins of vegetable and animal origin, their classification by toxicity degree. Toxicological characteristics, of poisonous plants. Poisons of animal origin.	2			
	General characteristics of poisons and toxins of vegetable and animal origin, their classification by toxicity degree. Toxicological characteristic, of poisonous plants. Poisons of animal origin.		3	3	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1

at affection by widespread technical liquids: methanol, ethylen glycol, perchloromethane, ethylene dichloride.

Prophylaxis of poisonings with technical liquids.

3.8. Toxicological characteristic of poisons and toxins of vegetable and animal origin

General characteristic of poisons and toxins of vegetable and animal origin, their classification by toxicity degree.

Toxicological characteristic, pathogenesis, clinical picture, diagnosis, rendering emergency aid at a pre-hospital stage at affection by poisonous plants: henbane, dope, milestones poisonous, Lobel's chemeritsa, a nightshade with pleasure - bitter, a wolf bast, a buttercup poisonous.

Toxicological characteristic, pathogenesis, clinical picture, diagnosis, rendering emergency aid at a pre-hospital stage at affection by poisonous fungi: lines, fly agaric, pale toadstool, volokonnitsa woolly, honey agaric sulfur-yellow chance, pautinnik the singular.

Poisons of animal origin. Classification of poisonous animals. Toxicological characteristic, pathogenesis, clinical picture, diagnosis, rendering emergency aid at a pre-hospital stage at affection by poisons of insects, snakes, amphibiouses. Prophylaxis of poisonous animals stings.

Pathogenesis, clinical picture of acute alimentary poisonings with secondary and poisonous animals. Forecasting acute.

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE⁴

Basic (relevant):

1. The textbook, approved by the Ministry of Education of the Republic of Belarus.
2. Manual, approved by the Ministry of Education of the Republic of Belarus.
3. Medicine of extraordinary situations: textbook for students of higher medical institutions / V.V.Chaplyk, P.V.Oliynyk, S.T.Omel'chuk, V.V.Humenyuk. - Vinnytsya: Nova knyha, 2012. - 344 p.
4. Koenig and Shultz's Disaster Medicine: Comprehensive Principles and Practices, Authors: Kristi L. Koenig, Karl A. Shultz, CUP, 738P.

Additional:

5. Instructional manual, approved by the Academic and Methodological Association in the Field of Medical Education.
6. Scientific publication.
7. United Nations International Strategy for Disaster Reduction (UNISDR). Global Platform for Disaster Risk Reduction, Second Session, Geneva, Switzerland, 16-19 June 2009
http://www.unisdr.org/files/11963_GP09Proceedings.pdf
8. World Bank (2005). Hazards of Nature, Risks to Development.
<http://www.worldbank.org/ieg/naturaldisasters/>
9. Pan American Health Organization (1999). Humanitarian Assistance in Disaster Situations: A Guide for Effective Aid
<http://www.paho.org/english/ped/pedhuman.pdf>
10. Peppiat, D. (2006). ProVention Consortium, International Development Committee, Humanitarian Response to natural disasters. Seventh Report of Session 2005-06. House of Commons. HC 1188-II. Evidence 65-70.
11. World Health Organisation. Manual for the Public Health Management of Chemical Incident. 2009, available at
http://whqlibdoc.who.int/publications/2009/9789241598149_eng.pdf
12. World Summit on Sustainable Development (WSSD 2002)
<http://www.worldsummit2002.org/>

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competences assessment:

1. Oral forms are:
 - interviews;
 - conference reports;
 - oral credits;
 - assessment based on role-playing;

⁴ It is recommended to indicate not more than 10 sources, published over the past 5-10 years (except fundamental scientific background literature)

- cases and tests;
- 2. Written forms are:
 - tests;
 - control questioning;
 - final tests;
 - written practical exercises in class;
 - essays;
 - scientific research work;
 - publications;
 - applications for inventions and utility models;
 - written credits;
 - standardized tests;
- 3. Oral-written forms are:
 - classroom practical exercises;
 - credits;
- 4. Technical forms are:
 - computer tests;
 - electronic workshops (practicals);
 - etc.

LIST OF LECTURES

The 6th semester:

- 1.1. *Medicotactical characteristic of emergency situations*
- 1.2. *Medicotactical characteristic of accidents on chemically-hazardous objects and radiation-hazardous objects*
- 1.3. *Public health system*
- 1.4. *The All-hazards Approach – Comprehensive Emergency Management*
- 1.5. *Triage*
- 1.6. *Emergency Management System*

The 7th semester:

- 3.1. *Concept about military toxicology and toxicology of extreme situations*
- 3.2. *Modern methods of diagnosis and treatment of acute poisonings*
- 3.6. *Poisonous and highly toxic substances of all-poisonous action*
- 3.7. *Toxicological characteristic of technical liquids widespread in national economy*
- 3.8. *Toxicological characteristic of poisons and toxins of phyto-genesis and animal origin*
- 2.1. *Characteristic of striking factors at nuclear explosions*
- 2.2. *Fundamentals of organisation and carrying out radiation and chemical survey*

LIST OF LABORATORY (PRACTICAL) STUDIES

The 6th semester:

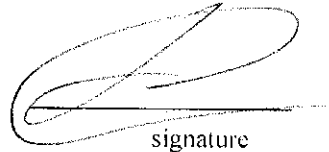
- 1.1. *Medicotactical characteristic of emergency situations*
- 1.2. *Medicotactical characteristic of accidents on chemically-hazardous objects and radiation-hazardous objects*
- 1.3. *Public health system*
- 1.4. *The All-hazards Approach – Comprehensive Emergency Management*
- 1.5. *Triage*
- 1.6. *Emergency Management System*
- 3.1. *Concept about military toxicology and toxicology of extreme situations*
- 3.2. *Modern methods of diagnostics and treatment of acute poisonings*
- 3.3. *Poisonous and highly toxic substances of neurotoxic action*
- 3.4. *Poisonous and highly toxic substances of cytotoxic action*

The 7th semester:

- 3.4. *Poisonous and highly toxic substances of cytotoxic action*
- 3.5. *Poisonous and highly toxic substances of pulmonotoxic and irritating action*
- 3.6. *Poisoning and the highly toxic substances of the all-poisonous action*
- 3.7. *Toxicological characteristic of technical liquids widespread in national economy*
- 3.8. *Toxicological characteristic of poisons and toxins of phyto-genesis and animal origin*
- 2.3. *Means of individual and collective protection*
- 2.4. *Medical means of protection from chemical and radiation affections*
- 2.5. *Means of radiation survey, radiometric and radiation control*
- 2.6. *Means of chemical investigation and indication of poison gases*
- 2.7. *Special processing*
- 2.8. *Assessment of a chemical situation*

COMPILERS/AUTHORS:

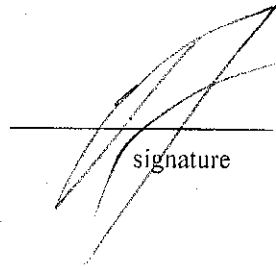
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Curriculum content, composition and accompanying documents comply with established requirements.

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23.03 2016



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