FEDERAL STATE BUDGETARY
EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
"AMUR STATE MEDICAL ACADEMY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

AGREED
Vice-Rector for Academic Affairs,

_____N.V. Loskutova

April 17, 2025

Decision of the CCMC
April 17, 2025

Protocol No. 7

APPROVED
by decision of the Academic Council of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation
April 22, 2025

Protocol No. 15

Acting Rector of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation

_____I.V. Zhukovets

April 22, 2025

ДОКУМЕНТ ПОДПИСАН
ЭЛЕКТРОННОЙ ПОДПИСЬЮ

Сертификат: 50AB2242604E64520B52614FA420034A
Владелец: Жуковец Ирина Валентиновна
Действителен: с 15.04.2025 до 09.07.2026

EDUCATIONAL PROGRAM

discipline "Traumatology, orthopedics"

Specialty: 31.05.01 General Medicine
Course: 5, 6
Semester: 10, 11
Total hours: 216hrs.
Control form: examination, 11 semester

Blagoveshchensk, 2025

The educational program of the discipline is designed in accordance with the requirements of the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine, approved by the order of the Ministry of Education and Science of Russia dated 08.12.2020 No. 988 (registered with the Ministry of Justice of Russia on 08.26.2020 No. 59493), BPEP HE (2021).

Author: Head of the Department of Traumatology with a Course in Disaster Medicine, Holder of the Advanced Doctorate of Medical Sciences, Professor, I.V. Borozda

Reviewers: Head of the Department of Hospital Surgery with a Course in Pediatric Surgery, Holder of the Advanced Doctorate in Medical Sciences, Professor, V.V. Janovoy
Head of the 1st level Trauma Center of the Amur Regional Clinical Hospital M.I. Tyurin

APPROVED at the meeting of the Department of Traumatology with a Course in Disaster Medicine
Protocol No. 8 dated April 2, 2025

Head of the Department, Holder of the Advanced Doctorate in Medical Sciences, Professor _____ I.V. Borozda

Conclusion of the Expert Commission on the review of the Educational Programs: Protocol No. 2 dated May 10, 2025

Expert of the expert commission,
Holder of the Advanced Doctorate (Doctor of Sciences) in Medical Sciences, Professor _____ A.A. Blotsky

APPROVED at the meeting of the CMC No. 4:
Protocol No. 2 dated April 15, 2025

Chairman of the CMC No. 4
Holder of the Advanced Doctorate in Medical Sciences, Professor
_____ I.V. Borozda

AGREED: Dean of the Faculty of Medicine,
Ph.D. of Medical Sciences _____ N.G. Brush

May 27, 2025

CONTENT OF THE WORK PROGRAM

Explanatory note

1.1. Characteristics of the discipline

The wealth of the country, first of all, depends on the health of the people. With the sick and disabled, it is impossible to bring the country to the level of world civilization. Over the past few years, people's social living conditions have deteriorated significantly. As a result, the generation that will be born in the current decade will be less healthy than the previous one. For the same reasons, the level of injuries cannot be reduced in the next few years. Therefore, it is extremely necessary to raise the quality of doctor's training to a much higher level.

In recent years, orthopedic pathology has expanded and undergone changes, injury rates remain high, studies of disability and mortality in trauma have shown that the latter are largely dependent on the quality of care at the prehospital stage. This determines the list of theoretical knowledge and practical skills that all students of the Faculty of Medicine, regardless of the chosen specialty, should receive at the Department of Traumatology and Orthopedics.

1.2. Goals and objectives of the discipline.

The purpose of the discipline is to train future medical doctors in orthopedics and traumatology, which is a branch of surgery and is related to other medical sciences, to train students in the specifics of diagnosing and treating patients with injuries and diseases of the musculoskeletal system.

Objectives of the discipline:

1. Familiarization of students with the history of the development of traumatology and orthopedics, the organization of traumatological and orthopedic care, its preventive orientation.
2. To teach to diagnose the most common injuries and diseases of the musculoskeletal system.
3. To teach the identification of the leading clinical syndrome of orthopedic pathology.
4. To familiarize with various methods of special clinical and paraclinical examination of patients, examination standards used to detect injuries and orthopedic pathology.
5. To teach differential diagnosis of the most important orthopedic diseases at the general non-specialized stage according to clinical data using the simplest additional methods of examination and in-hospital - using diagnostic algorithms.
6. To acquaint patients with various diseases and malformations in different age groups, their results and complications in the early and late postoperative period.
7. To teach first aid in case of injury of the musculoskeletal system.
8. To cultivate in future doctors a sense of medical duty and responsibility, tolerance and generosity to the patient.

8.3. The place of the discipline in the structure of the basic educational program of higher education

The academic discipline "Traumatology, Orthopedics" is included in the basic part of Block 1 of the BRI HE specialist's program, a professional cycle of disciplines and is mandatory for study. The total labor intensity is 6 ze (216 hours). The academic discipline "Traumatology, Orthopedics" does not provide for division into modules and sections.

1.3.1. Requirements for students

To study the discipline, it is necessary to have knowledge, skills and abilities formed by the previous disciplines:
Latin
Knowledge: basic medical and pharmaceutical terminology in Latin.
Skills: to be able to apply knowledge for communication and obtaining information from medical literature, medical documentation (II-III level).
Professional Foreign Language
Knowledge: basic medical and pharmaceutical terminology in a foreign language (II-III level).
Skills: be able to apply knowledge for communication and obtaining information from foreign sources.
History of Medicine
Knowledge: outstanding figures of medicine and health care, outstanding medical discoveries in the field of pediatric orthopedics, the influence of humanistic ideas on medicine (II-III level).
Skills: to be able to competently and independently present and analyze the contribution of domestic scientists to the development of pediatric orthopedics.
Philosophy
Knowledge: methods and techniques of philosophical analysis of problems; forms and methods of scientific cognition, their evolution; the main patterns and trends in the development of the world historical process; Laws of dialectical materialism in medicine. (II-III level)
Skills: to be able to competently and independently expound, analyze the forms and methods of scientific cognition and the laws of dialectical materialism in medicine.
Bioethics
Knowledge:moral and ethical norms, rules and the principles of professional medical conduct, the rights of the patient and the doctor, the main ethical documents regulating the activities of the doctor (II-III level).
Skills: to be able to build and maintain working relationships with patients and other team members.
Histology, embryology, cytology
Knowledge: embryogenesis, histological structure of tissues and systems (II-III level).
Skills: to be able to determine age-related patterns in the development of organs and systems, to analyze the results of histophysiological examination,
Microbiology with virology
Knowledge: the effect of microbes, viruses, rickettsiae, fungi on the body. Microbiological diagnostics of infectious diseases (level II).
Skills: to be able to analyze the results of microbiological diagnostics of infectious diseases.
Modern problems of regeneration
Knowledge:biological essence, the main forms and phases of the main types of regeneration - physiological and reparative; general ideas about the possibility of stimulating regenerative processes occurring in the body; the main types of stem cells, sources of their production, application in medicine (II-III level).
Skills: be able to analyze the patterns of physiological and reparative regeneration and the importance of the immune system.
Physics, mathematics. Medical informatics. Medical Biophysics
Knowledge: mathematical methods for solving intellectual problems and their application in

medicine; theoretical foundations of computer science, collection, storage, search, processing, transformation, distribution of information in medical and biological systems, the use of information computer systems in medicine and health care; principles of operation and structure of equipment used in medicine, the basics of physical and mathematical laws that arereflected in medicine (II-III level).
Skills: to be able to use educational, scientific, literature, the Internet for professional activities, to work with equipment taking into account safety rules**.**
Chemistry. Bioorganic Chemistry in Medicine
Knowledge: the chemical and biological essence of the processes occurring in a living organism at the molecular and cellular levels (level II-III).
Skills: to be able to analyze the contribution of chemical processes to the functioning of the cardiovascular, respiratory, digestive, urinary, hematopoietic systems.
Biochemistry
Knowledge: blood composition, biochemical blood constants, hormones, buffer systems, hemoglobin oxygenation factors, erythrocyte metabolism (level II-III).
Skills: to be able to analyze the contribution of biochemical processes in the functioning of organs and cardiovascular, respiratory, digestive, urinary, hematopoietic systems, to interpret the results of the most common methods of laboratory diagnostics to identify disorders in orthopedic diseases.
Biology
Knowledge: the laws of genetics, its importance for medicine; patterns of heredity and variability in individual development as the basis for understanding the pathogenesis and etiology of hereditary and multifactorial diseases; biosphere and ecology, the phenomenon of parasitism and bioecological diseases (level II-III).
Skills: to be able to analyze the patterns of heredity and variability in the development of orthopedic diseases
Anatomy
Knowledge: Anatomical and physiological features of the respiratory, cardiovascular, digestive, hematopoietic systems (II-III level).
Skills: to be able to analyze the age and sex features of the structure of the human musculoskeletal system.
Normal physiology
Knowledge: reflex arc, conditioned and unconditioned reflexes, physiology of the musculoskeletal system of a person in the norm (II-III level).
Skills: to be able to analyze the importance of the regulation of biological processes in the human body on the functioning of the musculoskeletal system
Topographic Anatomy, Surgical Surgery
Knowledge: structure, topography of cells, tissues, organs and systems of the body in interaction with their function in health and pathology. (Level II)
Skills: to be able to analyze the functional features of the human musculoskeletal system
Pathophysiology, clinical pathophysiology
Knowledge: morphological changes in body tissues in pathology of the human musculoskeletal system (level II).
Skills: to be able to determine the contribution of pathophysiological processes to the development of diseases of the musculoskeletal system of a person
Pharmacology
Knowledge: the mechanism of action and side effects of various drugs on the body.(II-III level).

Skills: to be able to write prescriptions for prescribed drugs, to know the indications and contraindications for their prescription.
Propaedeutics of internal diseases
Knowledge: Be able to conduct anamnestic and physical examination, identify the main syndromes and symptoms of diseases of the musculoskeletal system.
Skills: collection of complaints, anamnesis, objective methods of examination of patients (palpation, percussion, auscultation (II-III level).
Radiation diagnostics
Knowledge: the principles of X-ray examinations for the study of topographic anatomy by X-ray techniques (radiography, radiopaque studies, MRI, etc.).
Skills: to identify the presence of fractures, dislocations, tumors, degenerative and inflammatory diseases on radiographs. To compare clinical and instrumental data.
Neurology
Knowledge: etiology, pathogenesis, main symptoms and syndromes of nervous system damage, clinic, diagnosis, treatment and prevention of the most common diseases of the nervous system; clinical picture, features of the course and possible complications of the most common diseases of the nervous system, which occur in a typical form in children, adolescents and adults.
Skills: to collect anamnesis, interview the patient, his relatives, conduct a physical examination for a neurological disease, collect hereditary history and genealogical information; conduct a study of the neurological status and interpret the results of the examination, make a diagnosis, outline an examination plan to clarify the diagnosis, prescribe drug therapy.
Surgical diseases
Knowledge: classification of surgical diseases; the basics of planning surgical intervention, its main stages; methods of preventing complications and rehabilitation issues in the postoperative period.
Skills: to collect anamnesis, to interview the patient, his relatives, to conduct a physical and radiation examination, to formulate a preliminary diagnosis, a study plan, to evaluate the results of tests based on the variety of cynical manifestations of diseases; to assess the effectiveness of the surgical treatment.

1.3.2. Interdisciplinary Links of the Discipline with Subsequent Disciplines

Knowledge and skills acquired in the discipline "Traumatology, Orthopedics" are necessary for the study of the following disciplines:

Nop/n	Names of subsequent disciplines	Numbers of sections of this discipline necessary for the study of subsequent disciplines
1	Anesthesiology, Resuscitation, Intensive Care	+
2	Clinical Pharmacology	+
3	Phthisiology	+
4	Outpatient therapy	+

5	Hospital Therapy	+
6	Oncology, radiation therapy	+
7	Actual problems of cardiology	+
8	Laboratory diagnostics	+

1.3.3. Requirements for the results of mastering the discipline

The process of studying the discipline "Traumatology, Orthopedics" is aimed at **the formation of the following general cultural (GC), general professional (GPC) and professional competencies (PC):** OK-1,4,5; OPK - 4-9,11, PK - 5,6,8,16,20,21.

1.3.4 Matrix for the formation of competencies of the discipline

The study of the discipline is aimed at the formation and demonstration of the following OK, OPK and PC:

Competence	**The content of competencies or parts thereof**	**Name of the discipline**
		Traumatology, orthopedics
OK-1	Ability to think abstractly	+
OK-4	Ability to act in non-standard situations, readiness to bear social and ethical responsibility for decisions made	+
OK-5	Readiness for self-development, self-realization, self-education, use of creative potential	+
OPK-4	Ability and willingness to implement ethical and deontological principles in professional activities;	+
OPK-5	Ability and willingness to analyze the results of one's own activities to prevent professional mistakes	+
OPK-6	Readiness to maintain medical records	+
OPK-7	Readiness to use basic physicochemical, mathematical and other natural science concepts and methods in solving professional problems	+
OPK-8	Readiness for medical use of medicines and other substances and their combinations in solving professional problems	+
OPK-9	Ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	+
OPK-11	Readiness for the use of medical devices provided for by the procedures for the	+

	provision of medical care	
PP-5	Readiness to collect and analyze the patient's complaints, medical history, examination results, laboratory, instrumental, pathological, anatomical and other studies in order to recognize the condition or establish the presence or absence of the disease	+
PP-6	Ability to determine the main pathological conditions, symptoms, disease syndromes, nosological forms in patients in accordance with the International Statistical Classification of Diseases and Related Health Problems - X revision, adopted by the 43rd World Health Assembly, Geneva, 1986.	+
PP-8	Ability and willingness to determine the tactics of managing patients with various pathological forms	+
PP-16	Readiness for educational activities to eliminate risk factors and promote a healthy lifestyle	+
PP-20	Readiness for analysis and public presentation of medical information based on evidence-based medicine	+
PP-21	Ability to participate in scientific research	+
Total number of competencies	**16**	**16**

1.3.5. The content of competencies (or parts thereof) formed as a result of mastering the discipline

Competence	The content of competencies or parts thereof
OK-1	the ability and willingness to analyze socially significant problems and processes, to use in practice the methods of humanities, natural sciences, biomedical and clinical sciences in various types of professional and social activities
OK-4	To be ready to act in non-standard situations, to be ready to bear social and ethical responsibility for the decisions made
OK-5	be ready for logical and reasoned analysis, for public speech, discussion and polemics, for the implementation of educational and pedagogical activities, for cooperation and conflict resolution, for tolerance
OPK-4	be able to implement ethical and deontological aspects of medical practice in communication with colleagues, middle and junior medical personnel, adults and adolescents, their parents and relatives
OPK-5	be able to analyze the results of their own activities to prevent professional mistakes
OPK-6	be able to maintain medical records
OPK-7	be ready to use the basic physicochemical, mathematical and other natural

	science concepts and methods in solving professional problems
OPK-8	readiness for medical use of medicines and other substances and their combinations in solving professional problems
OPK-9	possess the ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems
OPK-11	be ready for the use of medical devices provided for by the procedures for the provision of medical care
PP-5	have the ability to collect and analyze the patient's complaints, medical history, examination results, laboratory, instrumental, pathological, anatomical and other studies in order to recognize the condition or establish the presence or absence of the disease
PP-6	to be able to identify the main pathological conditions, symptoms, disease syndromes, nosological forms in patients in accordance with the International Statistical Classification of Diseases and Related Health Problems - X revision, adopted by the 43rd World Health Assembly, Geneva, 1986.
PP-8	be ready to determine the tactics of managing patients with various pathological forms
PP-16	be ready for educational activities to eliminate risk factors and form a healthy lifestyle
PP-20	possess the ability to analyze and publicly present medical information based on evidence-based medicine
PP-21	Possess the ability to participate in scientific research

1.3.6. Interface of the MIC, PC and the requirements of the Professional Standard, approved by the Order of the Ministry of Labor and Social Protection of the Russian Federation dated March 21, 2017 No293 n.

Code PS 02.009 Medical Doctor (District Therapist)

Generalized labor functions: *Provision of primary health care to the adult population on an outpatient basis that does not provide for round-the-clock medical supervision and treatment, including at home when a medical worker is called*

TF name and code	**Competency Name and Code**
Provision of medical care to a patient in urgent or emergency forms (Code A/01.7)	Ability to act in non-standard situations, readiness to bear social and ethical responsibility for decisions made (OPK-4). Readiness to participate in the provision of emergency medical care for conditions requiring urgent medical intervention (PC-11). Readiness to provide medical care in case of sudden acute diseases, conditions, exacerbation of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care (PC-10). Readiness to provide medical care in emergency situations, including participation in medical

	evacuation (PC-13) Readiness to participate in the assessment of the quality of medical care in emergency situations, including medical evacuation (PC-19)
Examination of the patient in order to establish a diagnosis (Code A/02.7)	Readiness to collect and analyze the patient's complaints, medical history, examination results, laboratory, instrumental, pathological, anatomical and other studies in order to recognize the condition or establish the presence or absence of the disease (PC-5). Ability to identify the main pathological conditions, symptoms, disease syndromes, nosological forms in patients in accordance with the International Statistical Classification of Diseases and Health-Related Problems – X revision, adopted by the 43rd World Health Assembly, Geneva, 1986 (PC-6). Readiness to conduct an examination of temporary disability, participate in a medical and social examination, ascertain the biological death of a person (PC-7)
Prescription of treatment and monitoring of its effectiveness and safety (Code A/03.7)	Ability and readiness to determine the tactics of management of patients with various pathological forms (PC-8) Readiness to use medical devices provided for by the procedures for the provision of medical care (OPK-11). Readiness for medical use of medicines and other substances and their combinations in solving professional problems (OPK-8) Readiness to manage and treat patients with various nosological forms on an outpatient basis and in a day hospital (PC-9). Readiness to manage physiological pregnancy and childbirth (PC-12) Readiness to determine the need for the use of natural healing factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and sanatorium-resort treatment (PC-14) Readiness to participate in the assessment of the quality of medical care using the main medical and statistical indicators (PC-18) Readiness to participate in the implementation of new methods and techniques aimed at protecting the health of citizens (PC-21)
Implementation and control of the effectiveness of medical rehabilitation of the patient, including the implementation of individual rehabilitation programs or rehabilitation of the disabled, assessment of the patient's ability to work (A/04.7)	Ability and readiness to implement a set of measures aimed at preserving and strengthening health and including the formation of a healthy lifestyle, prevention of the occurrence and (or spread of diseases, their early diagnosis, identification of the causes and conditions of their occurrence and development, as well as aimed at eliminating the harmful impact of environmental factors on human health) (PC-1) Ability to apply the basic principles of organization and management in the field of public health protection, in medical organizations and their structural divisions (PC-17)

Implementation and Monitoring of the Effectiveness of Measures for the Prevention and Promotion of a Healthy Lifestyle and Sanitary and Hygienic Education of the Population (A/05.7)	Ability and readiness to conduct preventive medical examinations, clinical examination and dispensary observation (PC-2) Ability and readiness to carry out anti-epidemiological measures, organize protection of the population in the foci of especially dangerous infections, in case of deterioration of the radiation situation, natural disasters and other emergencies (PC-3) Ability and readiness to apply social and hygienic methods of collecting and medical and statistical analysis of information on population health indicators (PC-4) Readiness to teach patients and their relatives the basic hygienic measures of a health-improving nature, the skills of self-control of the main physiological indicators that contribute to the preservation and promotion of health, disease prevention (PC-15) Readiness for educational activities to eliminate risk factors and promote a healthy lifestyle (PC-16)
Maintenance of medical records and management of nursing staff (A/06.7)	Readiness to maintain medical records (OPK-6).

As a result of mastering the discipline, the student must

To know:

1. Frequency and causes of diseases of the musculoskeletal system.
2. Modern diagnostics of diseases of the musculoskeletal system.
3. Modern methods of treatment of the consequences of injuries and diseases of the musculoskeletal system.
4. The main issues of the organization of orthopedic care for children in Russia.
5. Classification of diseases of the musculoskeletal system.
6. Etiology and pathogenesis of the main orthopedic diseases.
7. Modern methods of diagnosing the consequences of injuries and diseases of the musculoskeletal system.
8. General principles of treatment of the consequences of injuries and diseases of the musculoskeletal system.
9. The most common complications in orthopedics and methods of their prevention.
10. Prognosis and average terms of recovery of working capacity in orthopedic diseases.
11. Methods of rehabilitation of patients with the most common orthopedic diseases.
12. Deontological and legal features of working with orthopedic patients.

Can:

1. To diagnose orthopedic diseases of any segment of the human musculoskeletal system.
2. To organize staged medical care for a patient with orthopedic pathology.
3. Decide on the place and tactics of further treatment of the patient.
4. To determine the indications for classical methods of treatment of diseases of the musculoskeletal system, the consequences of injuries.
5. Perform immobilization for various diseases of the limbs.
6. Apply simple plaster bandages. Remove the plaster bandages. Be able to apply glue traction to the child, skeletal traction. Remove glue and skeletal traction.
7. To outline the main medical measures aimed at preventing and reducing acquired orthopedic diseases.

Possess:

1. Systemic knowledge about the causes of the development of the main orthopedic diseases

of a person, the mechanisms of their development, classification, clinical course, diagnosis, treatment, prevention.

2. Ability and willingness to formulate and substantiate a clinical diagnosis.
3. Principles of prescribing a plan of examination and treatment.
4. The ability to diagnose an urgent condition and provide emergency care.
5. Method of drawing up a medical history.
6. • Skills of working with regulatory materials set forth in the standards of specialized medical care (Order of the Ministry of Health of the Russian Federation) within the studied nosological forms.
7. Ability to analyze the results of one's own activities.
8. The ability to independently work with educational, scientific, reference, medical literature, including on the Internet.
9. The ability to protect the educational medical history and report on the training duty.

1.3.7. Forms of organization of student training and types of control

Forms of organization of student education	Types of control
Lecture. Clinical practical classes. Independent work at the patient's bedside. Work in diagnostic rooms (functional diagnostics, CT and MRI room and ultrasound). Work in the dressing, plaster, operating room and anti-shock room. Interactive forms: (clinical analysis of thematic patients, work in the simulation and certification center, business game, brainstorming, interactive survey, discussion, computer simulations, mutual review of case histories, defense of educational case history. Internet class. Training duty. Participation in rounds of patients with the head of the department, assistants of the department. Participation in the research work of the department.	*Solving test tasks* *Current control:* *Entrance:* - testing, including computer testing, in previously studied disciplines. *Original:* - Checking homework - report on training duty *Day off:* - frontal questioning (oral or written) - solving situational problems - Checking the assimilation of practical skills (work at the bedside, interview on situational tasks, educational history of the thematic patient, work with regulatory documents). - checking the design of the educational medical history, essay *Intermediate Assessment: Exam*

Explanation. Students receive theoretical knowledge in the discipline at lectures, practical classes, taking part in the research work of the department, rounds of patients with the head of the department, assistants, work in the department of functional diagnostics, X-ray room, clinical and biochemical laboratories. In clinical practical classes, consolidation and control of the learned material is carried out. In the learning process, the following are used: **Interactive forms** training: work in the simulation and certification center on mannequins, business games, computer simulations, the method of small groups, etc. The practical application of theoretical material in everyday work is logical in the process of cognition, helps to acquire practical skills and abilities. In the process of patient supervision, training duty, students consolidate and improve the basics of patient examination, skills in interpreting the results of clinical, laboratory and instrumental examination, formulation of clinical diagnosis, prescription of an examination and treatment plan, medical deontology, medical ethics. Solving test tasks requires the ability to analyze, summarize and is a motivation for more in-depth preparation when working independently. The educational information of the tests deepens the knowledge of students.

Current entrance control is carried out during the introductory lesson and allows you to analyze the level of residual knowledge of students in basic fundamental and clinical disciplines for timely correction of the curriculum of related disciplines (modules).

Initial control is carried out at each practical lesson and includes an assessment of students' homework and a report on the training duty with the patient's report (complaints, medical history, life, physical examination data, radiography, formulation, substantiation of clinical diagnosis, diagnosis, differential diagnosis, treatment taking into account individual characteristics), as well as control of the patient's supervision and filling out the educational medical history, professional route.

Final control is carried out at each practical lesson and includes an assessment of the theoretical knowledge and practical skills developed by students during the lesson and includes: oral and test questioning (similar theoretical and test questions will be offered at the intermediate control), solving situational problems; control of the assimilation of practical skills (interpretation of the results of clinical, laboratory and instrumental results of the examination, formulation of clinical diagnosis, drawing up a plan for examination and treatment of the patient).

Intermediate certification includes an exam in the XI semester and consists of an assessment of theoretical knowledge and practical skills developed by students during the discipline and includes a theoretical and practical part: first, the student passes a test in the Moodle system, then passes practical skills and gives an oral answer to two theoretical questions.

2. Structure and content of the discipline

2.1. Scope of the discipline and types of educational work

Types of educational work	Total Hours	Semesters	
		10	11
Lecture	34	20	14
Clinical Practice	86	52	34
Independent work of students	60	36	24
Exam	36		36
Total labor intensity in hours	**216**	**216**	
Total labor intensity in credits	**6**	**6**	

2.2. Thematic plan of lectures

№ p/n	Lecture topics	Codes of formed competencies	Labor intensity (hours)
Semester 10			
1	Subject and objectives, history of development of traumatology and orthopedics. Bone regeneration.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
2	General principles and methods of treatment of injuries and diseases of the musculoskeletal system.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-	2

		20, PC-21	
3	Injuries of the shoulder and shoulder.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
4	Injuries of the forearm and hand.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
5	Injuries of the hip, knee joint.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
6	Injuries of the lower leg and foot.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
7	Injuries to the pelvis and spine.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
8	Traumatic shock. Polytrauma.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
9	Degenerative-dystrophic diseases of large joints. Osteochondropathy. Bone tumors.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
10	Congenital diseases of the musculoskeletal system.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
11	Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
12	Infectious complications of wounds and injuries.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2

13	Chest injuries.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
14	Abdominal and pelvic injuries.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
15	Thermal injury. Combined lesions.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
16	Injuries of the skull and brain, spine and spinal cord.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
17	Bleeding. Blood transfusion. Prolonged compression syndrome.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	2
Total Hours			**34**

2.3. Thematic plan of clinical practical classes

№ p/n	**Topics of clinical practical classes**	**Complexity (hours)**
Semester 10		
1	Traumatology, orthopedics. History of development. Organization of care for patients of orthopedic and traumatological profile. Examination of the patient.	5,2
2	Traumatic dislocations. Dislocations of the shoulder, forearm, thigh, lower leg.	5,2
3	Injuries of the shoulder, shoulder.	5,2
4	Injuries of the elbow joint, forearm, hand.	5,2
5	Hip injuries.	5,2
6	Injuries of the knee joint.	5,2
7	Injuries of the lower leg, ankle joint, foot.	5,2
8	Injuries of the spine, pelvis.	5,2
9	Traumatic disease. Traumatic shock. Polytrauma.	5,2
10	Degenerative-dystrophic diseases of the skeleton, bone tissue tumors.	5,2
Semester 11		
11	Gunshot wounds, mine-explosive wounds of the limbs. Wound	3,4

	ballistics.	
12	Infectious complications of wounds and injuries.	3,4
13	Chest injuries.	3,4
14	Abdominal and pelvic injuries.	3,4
15	Thermal injury. Combined lesions.	3,4
16	Injuries of the skull and brain, spine and spinal cord.	3,4
17	Prolonged compression syndrome.	3,4
18	Bleeding. Blood transfusion.	3,4
19	Congenital diseases of the musculoskeletal system.	3,4
20	Posture disorders.	3,4
Total Hours		**86**

2.4. Content of lectures

Lecture 1. Subject and objectives, history of development of traumatology and orthopedics. Bone regeneration.

The place of traumatology in modern medicine. The technological progress of the 20th century and "traumatic epidemics" accompanied by moral and material losses are a social problem on a global scale. Organization of traumatic care. Definition of the concept of "orthopedics". International emblem of orthopedics.

General history of orthopedics - ancient times, Hippocrates, C. Celsus, Galen, Ambroise Paré, Abu-Ali ibn-Sina (Avicenna), Nicholas Andri. Orthopedic schools - German, Vienna, Italian, English. History of Russian orthopedics. The largest orthopedic schools in Russia are St. Petersburg, Moscow, Kharkov, Kazan, Kurgan. T.I. Turner, T.S. Zatsepin, T.P. Krasnobaev, N.N. Priorov, G.A. Ilizarov, Y.L. Tsivyan. History of the Department of Traumatology of the Amur State Medical Academy.

Principles of prevention, diagnosis and treatment of congenital and acquired deformities of the musculoskeletal system.

Organization of orthopedic care:

- a polyclinic or trauma center with departments of physical therapy and physiotherapy;
- orthopedic hospital;
- sanatorium-resort treatment.

Reparative bone regeneration after a fracture: its stages, variants of the course. The two types of reparative bone regeneration in fracture healing are primary and secondary healing. Features of reparative regeneration in epiphyseal, metaphyseal and diaphyseal fractures.

The causes leading to impaired reparative regeneration are the general condition of the patient, local conditions in the fracture zone.

Definition of the concepts: delayed fracture healing, non-union fracture, false joint (atrophic and hypertrophic or hypervascular). Etiology, morphology, clinic, diagnosis, prevention of delayed consolidation and false joints. Iatrogenic causes of impaired consolidation of fractures and the formation of false joints.

Lecture 2. General principles and methods of treatment of injuries and diseases of the musculoskeletal system.

The tasks of treating bone fractures and their implementation to create an osteogenic pathway of reparative regeneration and the formation of an intramedial callus. Principles and methods of treatment in traumatology and orthopedics and their possibilities in modern conditions. Conservative methods of stimulating reparative regeneration of bone tissue. The general principles of surgical treatment of false joints are stable fixation using immersion osteosynthesis, the use of external fixation devices, osteosynthesis in combination with bone

autoplasty, replacement of bone defects according to G.A. Ilizarov (bilocular osteosynthesis), bone autoplasty with a musculocutaneous flap on the vascular pedicle.

Limb fractures. Definition of the concept of "bone fracture". Classification of fractures: congenital, acquired; traumatic, pathological; closed, open; non-complicated, complicated (primary complications: displacement of bone fragments, damage to the great vessels, damage to peripheral nerves, primary microbial contamination of wounds in open fractures; secondary early complications: displacement of bone fragments, secondary-open fracture, damage to the great vessels, damage to peripheral nerves, secondary microbial contamination of the wound in open fractures; general severe complications: traumatic shock, bleeding and acute blood loss, fat embolism; secondary late complications: improperly fused fractures, delayed fusion, false joint, traumatic osteomyelitis, Volkmann's contracture, muscle atrophy, joint stiffness, Sudeck's syndrome; complete and incomplete fractures; epiphyseal, metaphyseal, diaphyseal, epiphyseolysis fractures; fractures by mechanism: fracture from compression, from flexion, from rotation, from shear, avulsion fractures; fractures are transverse, longitudinal, helical, oblique; Fractures without displacement and with displacement of bone fragments: types of bone displacements.

Clinical symptoms of a fracture are relative symptoms and absolute symptoms.

Fracture diagnosis: patient complaints, injury history, clinical examination of the injury site; examination, palpation, study of peripheral blood circulation of the limb, examination of the condition of peripheral nerves, measurement of the length and circumference of the limb, X-ray examination of the fracture area in two standard mutually perpendicular projections: anterior-posterior and lateral; Additional research methods: tomography, arthrography, arthroscopy, computed tomography, angiography, nuclear magnetic resonance.

Lecture 3. Injuries of the shoulder and shoulder.

Anatomical features of the structure of the shoulder. Mechanisms of fractures of the scapula and clavicle. Classification. Clinic.

X-ray diagnostics. Features of conservative and surgical treatment.

Methods of osteosynthesis. Rehabilitation treatment.

Socio-economic significance of fractures of the proximal part of the shoulder. Osteoporosis as a socio-economic problem. Marker fractures of involutive osteoporosis. Typical mechanisms of proximal shoulder fracture. Classification of fractures of the proximal part of the shoulder.

Clinical examination of the patient: anamnesis, localization of pain, forced position of the arm, shortening of the limb.

X-ray examination: anterior-posterior and lateral (axial) projection, degree of displacement of fragments, the presence of senile osteoporosis.

First medical and first aid: position of the limb, transport immobilization.

Anesthesia of the fracture site according to Beller.

Conservative treatment of cervical fractures: indications and methods of reduction and immobilization. CITO abduction splint – indications for skeletal traction. Functional treatment according to A.V. Kaplan. Indications for surgery. Methods of osteosynthesis. Postoperative period, early activation of patients, rehabilitation treatment and its terms.

Surgical anatomy, mechanism of injury, classification of fractures of the upper third, middle third, lower third of the shoulder diaphysis.

Clinic of fractures of the humeral diaphysis. Characteristic displacement depending on the location of fractures. Complications of fractures of the diaphysis of the shoulder.

Conservative treatment - anesthesia, skeletal traction, wire sites, traction on a CITO splint.

Surgical treatment - indications for surgery, methods of osteosynthesis, postoperative management; rehabilitation treatment.

Supracondylar and intercondylar fractures of the shoulder: surgical anatomy, displacement of the distal fragment of the shoulder, possibility of damage to the neurovascular bundle, ischemic Volkmann's contracture; clinical (complaints, examination, palpation, function) and X-ray examination.

Conservative treatment - anesthesia, immediate reposition, plaster immobilization; surgical treatment - indications for surgical open reduction of bone fragments, surgical access, metal fixators, indications for surgery on the brachial artery; rehabilitation treatment.

Transport immobilization and first aid for injuries of the shoulder and elbow joint.

Lecture 4. Injuries of the forearm and hand.

Surgical anatomy of the elbow joint. Classification of elbow joint injuries: contusion and hemarthrosis of the elbow joint, fracture of the ulnar and coronary processes. Mechanism of injury, possibility of damage to the neurovascular bundle, ischemic Volkmann contracture; clinical (complaints, examination, palpation, function) and X-ray examination.

Conservative treatment - anesthesia, immediate reposition, plaster immobilization; surgical treatment - indications for surgical open reduction of bone fragments, surgical access, metal fixators; rehabilitation treatment.

Damage to the diaphysis of the bones of the forearm. Features of the anatomical structure and biomechanics of injuries. Mechanism of injury. Montage and Galeazzi injuries, fractures of one and two bones of the forearm. Clinical picture. Diagnostics. Conservative treatment: indications for reduction, indications for surgical treatment. Methods of surgical treatment. Terms of treatment, rehabilitation.

Injuries of the distal part of the bones of the forearm. Features of the anatomical structure and biomechanics of injuries. Mechanism of injury. Injuries to Collis and Smith. Clinical picture. Diagnostics. Conservative treatment: indications for reduction, indications for surgical treatment. Methods of surgical treatment. Terms of treatment, rehabilitation.

Hand injuries. Dislocations and fractures in the hand joint.

Damage to the carpal and metacarpal bones. Features. Classification. Clinic. Diagnostics. Features of PHO. Microsurgical technique of hand surgery. Tendon injuries.

Injuries of the phalanges of the fingers. Features of surgical technique. Suture of tendons, neurovascular apparatus using microsurgical technique. Rehabilitation treatment. Examination of disability.

Lecture 5. Injuries of the hip, knee joint.

Socio-economic significance of fractures of the proximal femur.

Surgical anatomy of the cervical and trochanteric femur and age-related changes in this region.

Typical mechanisms of proximal femoral fracture. Classification of fractures of the proximal femur.

Clinical examination of the patient. X-ray examination. First medical and first medical aid.

Conservative treatment of cervical fractures: indications and methodology.

Surgical treatment: indications, types of surgical interventions. Postoperative period, early activation of patients, rehabilitation treatment and its terms.

Complications of medial fractures: early and late.

Intertrochanteric and overtrochanteric fractures, their classification according to A.V. Kaplan.

Reparative regeneration of trochanteric fractures. Examination of patients with trochanteric fractures.

First aid and first aid:

Limb immobilization, transportation. Anesthesia of trochanteric fractures. Method of anesthesia.

Treatment of trochanteric fractures: conservative treatment and surgical treatment of trochanteric fractures: indications, osteosynthesis operation with a two-bladed nail with an onlay. Postoperative period, early activation of patients.

Surgical anatomy, mechanism of injury, classification of diaphyseal fractures of the femur - subtrochanteric fractures, fractures of the upper third, middle third, lower third of the femoral diaphysis, supracondylar fractures.

Conservative treatment. Surgical treatment.

Supracondylar hip fractures: surgical anatomy; clinical and radiological examination, angiography of the femoral artery if indicated.

Conservative, surgical, restorative treatment.

Transport immobilization and first aid for hip and hip injuries.

Surgical anatomy of the knee joint. Classification of knee joint injuries.

Classification of knee joint diseases: Koenig's disease, Osgood-Schlatter disease (osteochondropathy), Goff's disease, Becker's cyst.

Lecture 6. Injuries of the lower leg and foot.

Surgical anatomy of the tibia and features of tibia fractures; Classification of tibia fractures.

Mechanism of fractures, types of displacement and planes of fractures; tibial fractures and fractures of both tibial bones, tibial fractures in the upper third, middle third, lower third of the tibial diaphysis, diaphyseal fractures of the tibial bones with and without displacement of bone fragments, tibial and fibula fracture levels depending on the mechanism of injury; Open fractures of the tibia - primary open and secondary open fractures.

Clinical symptoms of tibial fractures - relative symptoms and absolute symptoms, traumatic edema in fracture, examination of the state of the neurovascular bundle in tibial fractures, the possibility of damage to the peroneal nerve; X-ray examination; Treatment of diaphyseal fractures of the tibia: conservative treatment, further rehabilitation treatment.

Surgical treatment - absolute and relative indications, extrafocal compression-distraction osteosynthesis; rehabilitation treatment; transport immobilization and first aid for diaphyseal fractures of the tibia.

Complications - traumatic tibial osteomyelitis; clinical and radiological diagnostics; comprehensive treatment of traumatic osteomyelitis; rehabilitation treatment in the recovery phase of the patient and in the remote period.

The frequency of ankle injuries and the social significance of these injuries.

Surgical anatomy of the ankle joint and its function.

The mechanism of fractures of the ankle joint.

Classification of ankle fractures and fractures. Malguen, Dupuytren, Maisonneuve, Volkmann, Pott, Destot fractures, central dislocation of the foot, epiphyseolysis, osteoepiphyseolysis.

Clinical symptoms of fractures and fracture-dislocations of the ankle joint.

X-ray semiotics of fractures of the ankles, anterior and posterior edges of the tibia, subluxations and dislocations of the foot.

Treatment of ankle fractures: conservative and surgical, restorative treatment: its types, terms.

Possible complications.

Foot dislocations - dislocation of the talus, subtalar dislocation of the foot, dislocations in the Chopard and Lisfranc joint, dislocations of the toes, fractures of the talus, calcaneus, fractures of the metatarsal bones and phalanges of the fingers.

Lecture 8. Injuries to the pelvis and spine.

Pelvic injuries. Anatomical structure of the pelvis, joints and ligamentous apparatus of the pelvic bones, function of the pelvic bones.

Classification of pelvic bone fractures according to A.V. Kaplan. The mechanism of various fractures of the pelvic bones.

Clinical picture of pelvic bone fractures. Clinical symptoms characteristic of pelvic fractures of various localization, for complicated pelvic fractures (urethral rupture, extraperitoneal or intraperitoneal ruptures of the bladder, extraperitoneal rupture of the rectum). Traumatic shock in fractures of the pelvic bones, its distinctive features.

X-ray diagnosis of pelvic bone fractures. Cystography.

Fractures of the acetabulum floor and central dislocation of the femur.

Mechanism of injury. Clinical symptoms, diagnosis.

Treatment of pelvic bone fractures of various localization. Conservative treatment. Intrapelvic novocaine blockades, skeletal traction; converging belts and hammocks. Antishock therapy for pelvic fractures.

Surgical methods of treatment of patients.

Spinal injuries. Anatomy, function, biomechanics of the spine, intervertebral disc and vertebral segment. Features of the anatomical structure of the I and II cervical vertebrae. Topographic and anatomical landmarks of the levels of the spine.

Classification of spinal injuries: uncomplicated and complicated spinal injuries, fractures of vertebral bodies, arches, articular, spinous, transverse processes; dislocations, fractures and dislocations of the vertebrae; ruptures of the supraspinatus and interosteal ligaments.

Mechanisms of trauma.

Pathological anatomy of spinal injuries.

Clinical examination. Radiodiagnosis.

Principles of treatment of uncomplicated spinal fractures.

Conservative methods of treatment.

Surgical treatment.

Principles of therapeutic exercise in the treatment and subsequent rehabilitation of patients with uncomplicated spinal injury.

Complicated spinal injuries. Anatomy and physiology of the spinal cord and spinal nerves. Classification of spinal cord injuries.

Clinical picture of complicated spinal injuries. Clinical and neurological disorders in complicated fractures of the cervical, thoracic, lumbar vertebrae.

Periods of traumatic spinal cord disease.

Complications of spinal cord injury: traumatic; Infectious; trophoparalytic; cicatricial-adhesive processes.

Radiodiagnosis. Lumbar puncture, change in cerebrospinal fluid pressure, cerebrospinal fluid dynamic tests: Quekenstedt, Stuckey, Pussep, breath test.

Treatment of complicated spinal fractures, social and professional rehabilitation of spinal patients.

Lecture 8. Traumatic shock. Polytrauma.

Definition of the concept of "traumatic shock, traumatic disease". Aetiology. Pathogenesis. Classification. Clinic, diagnosis, treatment. Definition of the concept of "polytrauma". Classification: multiple, combined, combined injuries, their characteristics. Social significance of polytrauma as a cause of mortality from injuries, causes of disability, especially among young people of working age.

The clinical picture of polytrauma is the period of general phenomena, the period of local phenomena, the period of consequences of trauma. Clinical features of polytrauma are mutual encumbrance syndrome, the problem of incompatibility of therapy, acute respiratory failure, heart contusion, massive blood loss, traumatic shock, toxemia, acute renal failure, DIC syndrome, fat embolism, thromboembolism. Provision of first aid to victims and their transportation, resuscitation measures: artificial ventilation, closed heart massage, infusion therapy, temporary stop of external bleeding, pain management, transport immobilization.

Organization of inpatient care: approximate examination of the victim in parallel or sequentially with resuscitation measures, resuscitation measures, final bleeding control, bladder catheterization and renal function control, immobilization of the injured limb, complete clinical and X-ray examination, thoracentesis, laparocentesis, laparoscopy.

Conservative methods of treatment: plaster bandages, skeletal traction.

Surgical treatment and optimal timing of its implementation. Variants of the simplest and least traumatic immersion osteosynthesis.

Prevention, diagnosis and treatment of possible early and late complications of polytrauma.

Lecture 9. Degenerative-dystrophic diseases of the musculoskeletal system. Osteochondropathy.

Definition of the concept of "degenerative-dystrophic diseases" of the musculoskeletal system and "deforming arthrosis" of the joints. Diarthrosis joints - synovial membrane, hyaline cartilage, synovial fluid.

The frequency of the disease, the frequency of joint damage - hip, knee, joints of the upper extremities. Etiology of the disease. Primary, secondary deforming arthrosis. Pathogenesis of the development of the process.

Classification of deforming arthrosis by severity: I, II, III stages of the process. Clinical picture of various stages of the disease. Morphological (anatomical) and radiological manifestations of the disease depending on the stage of the process.

Diagnosis of various stages of deforming arthrosis. Features of the course of the disease in coxarthrosis, gonarthrosis, arthrosis of the upper extremities.

Treatment. Conservative: medication, physiotherapy, sanatorium-resort. Surgical treatment depending on the stage of the disease. Types of surgical interventions for coxarthrosis and gonarthrosis: Fosse operation, osteotomy, arthrodesis, total endoprosthetics.

Postoperative rehabilitation treatment.

Osteochondropathy. Definition of the concept of "osteochondropathy".

Classification. Osteochondropathy of the epiphyseal ends of the tubular bones: Legg-Calvé-Perthes disease; Alban-Köhler disease or "second" Köhler's disease, osteochondropathy of the sternum end of the clavicle; multiple osteochondropathy of the phalanges of the fingers. Osteochondropathy of short tubular bones: Alban-Köhler disease or "first" Köhler's disease; Calvet's disease; osteochondropathy of the sesamoid bone of the I metatarsophalangeal joint. Osteochondropathy of apophyses: Osgood-Schlatter disease; osteochondropathy of the tuberosity of the calcaneus; Scheuermann-May disease or juvenile kyphosis; osteochondropathy of the pubic bone. Partial (wedge-shaped) osteochondropathy of the articular surfaces: Koenig's dissectant osteochondritis of the knee and elbow joints.

Etiology and pathogenesis of osteochondropathy. The course of osteochondropathy and clinical manifestations of each localization. Diagnosis and treatment methods of osteochondropathy depending on the localization of the process.

Osteodystrophies - Parrot-Marie disease. Aetiology. Pathogenesis.

Forms of chondrodystrophia. Clinical picture. Varus curvatures of the limbs, high standing of the fibula head, brachocephalic and hydrocephalic skulls.

X-ray picture of chondrodystrophia.

Treatment - orthopedic measures, sanatorium-resort treatment, corrective osteotomies and osteotomies in order to lengthen the limbs, distraction devices.

Lecture 10. Bone tumors.

Bone tumors. Classification of tumors. Primary benign tumors of cartilaginous and bone origin are chordoma, chondroblastoma, chondromyxoid fibroma, chondroma, osteoblastoclastoma (giant cell tumor), osteoid osteoma, osteoma.

Borderline and tumor-like processes - osteochondral exostoses, chondromatosis of bones, fibrous dysplasia, Paget's disease, cortical metaphyseal defect, eosinophilic granuloma.

Clinical and radiological features of tumors.

Primary malignant tumors of cartilaginous and bone origin are malignant chordoma, chondrosarcoma, osteogenic capcoma, malignant osteoblastoclastoma, paraossal sarcoma, fibrosarcoma, Ewing's tumor, reticulosarcoma. Clinical and radiological methods for diagnosing malignant tumors.

Secondary malignant tumors: metastatic and growing into the bone from the surrounding soft tissues (synovioma). Clinic and radiology of secondary malignant tumors.

Modern treatment of tumors - surgery, chemotherapy, radiation therapy, combined methods of treatment.

Lecture 11. Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.

Modern types of firearms. Wound ballistics and the mechanism of action of the wounding projectile. Theories of direct and side impact of a wounding projectile. Morphological and functional changes in tissues in a gunshot wound.

Features of the damaging effect of modern firearms, high-precision and other types of weapons. Areas of tissue damage in a gunshot wound. Morphology of the wound canal (entrance and exit holes, characteristics of zones).

Combat wounds of the limbs. Damage to blood vessels and peripheral nerves.

Frequency and classification of gunshot bone fractures. Clinic and diagnostics.

Scope of first aid, first aid and first aid.

Gunshot wounds of the joints of the extremities, their classification.

General and local clinical manifestations of joint injuries. Complications of joint wounds.

Lecture 12. Infectious complications of wounds and injuries.

Local purulent infection. Characteristics of toxic-resorptive fever and sepsis. Clinic of purulent complications of gunshot wounds.

Anaerobic infection of wounds. Timing of occurrence, local and general manifestations. Characteristics of various clinical forms. Prevention of anaerobic infection. Specific and non-specific treatment. Prophylactic and therapeutic value of antibiotics. Treatment outcome.

Tetanus, its etiology and pathogenesis. Local and general symptoms. Diagnosis, prevention and principles of tetanus treatment at the stages of medical evacuation. Complications and outcomes.

Lecture 13. Chest injuries.

Basic principles of organizing the provision of surgical care to the wounded in the chest in a combat situation and emergency situations.

Clinic, diagnosis and staged treatment of chest wounds.

Content, scope and organization of the provision of first medical and qualified aid.

Lecture 14. Abdominal and pelvic trauma.

Clinical manifestations and diagnosis of various types of injuries and wounds.

Frequency and classification of abdominal wounds and injuries.

Symptoms of penetrating abdominal wounds. Shock, blood loss, peritonitis, their importance in the outcome of penetrating wounds.

Lecture 15. Thermal injury. Combined lesions.

Local and general pathological manifestations of thermal burns. Classification of burns by the depth of the lesion. Degrees of burns. Determination of the total area of burns and the area of deep damage.

Periods of burn disease. Burn shock. Burn toxemia. Burn septicotoxemia. Convalescence.

Damage by light radiation of a nuclear explosion, incendiary fire mixtures.

The concept of combined radiation injuries, their combinations. Features of the course of wounds, bone fractures, thermal burns in combined radiation injuries and ingress of radioactive substances into wounds and burn surfaces, mutual aggravation syndrome. Features of the course of radiation injuries.

Features of the course of wounds, thermal burns contaminated with organophosphate substances. Medical care in the focus of damage and at the stages of medical evacuation in case of combined chemical injuries.

Lecture 16. Injuries of the skull and brain, spine and spinal cord.

Frequency of closed skull and brain injuries, their classification.

Clinical manifestations of contusion, concussion and compression of the brain. Cracks and fractures of the skull.

Gunshot wounds of the skull and brain, their classification and clinic.

First aid for skull wounds on the battlefield. Medical triage and maintenance of medical care at the stages of medical evacuation.

Frequency of spinal cord and spinal cord injuries, their classification.

Clinical manifestations of spinal cord injury, spinal fractures.

Gunshot wounds of the spinal column, their classification and clinic.

First aid for spinal injuries on the battlefield. Medical triage and maintenance of medical care at the stages of medical evacuation.

Lecture 17. Bleeding. Blood transfusion. Prolonged compression syndrome.

Classification of bleeding depending on the source of bleeding, the time of its occurrence and the degree of blood loss. Clinical picture of bleeding and acute blood loss. Determination of the amount of blood loss.

Indications for transfusion of blood and its preparations. Control over the suitability of blood for transfusion. Blood transfusion technique. Types of transfusion and infusion agents and indications for their use. Possible complications of blood transfusion, their prevention and treatment.

Methods of temporary bleeding control at the stages of medical evacuation. Indications for blood transfusion and blood substitutes. Methodology for calculating the need for blood and blood substitutes.

Etiology, pathogenesis and classification of prolonged crush syndrome. Clinical presentation and dependence of the clinical course on the mass of crushed tissues, the strength and duration of the action of the damaging factor on them. Modern methods of diagnosing long-term crush syndrome. Features of the provision of medical care and treatment of victims at the site of injury and stages of medical evacuation.

2.5. Content of clinical practical classes

Nop /n	Naming of the topics of practical classes	The content of the topics of practical classes of the discipline	Codes of formed competencies	Forms of control
1	Traumatology, orthopedics. History of development. Organization of care for patients of orthopedic and traumatological profile.	Theoretical part: Definition and objectives, history of the development of traumatology and orthopedics. Contribution of Russian scientists to the development of the subject. Organization of assistance to patients. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control

2	Traumatic dislocations. Dislocations of the shoulder, forearm, thigh, lower leg.	Theoretical part: Joint structure. Definition, classification, biomechanics of dislocations. Clinic, diagnosis, methods of reduction, surgical treatment of dislocations. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
3	Injuries of the shoulder, shoulder.	Theoretical part: Anatomy, biomechanics, classification, clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
4	Injuries of the elbow joint, forearm, hand.	Theoretical part: Anatomy, biomechanics, classification, clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
5	Hip injuries.	Theoretical part: Anatomy, biomechanics, classification, clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
6	Injuries of the knee joint.	Theoretical part: Anatomy, biomechanics, classification, clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
7	Injuries of the lower leg, ankle joint, foot.	Theoretical part: Anatomy, biomechanics, classification,	OK-1, OK-4, OK-5,	Current

		clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	control
8	Injuries of the spine, pelvis.	Theoretical part: Anatomy, biomechanics, classification, clinic, diagnosis, treatment of injuries in this area. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
9	Traumatic disease. Traumatic shock. Polytrauma.	Theoretical part: Definition, classification, clinic, diagnosis, treatment of traumatic disease. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
10	Degenerative-dystrophic diseases of the skeleton, bone tissue tumors.	Theoretical part: Definition, pathogenesis, classification, clinic, diagnosis and treatment of diseases. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
11	Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.	Theoretical part: Features, pathogenesis, classification, clinic, diagnosis and treatment of gunshot wounds. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
12	Infectious complications of wounds and injuries.	Theoretical part: Pathogenesis, classification, clinic, diagnosis and treatment of infectious complications. Practical part:	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-	Current control

		Performing manipulations on mannequins, work in the dressing, plaster and operating room.	16, PC-20, PC-21	
13	Chest injuries.	Theoretical part: Etiology, pathogenesis, classification, clinic, diagnosis and treatment of breast injuries. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
14	Abdominal and pelvic injuries.	Theoretical part: Etiology, pathogenesis, classification, clinic, diagnosis and treatment of abdominal injuries. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
15	Thermal injury. Combined lesions.	Theoretical part: Etiology, pathogenesis, classification, clinic, diagnosis and treatment of injuries of thermal injuries. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
16	Injuries of the skull and brain, spine and spinal cord.	Theoretical part: Etiology, pathogenesis, classification, clinic, diagnosis and treatment of skull and spine injuries. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
17	Prolonged compression syndrome.	Theoretical part: Definition, pathogenesis, classification, clinic, diagnosis and treatment of CRUSH syndrome. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
18	Bleeding. Blood	Theoretical part: Definition,	OK-1, OK-	Current

	transfusion.	pathogenesis, classification, clinic, diagnosis and treatment of blood loss. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	control
19	Congenital diseases of the musculoskeletal system.	Theoretical part: Definition, pathogenesis, classification, clinic, diagnosis and treatment of congenital diseases of ODS. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control
20	Posture disorders.	Theoretical part: Definition, pathogenesis, classification, clinic, diagnosis and treatment of spinal diseases. Practical part: Performing manipulations on mannequins, work in the dressing, plaster and operating room.	OK-1, OK-4, OK-5, OPK-4-9, OPK-11, PC-5, PC-6, PC-8, PC-16, PC-20, PC-21	Current control

Lesson 1. **Traumatology, orthopedics. History of development. Organization of care for patients with orthopedic and traumatological profile.**

Examination of the patient.

Purpose of the lesson. To form in students an understanding of the history of world and domestic traumatology and orthopedics, about the principles of organizing specialized care for patients of traumatological and orthopedic profile. To form students' ability to examine patients with injuries and diseases of the musculoskeletal system.

Lesson content

The place of traumatology in modern medicine. Organization of traumatic care. Definition of the concept of "orthopedics". International emblem of orthopedics.

General history of orthopedics, history of domestic traumatology and orthopedics.

Principles of prevention, diagnosis and treatment of congenital and acquired deformities of the musculoskeletal system.

Organization of orthopedic care. Reparative bone regeneration after a fracture: its stages, variants of the course.

Causes leading to impaired reparative regeneration. Definition of the concepts: delayed fracture healing, non-union fracture, false joint (atrophic and hypertrophic or hypervascular).

Principles of General Fracturology. Limb fractures.

Definition of the concept of "bone fracture". Classification of fractures: secondary early complications; general severe complications; secondary late complications; complete and incomplete fractures; epiphyseal, metaphyseal, diaphyseal, epiphyseolysis fractures; fractures according to the mechanism; fractures are transverse, longitudinal, helical, oblique; Fractures without displacement and with displacement of bone fragments: types of bone displacements.

Clinical symptoms of fracture. Fracture diagnosis; Additional research methods: tomography, arthrography, arthroscopy, computed tomography, angiography, nuclear magnetic resonance.

Examination of the patient. Examination of the injury site: examination, palpation, examination of peripheral blood supply and innervation of the limb.

Examination of the function of the musculoskeletal system: the patient's posture; the axis of the upper limb, the axis of the lower limb, the axis of the spine; methods of palpation and percussion; measuring the length of the limb; types of shortening: true, relative, functional; measuring the circumference of the limb; movements in the joints: active, passive; planes of motion; measurement of movements in the joints of the limb and spine; study of muscle strength; X-ray diagnostics of injuries and diseases of the musculoskeletal system: interpretation of the data obtained; Paraclinical research methods in traumatology and orthopedics: arthroscopy, angiography, computed tomography, nuclear magnetic resonance.

Lesson 2. **Traumatic dislocations. Dislocations of the shoulder, forearm, hip, lower leg.**

Purpose of the lesson. To acquaint students with traumatic bone dislocations.

Lesson content.

Definition of the concept of "bone dislocation". Types of traumatic dislocations: complete, incomplete; fresh dislocations, stale dislocations, old; simple dislocation, complicated dislocation; anterior dislocation, posterior dislocation; reducible dislocations, irreducible dislocations; habitual dislocations.

Classification of traumatic dislocations by localization of the anatomical segment.

Clinical symptoms of traumatic dislocations: sharp pain in the joint area, deformity of the joint area, forced position of the limb characteristic of each dislocated segment, change in the longitudinal axis of the limb in relation to identification points, "spring fixation" or "spring resistance".

X-ray symptoms: impaired congruence of the articular surfaces of the articular cavity and articular head, displacement of the longitudinal axis of the dislocated bone.

Principles of treatment of traumatic dislocations of limbs:

anesthesia, immediate reduction, fixation with plaster, X-ray control.

Clavicle dislocations, shoulder dislocations, habitual shoulder dislocations, causes of these dislocations, dislocations of the forearm, dislocations of the hand and fingers, dislocations of the hip, dislocations of the lower leg: classification, clinic, diagnosis, treatment.

Lesson 3. Injuries of the shoulder, shoulder.

Purpose of the lesson. To acquaint students with the classification of injuries of the shoulder and shoulder, to teach students the clinical examination of patients with shoulder and shoulder injuries, to form students' ability to conduct X-ray diagnostics of these injuries, to be able to provide first aid for these injuries.

Lesson content.

Scapula injuries: mechanism of injury; Classification of fractures - fracture of the acromial and beak-like processes, fracture of the articular cavity of the scapula, fracture of the neck, fracture of the spine of the scapula, fracture of the body of the scapula, fractures of the lower and upper-inner angle of the scapula, clinical symptoms of fractures of the scapula, radiographic signs.

Treatment - anesthesia, plaster fixation bandages, abduction splints, traction in case of fractures of the neck of the scapula; transport immobilization for scapula fractures.

Damage to the clavicle. Dislocations of the clavicle: the mechanism of injury; classification of clavicle dislocations - dislocation of the acromial end of the clavicle, dislocations of the sternal end of the clavicle (suprasternal, presternal, retrosternal); clinical symptoms of clavicle dislocations, X-ray diagnostics, anesthesia of the dislocation area, conservative treatment (plaster bandages of the "belt" type), surgical treatment of clavicle

dislocations. Clavicle fractures: mechanism, localization of fractures, displacement of bone fragments, clinical symptoms of clavicle fractures, complaints, examination, palpation, function, radiographic symptoms of clavicle fractures: conservative treatment of clavicle fractures - anesthesia, reduction technique, fixation bandages; surgical treatment of clavicle fractures.

Shoulder fractures: the mechanism of shoulder fractures; classification of shoulder fractures: fractures of the proximal end of the shoulder, fractures of the diaphysis of the shoulder, fractures of the distal end of the humerus; fractures of the proximal end - intra-articular and extra-articular; fractures of the diaphysis of the shoulder - fractures of the upper third, middle third, lower third of the shoulder; distal end fractures - supracondylar fractures and condyle fractures.

Fractures of the surgical neck of the shoulder - abduction, adduction, hammered: mechanism of occurrence, displacement of bone fragments in these fractures, clinical symptoms, complaints, examination, palpation, function, X-ray examination, treatment - anesthesia, conservative treatment; surgical treatment.

Fractures of the diaphysis of the shoulder: displacement of bone fragments of the humerus at different levels, caused by the actions of the supraspinatus, pectoralis major and deltoid muscles; clinical symptoms. The possibility of damage to the radial nerve in fractures of the diaphysis of the shoulder in the middle and lower third and the symptoms of this injury; radiodiagnosis; Conservative and surgical treatment - indications and methods.

Fractures of the distal end of the humerus. Supracondylar fractures of the shoulder: extensor and flexion fractures. Fracture mechanism, fracture plane in extensor fracture and flexion fracture. Clinical symptoms of fracture, complaints, examination, palpation, function, X-ray diagnosis. Anesthesia of the fracture, simultaneous reduction of the extensor and flexion fracture. Plaster immobilization, skeletal traction behind the ulnar process. Therapeutic gymnastics for the elbow joint. Possibility of ossifying myositis.

Fractures of the shoulder condyles (intra-articular fractures): fracture mechanism, T-shaped and U-shaped fractures, clinical symptoms; complaints, examination, palpation, function; X-ray, anesthesia of the fracture, immediate reduction, plaster fixation, development of movements in the elbow joint, surgical treatment of condyle fractures, rehabilitation treatment; first aid for shoulder fractures, transport immobilization.

Lesson 4. **Injuries of the elbow joint, forearm, hand.**

Purpose of the lesson. To acquaint students with the classification of injuries of the forearm, hand; to teach students clinical and X-ray examination of patients with these injuries and the provision of first aid.

Lesson content.

Fracture of the ulnar process: the mechanism of injury, the clinical picture of the fracture, fractures of the ulnar process without displacement and with mixing of the broken fragment; clinical symptoms, X-ray diagnostics, conservative treatment of ulnar fractures, indications for surgical treatment of ulnar fractures, Weber tightening loop surgery.

Fractures of the radius head and neck: mechanism of fractures, three groups of fractures - fracture-crack without displacement, marginal fracture with displacement of the broken fragment, crushed fractures of the radial head, fracture of the radial neck; clinical symptoms of a fracture: complaints, examination, palpation, function, X-ray examination; treatment of head fractures: conservative treatment, plaster immobilization, therapeutic gymnastics for the hand and fingers of the hand, elbow joint, the timing of its implementation; surgical treatment of crushed fractures of the radial head and fractures with displacement of a fragment of the head. Timing of the operation, plaster immobilization and its timing in the postoperative period: therapeutic gymnastics for the elbow joint, timing of its implementation; the possibility of the occurrence of ossifying myositis.

Diaphyseal fractures of the forearm bones. Fractures of the radius and ulna diaphysis, fracture of the radius diaphysis, fracture of the ulna diaphysis at different levels; Mechanism of

injury, clinical symptoms of fractures: complaints, examination, palpation, function, X-ray semiotics. Conservative treatment: immobilization method, anesthesia of the fracture area, one-stage reduction (manual on the Sokolovsky apparatus), plaster immobilization, terms of plaster immobilization; Volkmann's traumatic contracture - its clinical manifestations, contracture prevention; Indications for surgical treatment, immersion osteosynthesis and metal fixators, compression-distraction osteosynthesis, terms of consolidation, rehabilitation treatment.

Montage fractures: fracture mechanism, flexion and extension fractures of the ulna with dislocation of the radial head.

Goleazzi fracture is a fracture of the radius in the lower and middle third, a rupture of the distal radioulnar joint and dislocation of the ulna head.

A fracture of the radius in a typical location is a Colles and Smith fracture. Fracture of the scaphoid bone of the hand. Dislocation of the lunate bone and perilunar dislocations of the hand. Fracture of the base of the first finger of the hand - Bennett's fracture, Roland's fracture. Fracture of the diaphysis of the metacarpal bones and phalanges of the fingers. Dislocations in the metacarpophalangeal and interphalangeal joints. Injuries to the flexor and extensor tendons of the fingers.

First aid and transport immobilization for injuries of the elbow joint, forearm, hand.

Lesson 5. Hip injuries.

Purpose of the lesson. To acquaint students with the classification of hip and hip joint injuries, to teach students clinical and X-ray examination of patients with hip and hip injuries, to be able to provide first aid for these injuries.

Lesson content.

Fractures of the proximal femur. Socio-economic significance of fractures of the proximal femur.

Surgical anatomy of the cervical and trochanteric femur and age-related changes in this region: cervical-diaphyseal angle; bone structure: architectonics of compact mass and spongy substance; senile osteoporosis; blood supply to the femoral head and neck; Hip joint capsule.

Typical mechanisms of proximal femoral fracture. Classification of fractures of the proximal femur: femoral neck fracture, or medial (intra-articular): subcapital, transcervical (transverse and oblique, or spiral), basal; trochanteric or lateral fractures (extra-articular), intertrochanteric and pertrochanteric; separation of the small and large trochanter.

Cervical fractures. Pathological anatomy of fractures: fractures of the femoral neck - medial (intra-articular) fractures, abduction or valgus fractures, adduction or varus fractures. Classification of cervical fractures according to Pawells. Mechanism of injury in abduction and adduction fractures and the possibility of reparative regeneration.

Clinical examination of the patient: anamnesis, localization of pain, forced position of the leg, shortening of the limb, lines of Roser-Nelaton, Schumacher, Briand's triangle, general condition of patients.

X-ray examination: anterior-posterior and lateral (axial) projection, layer-by-layer tomography - the degree of displacement of fragments, the state of the cervical-diaphyseal angle, the presence of senile osteoporosis.

First medical and first aid: position of the limb, transport immobilization. Anesthesia of the fracture site, technique for puncture of the hip joint.

Conservative treatment of cervical fractures: indications and methodology. Simultaneous reduction of cervical fractures according to the Whitman method and the Litbetter method, reduction on the orthopedic table (both in conservative and surgical treatment). Skeletal traction for cervical fractures, derotation plaster boot.

Surgical treatment: indications, types of surgical interventions:

osteosynthesis, metal fixators, unipolar arthroplasty of the femoral head (surgery of choice), hip arthrodesis. Postoperative period, early activation of patients, rehabilitation treatment and its terms. Complications of medial fractures.

Trochanteric or lateral (extra-articular) fractures.

Intertrochanteric and overtrochanteric fractures, their classification according to A.V. Kaplan (7 types of fractures).

Reparative regeneration of trochanteric fractures. Examination of patients with trochanteric fractures: examination, X-ray diagnostics, X-ray signs of fracture.

First aid and first aid:

immobilization of the limb, transportation. Anesthesia of trochanteric fractures. Method of anesthesia.

Treatment of trochanteric fractures: conservative and surgical treatment of trochanteric fractures. Postoperative period, early activation of patients. Possible complications of trochanteric fractures.

Fractures of the hip diaphysis. Surgical anatomy, mechanism of injury, classification of fractures - subtrochanteric fractures, fractures of the upper third, middle third, lower third of the femoral diaphysis, supracondylar fractures.

Subtrochanteric hip fractures. Fractures of the hip diaphysis in the upper third, in the middle third, in the lower third. Conservative treatment - anesthesia, skeletal traction, wire sites, traction on a Beler splint, on a plane on bedside blocks, plaster coxite bandages and the technique of their application.

Surgical treatment - indications for surgery, methods of osteosynthesis, postoperative management; rehabilitation treatment.

Supracondylar fractures of the hip. Conservative treatment - anesthesia, immediate reposition, plaster immobilization; surgical treatment - indications for surgical open reduction of bone fragments, metal fixators, indications for surgery on the popliteal artery; rehabilitation treatment.

Transport immobilization and first aid for hip and hip injuries.

Lesson 6. Injuries of the knee joint.

Purpose of the lesson. To acquaint students with the classification of injuries and diseases of the knee joint, to teach students the clinical examination of patients with injuries and diseases of the knee joint, to form students' ability to conduct X-ray diagnostics of injuries and diseases of the knee joint, to provide first aid.

Lesson content.

Surgical anatomy of the knee joint. Classification of knee joint injuries: knee joint contusion and hemarthrosis, knee meniscus injuries (internal and external), cruciate ligament injuries (anterior and posterior), external and internal (lateral and medial) lateral (collateral) ligament injuries, quadriceps tendon rupture, patellar ligament rupture, traumatic patellar dislocation, traumatic tibia dislocation, patellar fracture, intercondysucine elevation fracture, fracture of the femoral condyles and fracture of the tibial condyles.

Classification of knee joint diseases: Koenig's disease, Osgood-Schlatter disease (osteochondropathy), Goff's disease, Becker cyst.

Contusion and hemarthrosis of the knee joint.

Meniscus injuries of the knee joint.

Damage to the cruciate ligaments (anterior and posterior).

Injuries of the lateral (collateral) ligaments of the knee joint.

Rupture of the quadriceps tendon muscle and patellar ligament.

Traumatic patellar dislocation.

Patellar fracture. Fractures of the intercondylar eminence. Fracture of the femoral condyles. Tibial condyle fractures. Pathological anatomy of fractures, clinical symptoms - general symptoms for knee joint injury, symptoms characteristic of hip condyle fracture (examination, palpation, function), examination of blood circulation and innervation of the lower leg and foot; X-ray examination; conservative treatment of fractures; surgical treatment -

indications for surgery, timing of surgery, types of osteosynthesis of the femoral condyles; rehabilitation treatment.

Puncture of the knee joint. Arthroscopy of the knee joint.

First medical and first aid for knee joint injuries.

Lesson 7. **Injuries of the lower leg, ankle joint, foot.**

Purpose of the lesson. To acquaint students with the classification of injuries of the lower leg, ankle joint, foot; to teach students the clinical examination of patients with these injuries, to form students' ability to conduct X-ray diagnostics of injuries of the lower leg, ankle joint and foot; to teach students to provide first aid for these injuries.

Lesson content.

Fractures of the tibia. Surgical anatomy of the tibia and features of tibia fractures; Classification of tibia fractures.

Diaphyseal fractures of the tibia. Fracture mechanism; tibial fractures and fractures of both tibia bones; open fractures of the tibia.

Clinical symptoms of tibia fractures; X-ray examination; conservative treatment, further rehabilitation treatment.

Surgical treatment; rehabilitation treatment; transport immobilization and first aid for diaphyseal fractures of the tibia.

Complications - traumatic tibial osteomyelitis; comprehensive treatment of traumatic osteomyelitis; stable fixation of bone fragments; antibiotic therapy; rehabilitation treatment in the recovery phase of the patient and in the remote period.

Injuries to the Achilles tendon. Surgical anatomy, tendon function. Mechanism of injury. Tendon rupture - open and closed. Localization of the rupture, clinical symptoms. Surgical treatment of Achilles tendon ruptures. Postoperative treatment.

Ankle fractures The frequency of ankle injuries and the social significance of these injuries. Surgical anatomy of the ankle joint and its function. The mechanism of fractures of the ankle joint. Classification of ankle fractures and fractures. Clinical symptoms of fractures and fracture-dislocations of the ankle joint:

Foot injuries. Foot dislocations - dislocation of the talus, subtalar dislocation of the foot, dislocations in the Chopard and Lisfranc joint, dislocations of the toes, fractures of the talus, calcaneus, fractures of the metatarsal bones and phalanges of the fingers.

Dislocation of the talus. Subtalar dislocation of the foot. Dislocations in the Chopard joint. Dislocations in the Lisfranc joint. Dislocations of the fingers.

Fractures of the talus. Fracture of the heel bone. Metatarsal fractures. Fractures of the phalanges of the fingers. Surgical anatomy; mechanism of injury, closed and open fractures; the possibility of mixing bone fragments; clinical symptoms - complaints, examination, palpation, function; X-ray semiotics; Treatment - immobilization, functional methods, splints for skeletal traction, terms of treatment, rehabilitation treatment.

First medical and first aid for injuries of the lower leg, ankle joint, foot.

Lesson 8. Injuries of the spine, pelvis.

Purpose of the lesson. To teach students clinical and radiological methods of diagnosing fractures of the pelvic and spinal bones, providing first aid to victims, choosing a method of treatment for these patients and the principles of rehabilitation. To form the student's ability to examine patients and diagnose injuries of the spine and pelvis, to provide first aid for these injuries and to introduce methods of conservative and surgical treatment of fractures and dislocations of the spine as uncomplicated, and complicated.

Lesson content.

The frequency of pelvic bone fractures and the severity of these injuries. Surgical anatomy of the pelvis; The importance of the pelvis in human biomechanics. Classification of pelvic bone fractures (classification of A.V. Kaplan). Marginal fractures, fractures without violation of the continuity of the pelvic ring, fractures with violation of the continuity of the

pelvic ring, fractures of the anterior and posterior pelvic annulus, ruptures of the symphysis, dislocations of the pelvis, fractures of the floor of the acetabulum, central dislocations of the hip, pelvic fractures with damage to the pelvic organs.

Mechanism of pelvic bone fractures. Clinical symptoms of various fractures of the pelvic bones.

Traumatic shock and acute blood loss in pelvic fractures. Distinctive features of traumatic shock. Retroperitoneal hematomas, their possible localization and symptoms of "acute abdomen" in retroperitoneal hematomas.

Complicated fractures of the pelvic bones: urethral rupture, bladder rupture (intraperitoneal and extraperitoneal), rectal rupture (intraperitoneal, extraperitoneal). Pathogenesis of these complications.

Clinical symptoms of these injuries, cystography, urethrography (the method of their performance), laparocentesis, laparoscopy.

X-ray examination of the pelvic bones and X-ray semiotics of pelvic fractures (fracture line and mixing of bone fragments).

Provision of first medical and first aid and transportation of the patient: features of patient transfer, anesthesia, replenishment of the volume of circulating fluid.

Treatment of patients with pelvic bone fractures. Anesthesia for pelvic fractures. Intrapelvic novocaine blockades - indications, method of implementation. Principles of functional treatment of pelvic bone fractures. Skeletal traction in pelvic bone fractures - indications, insertion sites. Helferding's belt, tightening hammocks, Jass's method (coupling-screw devices). Simultaneous reduction of pelvic dislocations and double vertical pelvic fractures according to the Watson-Jones method. Antishock therapy for pelvic bone fractures and restoration of circulating fluid volume. Surgical treatment of pelvic bone fractures - indications (fresh fractures, old fractures), fixing structures, AVF. Rehabilitation treatment for pelvic bone fractures: therapeutic gymnastics and physiotherapy. Treatment of complicated fractures of the pelvic bones: rupture of the urethra, bladder, rectum - epicystostomy, urethral suture, bladder suture, drainage of the pericystic space according to Buyalsky-McWater, operations on the rectum, colostomy. Possible complications of pelvic bone fractures (early and late). Possible prevention of complications. First medical and first aid for pelvic injuries.

Frequency of spinal injury. Injuries in the mining industry, when falling from a height, when diving in a shallow place. Surgical anatomy of the spine and spinal cord: anatomical features of the structure of the vertebral bodies, articular processes, intervertebral discs, spinal ligaments, their role in the stability of the vertebrae; spinal canal, reserve spaces of the spinal canal; spinal cord, its length in the spinal canal, structure of the spinal cord, gray matter, nerve roots and spinal nerves, white matter and conductive pathways, spinal cord membranes; topographic and anatomical landmarks of the spinal levels.

Classification of spinal injuries. Mechanisms of spinal injury and the resulting spinal injuries. Pathological anatomy of spinal injuries.

Uncomplicated spinal fractures.

Examination of the patient. X-ray examination and X-ray semiotics of vertebral fractures and dislocations.

Treatment of uncomplicated spinal fractures. Conservative treatment: functional method, method of immediate reduction followed by plaster immobilization (Watson-Jones-Behler method, Davis method), possible complications that occur both during one-stage reduction and after reposition and corset application; the method of gradual stage-by-stage reduction (on a hammock, on skeletal traction by the bones of the skull), therapeutic gymnastics, its periods. Surgical treatment: operations that unload the spinal cord, stabilizing operations (spinal fusion), transpedicular fixation of the spine.

Complicated spinal injuries. Clinical manifestations of concussion, contusion, compression of the spinal cord. Periods in the clinical course and in the development of pathomorphological changes in spinal injury.

Lumbar puncture for spinal fractures: indications for it and method of conduction; cerebrospinal fluid dynamic tests of Quekenstedt, Stuckey, Pussep, breath test.

Treatment of complicated fractures: conservative; Operative; prevention and treatment of trophoparalytic disorders. Methods of drainage of the bladder. Early rehabilitation of spinal patients - medical, social. First medical and first aid for spinal injuries.

Lesson 9. Traumatic disease. Traumatic shock. Polytrauma.

Purpose of the lesson. To form students' ideas about traumatic disease, traumatic shock and polytrauma. To teach students clinical examination and treatment of patients with polytrauma, to be able to provide first aid for these injuries.

Lesson content.

Definition of the concept of "traumatic shock, traumatic disease". Aetiology. Pathogenesis. Classification. Clinic, diagnosis, treatment. Definition of the concept of "polytrauma". Classification: multiple, combined, combined injuries, their characteristics. Social significance of polytrauma as a cause of mortality from injuries, causes of disability, especially among young people of working age.

The clinical picture of polytrauma is the period of general phenomena, the period of local phenomena, the period of consequences of trauma. Clinical features of polytrauma are mutual encumbrance syndrome, the problem of incompatibility of therapy, acute respiratory failure, heart contusion, massive blood loss, traumatic shock, toxemia, acute renal failure, DIC syndrome, fat embolism, thromboembolism. Provision of first aid to victims and their transportation, resuscitation measures: artificial ventilation, closed heart massage, infusion therapy, temporary stop of external bleeding, pain management, transport immobilization.

Organization of inpatient care for polytrauma.

Approximate examination of the victim in parallel or in sequence with resuscitation measures.

Resuscitation measures: replenishment of the volume of circulating fluid, restoration of impaired breathing.

Final stop of bleeding.

Bladder catheterization and renal function monitoring.

Immobilization of the injured limb.

Complete clinical and radiological examination: determination of the extent of injuries, identification of the dominant injury, widespread use of paraclinical methods for combined injuries of the spine and pelvis, injuries of the chest and abdominal organs, especially in craniocerebral injury - thoracentesis, laparocentesis, laparoscopy.

Conservative methods of treatment: plaster bandages, skeletal traction.

Surgical treatment and the optimal timing of its implementation, expansion of indications, if possible, for the surgical fixation of fractures of long tubular bones and pelvic bones to avoid plaster immobilization and skeletal traction for the purpose of subsequent mobility of the patient. Variants of the simplest and least traumatic immersion osteosynthesis, possibly closed, as well as osteosynthesis with the help of external fixation devices.

Prevention, diagnosis and treatment of possible early and late complications of polytrauma.

Lesson 10. Degenerative-dystrophic diseases of the skeleton, bone tissue tumors.

Purpose of the lesson. To form students' knowledge and practical skills in the diagnosis, principles and tactics of treatment of degenerative-dystrophic and static deformities and tumors of the musculoskeletal system in adults.

Lesson content.

Deforming arthrosis of large joints. Socio-economic significance and prevalence of deforming arthrosis of large joints. Types of joints - synarthrosis, amphi-arthrosis, diarthrosis. Anatomical and physiological features of diarthrosis joints: synovial membrane, synovial fluid, hyaline cartilage - morphology, function, age-related changes.

Deforming arthrosis is a disfiguring lesion of the articular hyaline cartilage. Etiology of deforming arthrosis. Primary and secondary deforming arthrosis.

The pathogenesis of deforming arthrosis is degeneration of articular hyaline cartilage, secondary bone changes in the epiphyseal ends of the bone, compensatory changes in the bone. Stages of the disease: I - II - III; clinical, radiological, morphological manifestations of each stage. Clinical signs. X-ray signs. Morphological changes in hyaline cartilage. Deforming coxarthrosis - anatomy of the hip joint, biomechanics of the hip joint, clinical, radiological and morphological manifestations of the disease. Treatment: drug therapy; therapeutic gymnastics and massage; sanatorium-and-spa treatment; Surgical treatment: Fosse-Brandes operation, McMurray and Pauwels intertrochanteric osteotomies, hip arthrodesis, total arthroplasty.

Deforming gonarthrosis - anatomy of the knee joint, clinical, radiological and morphological manifestations of the disease. Treatment: drug therapy; therapeutic gymnastics and massage; sanatorium-and-spa treatment; Surgical treatment: high tibial osteotomy, knee arthroplasty, knee arthrodesis, rehabilitation.

Deforming arthrosis of the upper extremities - features of the course of the disease, treatment. Medical and professional rehabilitation of patients with deforming arthrosis of large joints.

Static foot deformities. Flat, plano-valgus foot.

The longitudinal arch of the foot is the external and internal arches, the transverse arch of the foot, their structure and function. Etiopathogenesis of flat and plano-valgus feet - functional overload and chronic fatigue of the tibial muscles, decreased resistance of the skin-connective tissue bed of the foot to the action of gravity. Peroneal muscles and their role in the pronation of the foot, the condition of the talus and scaphoid bones; metatarsal bones and their amplitude of rotation in the rolling phase during the step are normal and with the impaired ability of the ligamentous apparatus and the skin-connective tissue bed of the foot to stretch and contract, the position of the metatarsal heads. Clinical diagnosis of flat and planovalgus feet. Valgus deformity of the first finger. Position of the I metatarsal bone and the angle between the main phalanx of the first finger and the first metatarsal bone in normal and valgus deformity of the first toe; three degrees of valgus deformity of the first finger. Clinical symptoms. X-ray data. Surgical treatment: elimination of deformity of the first toe, elimination of torsion and forced deviation of the I metatarsal. Rehabilitation treatment, terms of its implementation.

Hammer toes. Pathological setting of the main, middle and nail phalanges of the finger (usually the second finger). "Rooster" deformity of the III-IV-V toes. Clinical manifestations. Surgical treatment of deformity. Rehabilitation treatment after surgery and terms of its implementation.

Bone tumors. Classification of tumors. Primary benign tumors of cartilaginous and bone origin are chordoma, chondroblastoma, chondromyxoid fibroma, chondroma, osteoblastoclastoma (giant cell tumor), osteoid osteoma, osteoma.

Borderline and tumor-like processes - osteochondral exostoses, chondromatosis of bones, fibrous dysplasia, Paget's disease, cortical metaphyseal defect, eosinophilic granuloma. Clinical and radiological features of tumors.

Primary malignant tumors of cartilaginous and bone origin are malignant chordoma, chondrosarcoma, osteogenic capcoma, malignant osteoblastoclastoma, paraossal sarcoma, fibrosarcoma, Ewing's tumor, reticulosarcoma. Clinical and radiological methods for diagnosing malignant tumors.

Secondary malignant tumors: metastatic and growing into the bone from the surrounding soft tissues (synovioma). Clinic and radiology of secondary malignant tumors.

Modern treatment of tumors - surgery, chemotherapy, radiation therapy, combined methods of treatment.

Lesson 11. Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.

Purpose of the lesson. To study with students the following issues: the concept of primary and secondary infection of wounds. Medical care for gunshot wounds at the stages of medical evacuation. Early prevention of infectious complications of wounds. To form modern views on surgical debridement among students. Indications and contraindications for surgical debridement of wounds. Wound healing by primary and secondary tension. Methods of closing a gunshot wound after surgical debridement. TOPH in providing assistance to the wounded of general surgical profile. To develop students' organizational skills necessary for a medical service doctor in a combat situation or in peacetime emergencies.

Lesson content.

Modern types of firearms. Wound ballistics and the mechanism of action of the wounding projectile. Theories of direct and side impact of a wounding projectile. Morphological and functional changes in tissues in a gunshot wound.

Features of the damaging effect of modern firearms, high-precision and other types of weapons. Areas of tissue damage in a gunshot wound. Morphology of the wound canal (entrance and exit holes, characteristics of zones).

Lesson 12. Infectious complications of wounds and injuries.

Purpose of the lesson. Study with students the following issues: Anaerobic infection of wounds. Recovery time, local and general manifestations. Characteristics of various clinical forms. Prevention of anaerobic infection. Specific and non-specific treatment. Prophylactic and therapeutic value of antibiotics. Treatment outcome. Tetanus, its etiology and pathogenesis. Local and general symptoms. Diagnosis, prevention and principles of treatment of tetanus at the military stages of medical evacuation. Complications and outcomes. students, organizational skills necessary for a doctor of the medical service in a combat situation or in emergency situations in peacetime.

Lesson content.

Local purulent infection. Characteristics of toxic-resorptive fever and sepsis. Clinic of purulent complications of gunshot wounds.

Anaerobic infection of wounds. Timing of occurrence, local and general manifestations. Characteristics of various clinical forms. Prevention of anaerobic infection. Specific and non-specific treatment. Prophylactic and therapeutic value of antibiotics. Treatment outcome.

Tetanus, its etiology and pathogenesis. Local and general symptoms. Diagnosis, prevention and principles of tetanus treatment at the stages of medical evacuation. Complications and outcomes.

Lesson 13. Chest injuries.

Purpose of the lesson. To develop students' organizational skills necessary for a medical service doctor in a combat situation or in peacetime emergencies.

Lesson content.

Frequency and classification of wounds and closed chest injuries.

Clinical manifestations and diagnosis of various types of injuries and wounds.

Lesson 14. Abdominal and pelvic injuries.

Purpose of the lesson. To study with students the clinical picture of closed abdominal injuries, the diagnosis of penetrating wounds and closed abdominal injuries. To study wounds and closed injuries of the pelvic and pelvic organs. Classification of pelvic wounds. Symptoms and diagnosis of gunshot fractures of the pelvic bones with and without damage to the pelvic organs. Complications of pelvic gunshot injuries. The volume of first aid. First aid for wounds in the abdomen. The volume of first aid. To develop students' organizational skills necessary for a medical service doctor in a combat situation or in peacetime emergencies.

Lesson content.

Frequency and classification of abdominal wounds and injuries.

Symptoms of penetrating abdominal wounds. Shock, blood loss, peritonitis, their importance in the outcome of penetrating wounds.

Lesson 15. Thermal injury. Combined lesions.

Purpose of the lesson. To study with students medical care for thermal injuries on the battlefield, in the centers of mass destruction. To study with students the features of the course of wounds, thermal burns contaminated with organophosphorus substances. To form students' practical skills on the topic of medical care in the focus of injury and at the military stages of medical evacuation in case of combined chemical injuries. situation or in peacetime emergencies.

Lesson content.

Local and general pathological manifestations of thermal burns. Degrees of burns. Determination of the total area of burns and foci. Periods of burn disease. Burn shock. Acute toxemia. Burn septicotoxemia. Convalescence.

Damage by light radiation of a nuclear explosion, incendiary mixtures. Medical care on the battlefield, in the centers of mass destruction.

The concept of combined radiation injuries, their combinations. Features of the course of wounds, bone fractures, thermal burns in combined radiation injuries and ingress of radioactive substances into wounds and burn surfaces, mutual aggravation syndrome. Features of the course of radiation injuries.

Features of the course of wounds, thermal burns contaminated with organophosphate substances. Medical care in the focus of damage and at the stages of medical evacuation in case of combined chemical injuries.

Medical triage, scope and content of assistance at the stages of medical evacuation.

Lesson 16. Injuries of the skull and brain, spine and spinal cord.

Purpose of the lesson. To study with students the features of closed spinal cord injuries. Symptoms of concussion, compression and contusion of the spinal cord. First aid on the battlefield and stages of medical evacuation. To study gunshot wounds of the spine and spinal cord. Clinical picture and diagnosis. Features of preparation for evacuation. The concept of non-transportability.

Lesson content.

Frequency of closed skull and brain injuries, their classification. Clinical manifestations of contusion, concussion and compression of the brain. Cracks and fractures of the skull. Gunshot wounds of the skull and brain, their classification and clinic. First aid for skull wounds on the battlefield. Medical triage and maintenance of medical care at the stages of medical evacuation. Frequency of closed spinal cord injuries. Symptoms of concussion, contusion and compression of the spinal cord. First aid on the battlefield and in the focus of destruction.

Gunshot wounds to the spine and spinal cord. Clinical picture and diagnosis. Periods of clinical course.

Lesson 17. Prolonged compression syndrome.

Purpose of the lesson. To study with students the features of cynics and the pathogenesis of the process that occurs with prolonged compression of the limb. First aid at the site of the collapse of the battle and the stages of medical evacuation. Clinical picture and diagnosis. Features of preparation for evacuation.

Lesson content.

Etiology, pathogenesis and classification of prolonged crush syndrome. Clinical presentation and dependence of the clinical course on the mass of crushed tissues, the strength and duration of the action of the damaging factor on them. Modern methods of diagnosing long-term crush syndrome. Features of the provision of medical care and treatment of victims at the site of injury and stages of medical evacuation.

Lesson 18. Bleeding. Blood transfusion.

Purpose of the lesson. To study with students the issues of monitoring the suitability of blood for transfusion. Types of transfusion and infusion agents and indications for their use. Indications for blood transfusion and blood substitutes. Possible complications during blood transfusion, their prevention and treatment. the technique of blood transfusion.

Lesson content.

Classification of bleeding depending on the source of bleeding, the time of its occurrence and the degree of blood loss. Clinical picture of bleeding and acute blood loss. Determination of the amount of blood loss in combat conditions.

Indications for transfusion of blood and its preparations. Control over the suitability of blood for transfusion. Blood transfusion technique. Types of transfusion and infusion agents and indications for their use. Possible complications of blood transfusion, their prevention and treatment.

Methods of temporary stopping of bleeding on the battlefield and stages of medical evacuation. Indications for blood transfusion and blood substitutes. Methodology for calculating the need for blood and blood substitutes.

Lesson 19. Congenital diseases of the musculoskeletal system.

Purpose of the lesson.

To study with students the following issues: the concept of congenital hip dislocation. Theories of the occurrence of congenital hip dislocation. Severity of underdevelopment of the hip joint. Get acquainted with the pathogenesis, clinic, diagnosis of congenital hip dislocation, with the main conservative and surgical methods of treating congenital hip dislocation.

To study the concept of congenital clubfoot. Theories of the origin of congenital clubfoot. Get acquainted with the classification, pathogenesis, clinic, diagnosis of congenital clubfoot.

Lesson content.

Clinic, diagnosis and treatment of limb anomalies. Content, scope and organization of medical care for limb anomalies. The main methods of surgical treatment of limb abnormalities. Basic principles of organizing the provision of orthopedic care to children suffering from abnormalities in the development of limbs.

Determination of congenital hip dislocation. The main theories of its origin. Biomechanics of congenital hip dislocation. Classification. Features of the clinical course of the disease. Early diagnosis: clinical and radiological research methods. Prevention and conservative treatment of the disease. Surgical treatment of congenital hip dislocation.

Definition of congenital clubfoot. The main theories of its origin. Elements of clubfoot. Forms of clubfoot. Classification. Features of the clinical course of the disease. Early diagnosis: clinical and radiological research methods. Prevention and conservative treatment of the disease. Surgical treatment of congenital hip dislocation.

Lesson 20. Posture disorders.

Purpose of the lesson. To study with students the classification, clinic, diagnosis and treatment of neck deformities, spinal deformities, chest deformities, torticollis, scoliosis, dysplastic and rickets-like conditions.

Lesson content.

Clinic, diagnosis and treatment of deformities of the chest, neck, spine, torticollis and various dysplastic diseases of the skeleton.

Basic principles of organizing the provision of orthopedic care to children suffering from deformities of the chest, neck, spine, torticollis and various dysplastic diseases of the skeleton.

Scoliosis as a pathology of the musculoskeletal system. Definition of scoliosis. Forms of scoliotic disease. First manifestations. Causes of scoliosis: congenital, acquired. Therapeutic measures. Prevention of scoliosis.

Basic principles of organizing the provision of orthopedic care to children suffering from scoliosis.

2.6. Interactive forms of learning

№ p/n	Topics of the practical lesson, lectures	Labor intensity in hours	Interactive form of learning	Labor intensity in hours, % of the lesson
1	Traumatology, orthopedics. History of development. Organization of care for patients of orthopedic and traumatological profile.	5,2	Discussion Interactive testing	30 min (0.5 hours)/10%
2	Traumatic dislocations. Dislocations of the shoulder, forearm, thigh, lower leg.	5,2	Report on training duty Computer simulations	30 min (0.5 hours)/10%
3	Injuries of the shoulder, shoulder.	5,2	Report on training duty Mutual review Taking notes	30 min (0.5 hours)/10%
4	Injuries of the elbow joint, forearm, hand.	5,2	Report on training duty Interactive survey	30 min (0.5 hours)/10%
5	Hip injuries.	5,2	Report on training duty Small Group Method	30 min (0.5 hours)/10%
6	Injuries of the knee joint.	5,2	Report on training duty Interactive survey	30 min (0.5 hours)/10%
7	Injuries of the lower leg, ankle joint, foot.	5,2	Report on training duty Computer simulations	30 min (0.5 hours)/10%
8	Injuries of the spine, pelvis.	5,2	Report on training duty Brainstorming	30 min (0.5 hours)/10%
9	Lab. Traumatic disease. Traumatic shock. Polytrauma	5,2	Report on training duty Role-playing game	30 min (0.5 hours)/10%
10	Lab. Degenerative-dystrophic diseases of the skeleton, bone tissue tumors.	5,2	Interactive survey. Protection of the educational medical history. Final lesson	30 min (0.5 hours)/10%
11	Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.	3,4	Discussion Interactive testing	30 min (0.5 hours)/15%
12	Infectious complications of wounds and injuries.	3,4	Report on training duty Computer simulations	30 min (0.5 hours)/15%

13	Chest injuries.	3,4	Report on training duty Mutual review Taking notes	30 min (0.5 hours)/15%
14	Abdominal and pelvic injuries.	3,4	Report on training duty Interactive survey	30 min (0.5 hours)/15%
15	Thermal injury. Combined lesions.	3,4	Report on training duty Small Group Method	30 min (0.5 hours)/15%
16	Injuries of the skull and brain, spine and spinal cord.	3,4	Report on training duty Interactive survey	30 min (0.5 hours)/15%
17	Prolonged compression syndrome.	3,4	Report on training duty Computer simulations	30 min (0.5 hours)/15%
18	Bleeding. Blood transfusion.	3,4	Report on training duty Brainstorming	30 min (0.5 hours)/15%
19	Congenital diseases of the musculoskeletal system.	3,4	Report on training duty Role-playing game	30 min (0.5 hours)/15%
20	Posture disorders.	3,4	Interactive survey. Protection of the educational medical history. Final lesson	30 min (0.5 hours)/15%

2.7. Criteria for assessing learning outcomes

The basis for determining the level of knowledge, skills, and abilities is the assessment criteria - completeness and correctness:
- correct, accurate answer;
- correct, but incomplete or inaccurate answer;
-Wrong answer;
- No answer.
When assigning grades, it is necessary to take into account the classification of errors and their quality: - gross errors;
- the same type of errors;
- minor mistakes;
-Bugs.

Distribution of grades in practical classes

No p/n	Topic of the practical lesson	Theoretical part	Practical part	Overall rating	Forms of control
1	Traumatology, orthopedics. History of development.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational

	Organization of care for patients of orthopedic and traumatological profile.				tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
2	Traumatic dislocations. Dislocations of the shoulder, forearm, thigh, lower leg.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
3	Injuries of the shoulder, shoulder.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
4	Injuries of the elbow joint, forearm, hand.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
5	Hip injuries.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory

					documents - Performing exercises according to the sample.
6	Injuries of the knee joint.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
7	Injuries of the lower leg, ankle joint, foot.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
8	Injuries of the spine, pelvis.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
9	Traumatic disease. Traumatic shock. Polytrauma.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
10	Degenerative-dystrophic diseases of the skeleton,	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical

	bone tissue tumors. Final lesson (test).				Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
	Educational medical history	2-5			
1	Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
2	Infectious complications of wounds and injuries.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
3	Chest injuries.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
4	Abdominal and pelvic injuries.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the

					bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
5	Thermal injury. Combined lesions.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
6	Injuries of the skull and brain, spine and spinal cord.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
7	Prolonged compression syndrome.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
8	Bleeding. Blood transfusion.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.

9	Congenital diseases of the musculoskeletal system.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
10	Posture disorders.	2-5	2-5	2-5	Oral or written questioning. Test tasks, including computer tasks. Practical Part. Interview on situational tasks. Checking practical skills at the bedside, simulation class, drawing up a medical history and the ability to work with regulatory documents - Performing exercises according to the sample.
	Educational medical history	2-5			
	GPA				
	Exam				

Assessment scales of current knowledge control

The success of students' mastering of the discipline (topics/sections), practical skills and abilities is characterized by a qualitative assessment and is evaluated according to a 5-point system: "5" - excellent, "4" - good, "3" - satisfactory, "2" - unsatisfactory.

The conversion of the mark into a point scale is carried out according to the following scheme:

Success rate	**Mark on a 5-point scale**	Binary Marking
Programmable/Promoted	«5»	Passed
Program	«4»	
Required/Basic	«3»	
Below what is required	«2»	Not

		credited

Criteria for evaluating the theoretical part

"5" - for the depth and completeness of mastering the content of the educational material, in which the student is easily oriented, for the ability to combine theoretical questions with practical ones, to express and substantiate their judgments, to present the answer competently and logically; during testing, it allows up to 10% of erroneous answers.

"4" - the student has fully mastered the educational material, navigates in it, correctly states the answer, but the content and form have some inaccuracies; during testing, it allows up to 20% of erroneous answers.

"3" - the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to express and substantiate his judgments; during testing, it allows up to 30% of erroneous answers.

"2" - the student has scattered and unsystematic knowledge of the educational material, does not know how to distinguish the main and secondary, makes mistakes in the definition of concepts, distorts their meaning, randomly and unconfidently presents the material, makes more than 30% of erroneous answers during testing.

Criteria for evaluating the practical part

"5" - the student supervises the thematic patient on a daily basis, has fully mastered the practical skills and abilities provided for by the work program of the discipline (correctly interprets the patient's complaints, anamnesis, objective examination data, formulates a clinical diagnosis, prescribes examination and treatment, interprets clinical, laboratory and instrumental indicators taking into account the norm).

"4" - the student supervises the thematic patient on a daily basis, has mastered the

practical skills and abilities provided for by the work program of the discipline, however, admits some inaccuracies.

"3" - the student irregularly supervises the patient, the student knows only some of the

practical skills and abilities.

"2" - the student has visited the supervised person less than 4 times painfully, performs practical skills and abilities with gross mistakes.

Criteria for assessing the educational medical history

"5" - registration of the educational medical history according to the requirements.

"4" - in the educational history of the patient's case, the student makes some inaccuracies in the formulation of a detailed clinical diagnosis, examination and treatment.

"3" - the medical history is drawn up with errors, written in illegible handwriting, inaccuracies are made in the formulation of a detailed clinical diagnosis, treatment.

"2" - the medical history is written in illegible handwriting, with gross mistakes (a detailed clinical diagnosis is not made and substantiated, treatment is incorrectly prescribed).

Work off debts in the discipline

If a student missed a lesson for a good reason, he has the right to work it out and receive the maximum mark provided for by the work program of the discipline for this lesson. A valid reason must be documented.

If a student misses a lesson for an unjustified reason or receives a mark of "2" for all types of activities in the class, then he is obliged to work it out.

If a student is exempted from a lesson on the recommendation of the dean's office (participation in sports, cultural and other events), then he is given a mark of "5" for this lesson, subject to the

submission of a report on the completion of mandatory extracurricular independent work on the topic of the missed lesson.

Criteria for evaluating intermediate certification.

Intermediate certification is carried out in 3 stages:

1. Test control in the "Moodle" system.
2. Passing practical skills (competencies).
3. Answers to the theoretical questions of the exam ticket.

Regulations on the Olympiad

The purpose of the Olympiad is to identify and develop students' creativity and interest in practical and research activities, the dissemination and popularization of scientific knowledge and innovative technologies among young people in the field of traumatology and orthopedics.

Objectives of the Olympiad:

– formation of students' practical skills and abilities, identification of abilities for them and the degree of motivation;
– determination of the general level of readiness of students for professional activity;
– increasing the level of mastering practical skills;
– optimization of the selection of young personnel for training under the residency program in the specialty "Traumatology, Orthopedics";
– organization of career guidance.

The general management and organization of the Olympiad is carried out by the organizing committee. The chairman of the organizing committee of the Olympiad is the head of the Department of Traumatology with a course in disaster medicine. The organizing committee and the jury are formed from among the employees of the Department of Traumatology with a course of disaster medicine of the Faculty of Medicine, as well as other interested individuals.

The procedure for holding the Olympiad:

– 6th year students whose current score in the discipline of traumatology and orthopedics is at least 4.8 are allowed to participate in the Olympiad;
– List of competitions:
  - ✓ correspondence distance testing;
  - ✓ solving a situational problem;
  - ✓ evaluation of data from laboratory and instrumental (radial) research methods;
  - ✓ implementation of the scope of medical care for injuries of the musculoskeletal system.
– the determination of winners and prize-winners is carried out by the jury members after checking all the completed tasks by the aggregate of points;
– The winner and prize-winners of the Olympiad receive an "excellent" mark at the exam automatically.

Criteria for the final assessment (intermediate certification).

Excellent - for the depth and completeness of mastering the content of the educational material, in which the student is easily oriented, for the ability to combine theoretical questions with practical ones, to express and substantiate their opinions, to correctly and logically present the answer; during testing, it allows up to 10% of erroneous answers. Practical skills and abilities provided for by the work program of the discipline are fully mastered. "Good" - the student has fully mastered the educational material, navigates it, correctly states the answer, but the content and form have some inaccuracies; during testing, it allows up to 20% of erroneous answers. Fully practical skills and abilities provided for by the work program of the discipline, however, admits some inaccuracies

"Satisfactory" - the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to

express and substantiate his judgments; during testing, it allows up to 30% of erroneous answers. Possesses only some practical skills and abilities.

"Unsatisfactory" - the student has scattered and unsystematic knowledge of the educational material, does not know how to distinguish the main and secondary, makes mistakes in the definition of concepts, distorts their meaning, randomly and unconfidently presents the material, makes more than 30% of erroneous answers during testing. Practical skills and abilities are performed with gross mistakes.

A student can apply for an "excellent" grade automatically if he or she has won a prize in disciplinary or interdisciplinary Olympiads (university, regional) and has an average score of at least 4.8 points based on the results of current academic performance. A student can refuse an "automatic" grade and take an exam or a test together with the group on a general basis.

Educational rating of students.

The rating indicator for each discipline is formed on the basis of an assessment of the student's knowledge, skills, and abilities based on the results of intermediate certification and bonus/penalty points. The maximum result that can be achieved by a student is 10 points (5 points for intermediate certification + 5 bonus points), the minimum is 0 points.

Scale of correspondence of rating scores to five-point scores

Rating scale (points)	Traditional Elevation Scale	Grading criteria
5	«5»	The student demonstrates a deep and complete mastery of the content of the educational material, competently and logically presents the answer, is able to connect theory with practice, express and substantiate his judgments, and formulates independent conclusions and generalizations when answering. He has mastered all the practical skills and abilities provided for by the program.
4	«4»	The student has fully mastered the educational material, is oriented in what has been studied material, applies knowledge to solve practical problems, correctly states the answer, but the content and form of the answer have some inaccuracies or the answer is incomplete. He has mastered all the practical skills and abilities provided for by the program, but makes some inaccuracies.
3	«3»	The student shows knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, makes inaccuracies, does not know how to substantiate his judgments. Possesses only some practical skills and abilities.
2	«2»	The student has disparate, unsystematic knowledge, does not know how to distinguish between the main and the secondary, presents the material randomly and uncertainly, cannot apply knowledge to solve practical problems. Practical skills and abilities are performed

		with gross mistakes.
1	«2»	Demonstrates a lack of understanding of the problem. Practical skills and abilities are not mastered.
0	«2»	There is no answer. There was no attempt to demonstrate his theoretical knowledge and practical skills.

Distribution of bonus and penalty points.

Reward points. Penalty points

1 point - oral presentation at conferences

absences from lectures and practical classes for an unjustified reason - 1 point

0.25 points - poster presentation at conferences

damage to the cathedral property - 1 point

1 point - winner of the Olympiad (prizes)

disrespectful attitude towards the teacher, patients, medical staff - 1 point

0.5 points - participant of the Olympiad

untidy appearance, lack of a bathrobe - 0.5 points

0.25 points - extracurricular work of choice

systematic unpreparedness for classes, lack of notes - 0.5 points;

1 point - participation in meetings of the scientific and practical society of traumatologists and orthopedists of the Amur Region according to the plan of the department

violation of the discipline of classes - 1 point

1 point - preparation of a presentation (at least 25 slides) on the scientific problem of the department

2.8. Independent work of students (classroom, extracurricular)

Independent work of students consists of two components: classroom and extracurricular (mandatory for all students and optional) work.

2.8.1. Classroom independent work of students

Practical classes in traumatology and orthopedics are held on the basis of the traumatology department of the Amur Regional Clinical Hospital (AOKB), the Amur Regional Children's Clinical Hospital (AODKB), the orthopedic office of the children's regional polyclinic, the children's trauma room of the trauma center of Blagoveshchensk.

1.5 academic hours per day (28.8% of the study time) in the 10th semester and 0.7 academic hours (27.3% of the study time) in the 11th semester are allocated for classroom independent work of the student.

Classroom work includes**:** the main didactic tasks of independent work of students under the guidance of a teacher: consolidation of knowledge and skills obtained during the study of the academic discipline in lectures and practical classes; prevention of their forgetting; expansion and deepening of educational material; formation of skills and abilities of independent work; development of independent thinking and creative abilities of students.

The classroom work of students includes: checking current knowledge on the topic of a practical lesson in the form of an oral or written survey, test control, solving situational problems, interpreting laboratory and instrumental indicators, drawing up a plan for examination and treatment. Familiarization with the teaching aids, tables, diagrams, stands, tablets available

at the department. Supervision of patients and registration of educational medical history, development of practical skills and abilities in a simulation class. Individual work with the development and implementation of practical skills

2.8.2. Extracurricular independent work of students

As the main forms of extracurricular independent work, the following can be used: the study of basic and additional educational and scientific literature; solving situational problems, test tasks, working in an online class; preparation of oral reports (reports); writing an educational medical history; duty in the clinic; preparation for the report on duty, performance of diagnostic manipulations; observation and self-observation of specific clinical phenomena under study, etc.

During the cycle, the student supervises one patient, writes and submits a medical history to the teacher.

In addition, each student of the fifth year during the cycle is on duty 1 time in the evening in the admission department and hospital, followed by a brief report of the medical history received by the UTC at the morning medical conference.

Under the supervision of the teacher, students work in the admission department, dressing rooms (clean and purulent) and in the plaster room. They participate in the examination of patients, dressings and manipulations, in the application of aseptic and plaster bandages.

№ p/n	Topic of the practical lesson	Time to prepare the student for the lesson	Forms of extracurricular independent work of the student	
			Mandatory and the same for everyone	Student's choice
1	Traumatology, Orthopedics.History of Development.Organization of Care for Patients of Orthopedic and Traumatological Profile. Examination of the patient.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Life and work of N.I. Pirogov. - G.I. Turner is the founder of the Russian school of orthopedics. - R.R. Vreden's contribution to the development of traumatology and orthopedics in Russia. - Paid medical care in the structure of orthopedic and traumatological care for the population. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - The role of outpatient care in the structure of orthopedic and trauma service. **Or other topics in agreement with the teacher.**
2	Traumatic dislocations. Dislocations of the shoulder, forearm, thigh, lower leg.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Ways to correct traumatic dislocations. History of development. - Dislocations of the collarbone. Clinic, diagnosis, treatment. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Modern technologies for the treatment of habitual shoulder dislocations. - Arthroscopic surgery is the method of choice in the treatment of traumatic joint pathology. **Or other topics in agreement with the teacher.**

3	Injuries of the shoulder, shoulder.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Damage to the growth zone in children. Classification. Features of diagnosis and treatment. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Modern metal structures and technology of their application for immersion osteosynthesis of shoulder fractures. - Open fractures. Clinic, diagnostics. **Or other topics in agreement with the teacher.**
4	Injuries of the elbow joint, forearm, hand.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Hand surgery is the organization of specialized care for victims in the conditions of the regional center. -.Organization of microsurgical care in Russia. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Tendon plastic surgery for old injuries. Surgical tactics. - Microsurgical reimplantation of limbs. The current state of the issue. **Or other topics in agreement with the teacher.**
5	Hip injuries.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Arthroplasty and endoprosthetics. The state of the issue. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - The main types of modern endoprostheses and technologies for their use. - High-tech operations in traumatology and orthopedics. **Or other topics in agreement with the teacher.**
6	Injuries of the knee joint.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Current state of knee arthroplasty in the world, Russia and the Amur Region. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Arthroscopy of the knee joint. Plastic surgery of the cruciate ligaments. - Arthroscopy of the knee joint. Meniscus resection. **Or other topics in agreement with the teacher.**
7	Injuries of the lower leg, ankle joint, foot.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - AO technologies in the treatment of fractures of the lower leg and ankle joint. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Ankle arthroscopy. -Flatfoot. Valgus deformity of the first toe. Clinic, diagnosis, treatment. **Or other topics in agreement with the teacher.**
8	Injuries of the spine, pelvis.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Modern technologies in the treatment of pelvic and spinal fractures. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - External fixation devices in the treatment of pelvic and spinal fractures. **Or other topics in agreement with the teacher.**

9	Traumatic disease. Traumatic shock. Polytrauma.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Features of polytrauma. Stages of providing assistance to victims in peacetime and wartime. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Modern technologies for organizing trauma care for victims of road accidents. **Or other topics in agreement with the teacher.**
10	Degenerative-dystrophic skeletal diseases, bone tissue tumors.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Modern technologies in the treatment of bone tissue tumors. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Combined treatment of malignant bone tumors. - Tuberculosis of bones and joints. **Or other topics in agreement with the teacher.**
11	Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Modern types of firearms. - Theories of direct and side impact of a wounding projectile. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Features of the damaging effect of modern firearms, high-precision and other types of weapons. **Or other topics in agreement with the teacher.**
12	Infectious complications of wounds and injuries.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - New antibacterial drugs used in the treatment of purulent-septic wounds. Indications, contraindications. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Methods of specific treatment of purulent-inflammatory complications of wound infection. **Or other topics in agreement with the teacher.**
13	Chest injuries.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Modern surgical methods of treating thoracic wounds. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Providing first medical and qualified aid to the wounded with chest wounds. **Or other topics in agreement with the teacher.**
14	Abdominal and pelvic injuries.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Symptoms and diagnosis of gunshot fractures of the pelvic bones with and without damage to the pelvic organs. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Diagnosis of penetrating wounds and closed abdominal injuries. **Or other topics in agreement with the teacher.**
15	Thermal injury. Combined lesions.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a	**Abstract on topics:** - Features of the clinical course of thermal injuries by new varieties of chemical compounds. Methods of neutralizing a damaging substance. **Review of Internet resources, periodical scientific literature and preparation of a report on the**

			report	**following topics:** - Varieties of methods for determining the area of burns. **Or other topics in agreement with the teacher.**
16	Injuries of the skull and brain, spine and spinal cord.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Gunshot wounds to the skull and brain**.** **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Staged treatment of the wounded with injuries of the skull and spine, brain and spinal cord. **Or other topics in agreement with the teacher.**
17	Prolonged compression syndrome.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Principles of organization of surgical care for the wounded with prolonged crush syndrome in combat situations and emergency situations. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Dependence of the clinical course on the mass of the crushed tissues, the strength and duration of the action of the damaging factor on them. **Or other topics in agreement with the teacher.**
18	Bleeding. Blood transfusion.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** -Bleeding. Ways to stop. Methods for calculating blood loss. - Blood procurement service in Russia in peacetime and wartime**.** **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Modern blood substitutes, alternatives to donor blood transfusions. **Or other topics in agreement with the teacher.**
19	Congenital diseases of the musculoskeletal system.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Hip dysplasia. Theories of occurrence. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Early diagnosis of congenital hip dislocation. World practice. **Or other topics in agreement with the teacher.**
20	Posture disorders.	2 hours	- registration of an academic medical history, - duty in the hospital with the preparation of a report	**Abstract on topics:** - Scoliotic disease. Clinic, diagnosis, treatment. **Review of Internet resources, periodical scientific literature and preparation of a report on the following topics:** - Modern methods and surgical techniques used in the treatment of scoliosis. **Or other topics in agreement with the teacher.**
Labor intensity in hours		40 hours	10 hours	10 hours
Total labor intensity in hours		**60 hours**		

2.8.3. Research work of students

When developing research work on traumatology and orthopedics, students are given the opportunity to study special, periodical scientific literature on the achievements of domestic and

foreign medicine in the field of traumatology, orthopedics, pelvic and spinal surgery. Under the guidance of the assistants of the department, students can participate in scientific research, technical developments, collect, develop, analyze scientific, technical and clinical information, using the technical resources of the Department of Traumatology with the course of disaster medicine of the Amur State Medical Academy of the Ministry of Health of Russia and the clinical base of the traumatology department of the Amur Regional Clinical Hospital (AOKB), the Amur Regional Children's Clinical Hospital (AODKB).

The assessment of the student's research work is carried out on a binary scale: "passed", "not passed"

3. EDUCATIONAL, METHODOLOGICAL AND INFORMATION SUPPORT DISCIPLINE

3.1 References

1. Kotelnikov G. P., Lartsev Yu. - 2nd ed., rev. - Moscow : GEOTAR-Media, 2021. - 560 p. - ISBN 978-5-9704-5900-3. - Text: electronic (accessed: 05.05.2021). - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970459003.html
2. Kornilov N. V. Travmatologiya i ortopediya [Traumatology and Orthopedics: Textbook] / Ed. by N. V. Kornilov, A. K. Dulaev. - 4th ed. , revised and supplemented - Moscow : GEOTAR-Media, 2020. - 656 p. - ISBN 978-5-9704-5389-6. - Text : electronic (accessed: 05.05.2021). - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970453896.html
3. Garkavy A. V., Lychagin A. V., Kavalersky G. M. [i dr.]. - Moscow : GEOTAR-Media, 2022. - 896 p. - ISBN 978-5-9704-6603-2. - Text : electronic // EBS "Student's Consultant" [site].- URL: http://www.studmedlib.ru/book/ISBN9785970466032.html

3.2.Further reading

1. Zhila, N. G. Traumatology of childhood: a textbook / N. G. Zhila, V. I. Zorin. - Moscow: GEOTAR-Media, 2020. - 128 p. - ISBN 978-5-9704-5819-8. - Text: electronic (date of access: 05.05.2021). - Mode of access: by subscription. https://www.rosmedlib.ru/book/ISBN9785970458198.html
2. Epifanov, V. A. Rehabilitation in traumatology and orthopedics / V. A. Epifanov, A. V. Epifanov. - 2nd ed., revised and supplemented - Moscow: GEOTAR-Media, 2015. - 416 p. - ISBN 978-5-9704-3445-1. - Text: electronic (date of access: 05.05.2021). - Mode of access: by subscription. http://www.studmedlib.ru/book/ISBN9785970434451.html
3. Murtazin, A. I. Travmatology and orthopedics. Standards of medical care. Quality assessment criteria. Pharmacological reference book. A. I. Murtazin. - Moscow : GEOTAR-Media, 2020. - 760 p. - ISBN 978-5-9704-4896-0. - Text : electronic (accessed: 05.05.2021). - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970448960.html
4. Fetisov N. I., Maskin S. S., Matyukhin V. V. Trauma of the Chest (Morphogenesis, Pathogenesis, Clinic, Diagnosis, Treatment) : Textbook. – Volgograd : VolgSMU, 2020 – Part 1 : Closed chest injury – 2020. — 112 p. — Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/141227
5. Combined closed trauma of the abdomen and organs of the retroperitoneal space: textbook : in 2 parts / S. S. Maskin, V. V. Aleksandrov, N. K. Ermolaeva, V. V. Matyukhin.

— Volgograd : VolgSMU, 2020 — Part 2 — 2020. - 344 p. - Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/179594

3.3.Educational and methodological support of the discipline, prepared by staff of the department

Textbooks (UMO)

1.	Tutorial. Transosseous osteosynthesis in the treatment of patients with pelvic ring injuries. Borozda I.V. Recommended by ECU CS, Moscow, 2015
2.	Tutorial. Modern metal structures for immersion osteosynthesis of long bones of the skeleton. Borozda I.V. Recommended by ECU CS, Moscow, 2017
3.	Tutorial. Modern technologies of osteosynthesis in the treatment of fractures of the lower leg and ankle joint. Borozda I.V. Recommended by ECU CS, Moscow, 2017
4.	Surgical treatment of acetabular fractures. International approachesBorozda I.V., Gnetetsky S.F., Donchenko S.V., Zagorodniy N.V., Ivanov D.A., Kirpichev I.V., Kolesnik A.I., Mylnikov A.V., Ovcharenko A.V., Ochkurenko A.A., Solodilov I.M. - M.: GEOTAR-Media, 2021.-160p.
5.	Surgical treatment of fractures of the quadrilateral surface of the acetabulum. Ed. by A.I. Kolesnik, S.V. Donchenko, N.V. Zagorodny. - Moscow: GEOTAR-Media, 2023. - 144 p.

Electronic and digital technologies:

1. Online course on the discipline "Traumatology and Orthopedics" at the Institute of Traumatology and Orthopedics of the Amur State Medical Academy https://educ-amursma.ru/course/view.php?id=275

Characteristics of modules in the electronic information and educational course

Training	Supervisory
Theoretical (lecture) material, video experiments, scientific, educational and educational films	Methodical recommendations for students on extracurricular independent work.
Methodical recommendations for students for practical classes. Methodical recommendations for solving problems and exercises on the topics of the discipline.	List of recommended topics for abstract works and regulations for abstract formatting.
Reference material, tables of standard values.	Tests of input, current and final knowledge controls.

2. Multimedia presentations (Microsoft Power Point 2016), for lecture-type classes, https://educ-amursma.ru/course/view.php?id=275
   According to the thematic plan of lectures:

1. Subject and objectives, history of development of traumatology and orthopedics. Bone regeneration.
2. General principles and methods of treatment of injuries and diseases of the musculoskeletal system.
3. Injuries of the shoulder and shoulder.
4. Injuries of the forearm and hand.
5. Injuries of the hip, knee joint.
6. Injuries of the lower leg and foot.
7. Injuries to the pelvis and spine.
8. Traumatic shock. Polytrauma.
9. Degenerative-dystrophic diseases of large joints. Osteochondropathy. Bone tumors.
10. Congenital diseases of the musculoskeletal system.
11. Gunshot wounds, mine-explosive wounds of the limbs. Wound ballistics.

12. Infectious complications of wounds and injuries.
13. Chest injuries.
14. Abdominal and pelvic injuries.
15. Thermal injury. Combined lesions.
16. Injuries of the skull and brain, spine and spinal cord.
17. Bleeding. Blood transfusion. Prolonged compression syndrome.

3. Videos:

- Transosseous osteosynthesis of the pelvis.
- Hip arthroplasty
- Amputation in the c/3 hips.
- Dislocation of the hand.
- Bilateral shoulder dislocation.
- Gunshot wound to the hand.
- Gunshot penetrating wound to the head with a rubber bullet.
- Osteoblastoclastoma.
- Shoulder osteosynthesis with a plate.
- Osteosynthesis of the shoulder with screws.
- Perlunar dislocation of the hand.
- Electric burn.

Multimedia materials on electronic media (CD, DVD)

Scientific Library:

For classes in traumatology and orthopedics, the department has a training room on the basis of the AODKB. The department is equipped with projection and multimedia equipment, illustrative materials (video films on CD and DVD). There are sets of test tasks, situational tasks, X-rays on the topics studied and thematic stands.

Electronic Library:

1. Teaching aids on traumatology and orthopedics (11)
2. X-ray archive of the Department of Traumatology.
3. Electronic textbook "Surgical diseases in children" of the Russian State Medical University.

Videos, photographs used in teaching students (prepared by the staff of the departments)

Videos:

1. Transosseous osteosynthesis of the pelvis.
2. Hip arthroplasty

Photo and video materials:

1. Amputation in the c/3 hips.
2. Dislocation of the hand.
3. Bilateral shoulder dislocation.
4. Gunshot wound to the hand.
5. Gunshot penetrating wound to the head with a rubber bullet.
6. Osteoblastoclastoma.
7. Shoulder osteosynthesis with a plate.
8. Osteosynthesis of the shoulder with screws.
9. Perlunar dislocation of the hand.
10. Electric burn.

3.4 Equipment used for the educational process

№ p/n	Name	Quantity
Training Room for Traumatology of the State Autonomous Healthcare Institution of the Autonomous Healthcare Institution of the Russian Clinical Hospital		
1	Teacher's desk	1
2	Study table	9
3	Chair	38
4	Marker board	1
5	Bookcase	1
6	Multimedia projector	1
7	Laptop	1
8	Personal computer	1
9	Human skeleton	1
10	Volkov-Oganessian apparatus	1
11	Ilizarov's apparatus	1
12	CITO Bracket	1
13	Kirschner spoke	5
14	Training Stand	5
15	Kramer splint	4
16	Dieterichs splint	1
17	Hemostatic tourniquet	2
18	Schantz rod	6
19	Turnstile	1
20	Military medical bag	1
21	Phantom of the lower limb	1
22	Beller splint	1
Traumatology Training Room of the State Autonomous Healthcare Institution of the AODKB		
1	Teacher's desk	1
2	Study table	3
3	Chair	24
4	Marker board	1
5	Bookcase	1
8	Personal computer	1
9	Human skeleton	1
10	Volkov-Oganessian apparatus	1
11	Ilizarov's apparatus	1
12	CITO Bracket	1
13	Kirschner spoke	5
14	Training Stand	3

15	Kramer splint	4
16	Dieterichs splint	1
17	Hemostatic tourniquet	2
18	Schantz rod	6
19	Turnstile	1
20	Military medical bag	1
21	Phantom of the lower limb	1
22	Beller splint	1
3.4.1. IN THE GAUZ AO OKB/GAUZ JSC AODKB		
1.	CT	3
2.	MRI	3
3.	X-ray machines, stationary	5
4.	Electron-Optical Converter	6
5.	Trauma operating rooms with all the appropriate set of anesthesia and respiratory and surgical equipment and instruments	8
6.	Dressings with a full range of surgical instruments and devices	8
7.	Plaster rooms with a full range of surgical instruments and devices	3
8.	Hospital wards, equipment for the treatment of orthopedic and trauma patients	155 beds

3.5. Professional databases, information reference systems, electronic educational resources

№ p/n	Resource Name	Resource description	Access	Resource address
Electronic Library Systems				
1	"Student Consultant" Electronic library of a medical university.	For students and teachers of medical and pharmaceutical universities. Provides access to electronic versions of textbooks, manuals and periodicals.	Library, Individual Access	http: //www .studmedlib.ru/
2	"Doctor's Consultant" Electronic Medical Library.	The materials placed in the library were developed by leading Russian specialists on the basis of modern scientific knowledge (evidence-based medicine). The information was prepared taking into account the position of the scientific and practical medical society (world, European and Russian) in the relevant specialty. All materials have passed the mandatory independent review.	Library, Individual Access	http://www.rosmedlib.ru/cgi-bin/mb4x
3	PubMed	Free search system in the largest medical bibliographic database MedLine. It documents medical and biological articles	Library, free access	http: //www .ncbi.nlm.nih.

		from specialized literature, as well as provides links to full-text articles.		gov/pubmed/
4	Oxford Medicine Online.	Oxford Publishing's collection of medical publications, bringing together over 350 titles in a cross-searchable single resource. Publications include The Oxford Handbook of Clinical Medicine and The Oxford Textbook of Medicine, the electronic versions of which are constantly updated.	Library, free access	http://www.oxfordmedicine.com
5	Human Biology Knowledge Base	Background information on physiology, cell biology, genetics, biochemistry, immunology, pathology. (Resource Institute of Molecular Genetics of the Russian Academy of Sciences.)	Library, free access	http://humbio.ru/
6	Online Medical Library	Free reference books, encyclopedias, books, monographs, essays, English-language literature, tests.	Library, free access	http://med-lib.ru/
Information Systems				
7	Russian Medical Association	Professional Internet resource. Goal: to promote the implementation of effective professional activities of medical personnel. Contains the charter, personalities, structure, rules of accession, information about the Russian Medical Union.	Library, free access	http://www.rmass.ru/
8	Web-medicine.	The site presents a catalog of professional medical resources, including links to the most authoritative thematic sites, journals, societies, as well as useful documents and programs. The site is intended for doctors, students, employees of medical universities and scientific institutions.	Library, free access	http://webmed.irkutsk.ru/
Database				
9	World Health Organization	The site contains news, statistics on countries that are members of the World Health Organization, newsletters, reports, WHO publications and much more.	Library, free access	http://www.who.int/ru/
10	Ministry of Science and Higher Education of the Russian Federation.	The website of the Ministry of Science and Higher Education of the Russian Federation contains news, newsletters, reports, publications and much more.	Library, free access	http://www.minobrnauki.gov.ru

11	Ministry of Education of the Russian Federation.	The website of the Ministry of Education of the Russian Federation contains news, newsletters, reports, publications and much more.	Library, free access	https://edu.gov.ru/
12	Federal portal "Russian Education"	A single window of access to educational resources. This portal provides access to textbooks on all branches of medicine and healthcare.	Library, free access	http: //www.edu.ru/ http://window.edu.ru/catalog/?prubr=2.2.81.1
Bibliographic databases				
13	Database "Russian Medicine"	It is being created in the Central Scientific and Library of Medicine, covering the entire fund, since 1988. The database contains bibliographic descriptions of articles from domestic journals and collections, dissertations and their abstracts, as well as domestic and foreign books, collections of proceedings of institutes, conference materials, etc.	Library, free access	http://www.scsml.rssi.ru/
14	eLIBRARY.RU	A Russian information portal in the field of science, technology, medicine and education, containing abstracts and full texts of more than 13 million scientific articles and publications. Electronic versions of more than 2,000 Russian scientific and technical journals, including more than 1,000 journals in open access, eLIBRARY.RU available on the platform.	Library, free access	http://elibrary.ru/defaultx.asp
15	Portal Electronic Library of Dissertations	At present, the Electronic Library of Dissertations of the RSL contains more than 919,000 full texts of dissertations and abstracts.	Library, free access	http://diss.rsl.ru/?menu=disscatalog/
16	Medline.ru	Medical and biological portal for specialists. Biomedical Journal. Last updated on February 7, 2021	Library, free access	http://www.medline.ru

3.6. Licensed and freely distributed software used in the educational process.

List of software (commercial software products)

№ p/n	List of software (commercial software products)	Details of supporting documents
1	MS Windows 7 Pro Operating System	License number 48381779
2	MS Windows 10 Pro Operating System	CONTRACT No UT-368 dated 09/21/2021

3	MS Office	License number: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4	Kaspersky Endpoint Security for Business – Standard Russian Edition. 50-99 Node 2 year Educational Renewal License	Contract 165A dated 11/25/2022
5	1C Accounting and 1C Salary	LICENSE AGREEMENT 612/L dated 02.02.2022
6	1C: PROF University	LICENSE AGREEMENT No CB-1151 dated 01.14.2022
7	1C: PROF Library	LICENSE AGREEMENT No 2281 dated 11.11.2020
8	Consultant Plus	Contract No 37/C dated 25.02.2022
9	Kontur.Tolk	Contract No K007556/22 dated 09/19/2022
10	3KL e-learning environment (Russian Moodle)	Contract No 1362.3 dated 11/21/2022
11	Astra Linux Common Edition	Contract No 142 A dated 09/21/2021
12	Information system "Plans"	Contract No 9463 dated 05/25/2022
13	1C: Document Management	Contract No 2191 dated 15.10.2020
14	P7-Office	Contract No 2 KS dated 12/18/2020

List of free software

№ p/n	List of free software	Links to the License Agreement
1	Yandex browser	Free to distribute License Agreement for the Use of Yandex Browser https://yandex.ru/legal/browser_agreement/
2	Yandex.Telemost	Free to distribute Software License Agreement https://yandex.ru/legal/telemost_mobile_agreement/
3	Dr.Web CureIt!	Free to distribute License Agreement: https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4	OpenOffice	Free to distribute License: http://www.gnu.org/copyleft/lesser.html
5	LibreOffice	Free to distribute License: https://ru.libreoffice.org/about-us/license/
6	VK Calls	Free to distribute https://vk.com/licence

3.7. Resources of the information and telecommunication network "Internet"

1. Website of the Ministry of Health of the Russian Federation (Standards of Primary Health Care) https://minzdrav.gov.ru/ministry/61/22/stranitsa-979/stranitsa-983/1-standarty-pervichnoy-mediko-sanitarnoy-pomoschi
2. Website of the Ministry of Health of Russia (Standards of Specialized Medical Care) https://minzdrav.gov.ru/ministry/61/22/stranitsa-979/stranitsa-983/2-standarty-spetsializirovannoy-meditsinskoy-pomoschi
3. Website of the Ministry of Health of Russia (Procedures for the provision of medical care) https://minzdrav.gov.ru/ministry/61/4/stranitsa-857/poryadki-okazaniya-meditsinskoy-pomoschi-naseleniyu-rossiyskoy-federatsii

4. Website of the Ministry of Health of the Russian Federation (Clinical Guidelines) https://www.femb.ru
5. Website of the Central Research Institute of Traumatology and Orthopedics named after N.N. Priorov
http://www.cito-priorov.ru
6. Website of the Russian Research Institute of Traumatology and Orthopedics named after R.R. Vreden
http://www.rniito.ru
7. Website of the Russian Scientific Center "Restorative Traumatology and Orthopedics" named after Academician G.A. Ilizarov
http://www.ilizarov.ru
8. Website of the International Association of Osteosynthesis "AOTrauma"
https://aotrauma.aofoundation.org
9. Scientific Electronic Library: http://elibrary.ru
10. Clinical guidelines of the Federal State Budgetary Institution CITO https://www.cito-priorov.ru/science/klinicheskie-rekomendatsii.php
11. ATOR Clinical Guidelines
https://ator.su/recommendations

4. Fund of Assessment Tools

4.1. Examples of test tasks of current control in the discipline "Traumatology, Orthopedics" (with standards of answers)*.

Entrance tests:

1. THE SHOCK INDEX IS THE RATIO OF
A) pulse rate to systolic blood pressure
B) pulse rate to central venous pressure
C) systolic blood pressure to pulse rate
D) systolic blood pressure to diastolic blood pressure

Correct answer: A

2. METHODS OF TEMPORARY BLEEDING CONTROL INCLUDE
A) application of a hemostatic clamp
B) vascular plasty
C) ligation of the vessel for
D) ligation of the vessel in the wound

Correct answer: A

3. BONE TISSUE REGENERATION IS THE LONGEST IN
A) old age
B) early age
C) youth
D) middle age

Correct answer: A

Entrance testing is carried out in the Moodle system:
https://educ-amursma.ru/mod/quiz/view.php?id=22975

The total number of tests placed in the system is 20.

Initial tests:

1. DRUGS OF DELAYED MODIFYING ACTION IN THE TREATMENT OF OSTEOARTHROSIS INCLUDE
A) chondroprotectors
B) glucocorticosteroids
C) non-steroidal anti-inflammatory drugs
D) cytostatics

Correct answer: A

2. AMONG ALL TYPES OF INJURIES, THE NUMBER OF INJURIES PREVAILS
A) bruises and sprains
B) fractures and dislocations
C) burns and frostbite
D) foreign bodies

Correct answer: A

3. OSTEOARTHROSIS IS NOT CHARACTERIZED BY THE PRESENCE OF
A) stiffness in movements in the morning for 120 minutes
B) joint deformities
C) mechanical type of pain
D) limitation of joint mobility

Correct answer: A

Weekend Tests:

1. TRANSPORTATION OF A PATIENT WITH SPINAL INJURY IS CARRIED OUT IN THE POSITION OF
A) on the back
B) on the side
C) lying on your stomach
D) sitting in a chair

Correct answer: A

2. "STAMPED" DEFECTS IN THE EPIPHYSES OF BONES ON THE X-RAY OF THE JOINT ARE CHARACTERISTIC OF
A) gout
B) osteoarthritis
C) rheumatoid arthritis
D) ankylosing spondylitis

Correct answer: A

3. A RELATIVE SYMPTOM OF A FEMORAL NECK FRACTURE IS
A) pain in the hip joint
B) Girgolav's sign
C) the symptom of a "stuck heel"
D) external rotation of the foot

Correct answer: A

4.2. Examples of situational tasks of current control in the discipline "Traumatology, orthopedics" (with standards of answers)

Task 1.

Patient M. was delivered after a fall from a height of 3 meters. Complaints of severe pain in the right shoulder joint. Active movements are impossible, passive movements are sharply painful and limited, supports the right hand with the left hand. On examination: the area of the shoulder joint is thickened, the acromial process is exposed, the empty articular cavity is palpated, the head of the shoulder is palpated in the armpit. Attempting to raise or abduct the arm causes springy resistance in the joint.

Formulate a diagnosis.
What are your treatment measures in the emergency room?
Answer:
Diagnosis: Closed lower dislocation of the right shoulder.

An X-ray of the shoulder joint is necessary to clarify the diagnosis and exclude fractures of the scapula and humerus. If the diagnosis is established correctly, then in the dressing of the trauma center under local anesthesia, the dislocation is reduced. A control X-ray is done and the limb is fixed with a bandage (Dezo, Velpo) for a period of at least 2 weeks.

Task 2.

A 67-year-old woman fell on her left side 2 hours ago, felt pain in her groin. He cannot get up and move on his own. During the examination: the left leg is rotated outwards, its active internal rotation is impossible, when trying to raise the leg, it slides with the heel on the support. There is a relative shortening of the left hip.

Formulate a presumptive diagnosis.
Indicate a plan for further examination and treatment.
Answer:
Diagnosis: Closed fracture of the neck of the left femur.

Treatment plan: Immobilization of the injured limb, anesthesia at the first aid stage. In the hospital, an X-ray examination of the left hip joint is performed. A general examination, assessment of the condition, collection of anamnesis, and identification of concomitant diseases are carried out. Laboratory methods of blood and urine testing are carried out. Additional methods of investigation: EGC and others if indicated. In the absence of concomitant pathology, not a high degree of anesthesia, the patient is indicated surgical treatment: osteosynthesis of the neck of the left femur, or hip arthroplasty.

4.3. Test tasks for the exam in the discipline "Traumatology, orthopedics" (with standards of answers)

1. THE PRESENCE OF SUBCUTANEOUS EMPHYSEMA ON PALPATION OF THE CHEST INDICATES DAMAGE TO THE
A) Lung

B) ribs
C) Diaphragm
D) mediastinum
Correct answer: A

2. THE SCOPE OF FIRST MEDICAL AID FOR AN INJURY OF THE MUSCULOSKELETAL SYSTEM INCLUDES

A) anesthesia, transport immobilization, infusion therapy
B) anesthesia, transport immobilization, antibiotic therapy
C) transport immobilization, immunoprophylaxis, infusion therapy
D) anesthesia, immunoprophylaxis, antibiotic therapy

Correct answer: A

3. THE PREFERRED TYPE OF ANESTHESIA FOR HIP DISLOCATION REDUCTION IS ANESTHESIA

A) general
B) local
C) Conductor
D) regional

Correct answer: A

Final testing is carried out in the Moodle system https://educ-amursma.ru/mod/quiz/view.php?id=23140 The total number of tests placed in the system is 100.

4.4. List of practical skills that a student should have after mastering the discipline

A student should be able to:

I. Diagnostic skills

1. To examine patients with injuries of the musculoskeletal system.

Make a preliminary diagnosis based on clinical signs:

- fracture of limbs;
- pelvic fracture;
- fracture of the spine;
- dislocation of the shoulder, forearm, hand, fingers, thigh, lower leg, foot.

2. Make a preliminary diagnosis of a rupture of the Achilles tendon, biceps tendon of the shoulder,

3. To diagnose (assume) damage to the nerves and great vessels of the limb in case of limb fractures. 4. To identify life-threatening (vital) disorders:

- traumatic shock;
- acute blood loss;
- respiratory disorders;
- cardiac arrest;
- fat embolism;
- pulmonary embolism.

5. To examine patients with the consequences of injuries and diseases of the musculoskeletal system.

6. Assume typical orthopedic diseases:

- congenital hip dislocation;
- congenital clubfoot;
- congenital torticollis;
- scoliosis;

- osteochondrosis of the spine;
- deforming arthrosis of large joints;
- static deformities of the feet.

P. Therapeutic skills

The student **should know:**

- rules and techniques for applying a tourniquet.

A student **should** be able to:

1. Immediately eliminate life-threatening (vital) disorders in traumatic shock, bleeding, respiratory disorders, cardiac arrest.

Spend:

- anti-shock measures;
- artificial ventilation of the lungs using the "mouth to mouth" or "mouth to nose" method;
- external heart massage;
- intracardiac injection of calcium chloride, epinephrine, novocainamide;
- fixation of the tongue when it sinks.

Stop external bleeding by temporary methods:

- by pressing the vessel in the wound;
- by pressing the vessel throughout in typical places:
- brachial artery;
- femoral artery;
- temporal artery;
- common carotid artery;
- by applying a pressure bandage;
- fixation of the limb in a certain position;
- wound tamponade;
- by applying a clamp to the bleeding vessel.

2. Make up for acute blood loss by intravenous injection of blood-substituting solutions for shock and blood loss: reopolyglukin, rheomacrodex, glucose-novocaine mixture, isotonic sodium chloride solution.

3. If indicated (traumatic shock), carry out the following novocaine blockades:

- vagosympathetic;
- paravertebral;
- intrapelvic; - case.

4. If indicated (traumatic shock), anesthetize the fracture site of the diaphysis of the long tubular bones.

5. Carry out transport immobilization in case of fractures and dislocations with the help of service equipment (Dieterichs splint, Kramer splint, scarf) and improvised means.

6. Give the correct position to a patient with injuries of the limbs, pelvis, spine, large joints during transportation from the scene of the accident to the hospital for qualified or specialized care.

7. Apply an aseptic dressing to the soft tissue wound and to the wound in case of open fractures of the extremities.

8. Apply contour bandages for burns.

9. Apply sterile bandages for frostbite.

10. Apply an occlusive bandage to the chest in case of an open pneumothorax.

11. Provide medical assistance to the victim on the way to a medical institution.

Spend:

- mechanical ventilation;
- external heart massage;
- administer medications;
- novocaine blockades;
- intravenous administration of transfusion agents to replenish the BCC in acute blood loss and traumatic shock.

12. Apply a plaster splint to the distal part of the upper and lower extremities.
13. Assess the condition of the limb in a plaster bandage.
14. Remove the plaster bandage in case of a threatening condition of the limb.
15. Remove skeletal traction.

III. Deontological skills A student should be able to:

1. Properly hospitalize a patient with a musculoskeletal injury:

- make a decision on the need for hospitalization or refusal to do so; - to determine the order of hospitalization of the victims according to the severity of the condition in case of mass injuries;
- correctly determine the place of hospitalization of the patient, depending on the existing injuries.

2. It is correct to refer patients with the consequences of injury or orthopedic diseases for consultation or hospitalization.

3. It is correct to refer children with congenital hip dislocation, congenital clubfoot, congenital muscular torticollis for consultation.

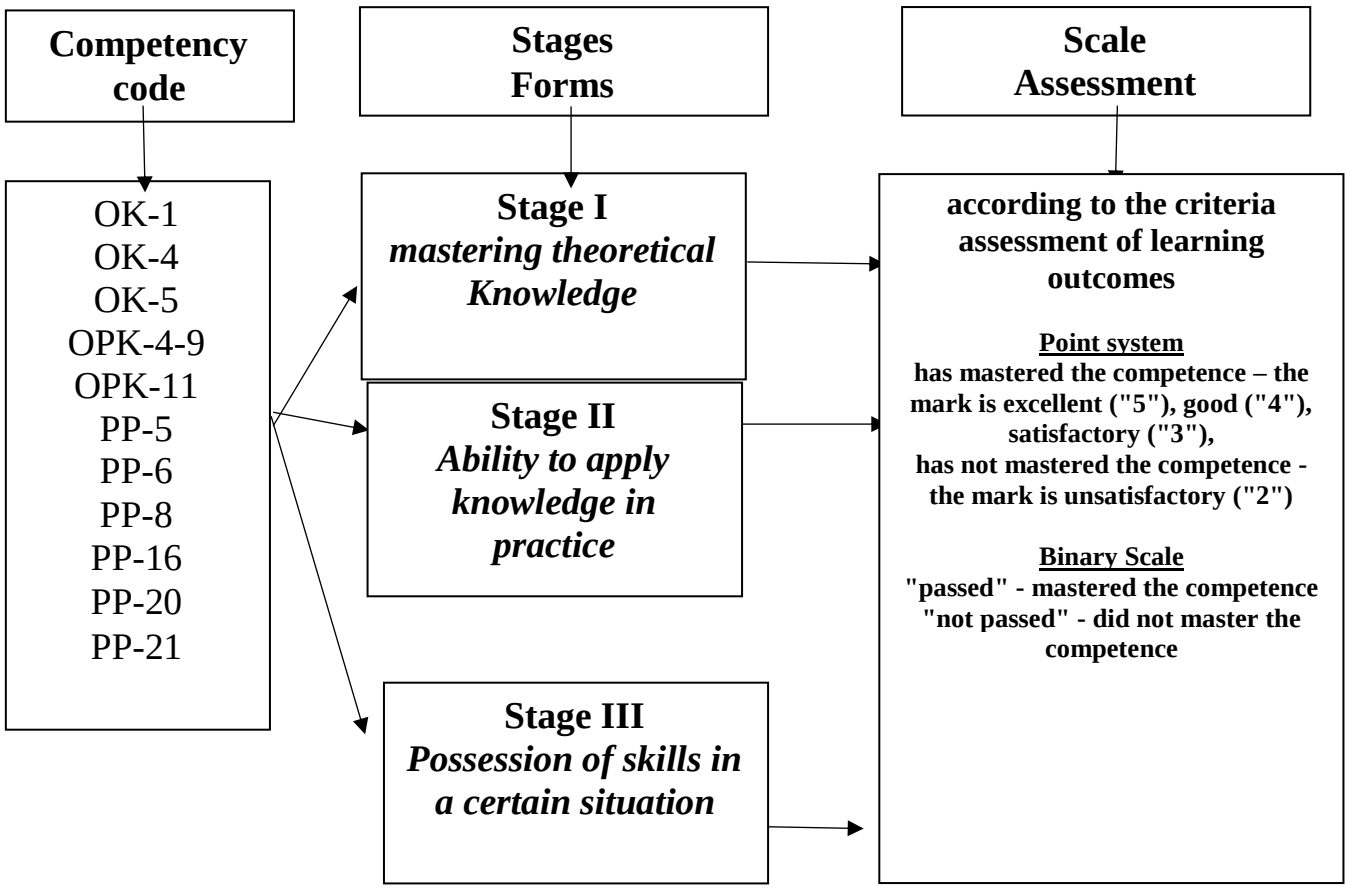
4.5. List of questions for the exam

1. Beam fracture in a typical location. Mechanism of injury, clinic, diagnosis, treatment. The concept of involutive osteoporosis.
2. Subject, content and objectives of traumatology.
3. Stages of medical care for limb injuries in peacetime. Fat embolism, DIC syndrome, as a consequence of traumatic shock.
4. Principles of medical triage at the stage of medical and qualified medical care in disaster medicine.
5. Diaphyseal injuries of the bones of the forearm.
6. Classification of wounds. Morphological characteristics of a gunshot wound.
7. Fractures of the surgical neck of the humerus. Mechanism of injury, clinic, diagnosis, treatment. "Marker" fractures in involutive osteoporosis.
8. Primary surgical debridement of the wound. Definition. Elements of PHO. Timing and features of PHO in peaceful and military conditions.
9. Traumatic shoulder dislocations. Anatomical features of the shoulder joint. Mechanism of injury, classification, clinic, diagnosis, treatment.
10. Principles of wound reconstruction after PHO. Types of seams.
11. Traumatic dislocations of the forearm. Anatomical features of the elbow joint. Mechanism of injury, classification, clinic, diagnosis, treatment.
12. Radioactive contamination of the wound. Features of healing of radioactively contaminated wounds. Features of surgical debridement.
13. Traumatic hip dislocations. Anatomical features of the hip joint. Mechanism of injury, classification, clinic, diagnosis, treatment.
14. Classification of bleeding. Determination of the volume of blood loss. Compensation for blood loss. Differences between hemorrhagic and traumatic shock.

15. Diaphyseal fractures of the shoulder. Mechanism of injury, clinic, diagnosis, treatment.
16. The role of domestic scientists in the development of traumatology and orthopedics.
17. Anatomical features of the blood supply to the bone. Bone regeneration.
18. Replenishment of blood loss at the stages of medical evacuation.
19. Fractures of the distal end of the humerus. Classification, clinic, diagnosis, treatment.
20. Ways to stop bleeding at the stages of medical evacuation.
21. Stable, relatively stable and unstable spinal injuries. Spinal shock. Mechanism of injury, complications, clinic, diagnosis, treatment.
22. Classification of burns. Determination of the area and depth of the lesion. Franc index.
23. Fracture treatment tactics. Conservative and surgical treatment.
24. Therapy of burn shock at the stages of medical evacuation.
25. Fractures of the pelvic bones. Features of blood loss, shock and complications of pelvic injuries. Mechanism of injury, clinic, diagnosis, treatment.
26. Treatment of burns at the stages of medical evacuation.
27. Tactics of examination and treatment of patients with concomitant pelvic injuries (damagecontrol). Scales for assessing the severity of injury.
28. Infectious complications of a gunshot wound. Abscess, phlegmon and purulent flow. Secondary surgical debridement. Systemic inflammatory response syndrome and generalized infection. Secondary surgical debridement.
29. Medial fractures of the femoral neck. Mechanism of injury, clinic, diagnosis, treatment. Features of treatment tactics in elderly patients.
30. Anaerobic infection. Etiology, pathogenesis, clinic, diagnosis, treatment at the stages of medical evacuation.
31. Lateral fractures of the femoral neck. Mechanism of injury, clinic, diagnosis, treatment. Features of treatment tactics in elderly patients.
32. Tetanus. Etiology, pathogenesis, clinic, diagnosis, treatment at the stages of medical evacuation.
33. Diaphyseal hip fractures. Mechanism of injury, clinic, diagnosis, treatment. Ischemic contracture as a complication of fractures of the distal femur.
34. Traumatic disease. Traumatic shock. Concept, pathogenesis, classification, clinic, diagnosis, treatment at the stages of medical evacuation.
35. Rabies. Etiology, pathogenesis, clinic, diagnosis, treatment.
36. CRUSH syndrome. Pathogenesis, clinic, diagnosis, treatment at the stages of medical evacuation.
37. Intra-articular injuries of the knee joint. Mechanism of injury, clinic, diagnosis, treatment.
38. Gunshot wounds to the skull. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
39. Diaphyseal fractures of the tibia bones. Mechanism of injury, clinic, diagnosis, treatment. Compartment syndrome for tibia fractures.
40. Spinal injuries. Spinal shock. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
41. Ankle injuries. Mechanism of injury, clinic, diagnosis, treatment. PE as a complication of skeletal injury.
42. Chest wounds. Indications for thoracotomy. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
43. Hand injuries. Sudeck's syndrome. Tendon injuries. Clinic, diagnosis, treatment.
44. Closed chest injuries. Tension valvular pneumothorax. Unstable chest fractures. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
45. Foot injuries. The foot as a whole and the features of the biomechanics of its injuries. Mechanism of injury, clinic, diagnosis, treatment.

46. Abdominal wounds. Classification, clinic, diagnosis, treatment at the stages of medical evacuation. Procedure for revision of the abdominal cavity.
47. Congenital hip dislocation. Etiology, pathogenesis, clinic, early diagnosis, treatment.
48. Closed abdominal injuries. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
49. Congenital clubfoot. Etiology, pathogenesis, clinic, early diagnosis, treatment.
50. Polytrauma. The concept of combined, multiple and combined trauma. Assessment of the severity of polytrauma (scales). Damage control.
51. Bone tumors. Etiology, pathogenesis, classification, clinic, early diagnosis, treatment.
52. Gunshot wounds to the pelvis and pelvic organs. Clinic, diagnosis, treatment at the stages of medical evacuation.
53. Amputation, disarticulation. Testimony. Surgery technique.
54. Gunshot wounds of long tubular bones and large joints. Clinic, diagnosis, treatment at the stages of medical evacuation. Extrafocal fixation.
55. Degenerative-dystrophic diseases of large joints. Deforming arthrosis and aseptic necrosis. Etiology, pathogenesis, clinic, early diagnosis, treatment. Endoprosthetics.
56. Blood transfusion technique. Procurement, storage and use of blood and blood substitutes in military field conditions and in peacetime.
57. Osteochondrosis. Etiology, pathogenesis, clinic, early diagnosis, treatment. Vertebral artery syndrome. Scapulohumeral periarthritis. Radicular syndrome.
58. Frostbite. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
59. Open fractures. Kaplan-Markova classification. Clinic, diagnosis, treatment.
60. General freezing. Classification, clinic, diagnosis, treatment at the stages of medical evacuation.
61. Chronic post-traumatic osteomyelitis. Classification, clinic, diagnosis, treatment. Difference from acute hematogenous osteomyelitis.
62. Organization and tactics of medical service in military field conditions. Stages, paths, direction of medical evacuation.
63. Features of bone injuries in children. Epiphyseolysis, osteoepiphyseolysis, subperiosteal fracture. Clinic, diagnosis, treatment. Differential diagnosis with acute hematogenous osteomyelitis.
64. Ballistics of a combat gunshot wound.
65. Bruises, muscle tears, ligament injuries. Classification, clinic, diagnosis, treatment.
66. Forces and means of the medical service at the stages of medical evacuation. Principles of medical triage.
67. Scoliosis. Posture disorders. Flatfoot. Classification, clinic, diagnosis, treatment.
68. Osteochondropathy. Classification, clinic, diagnosis, treatment.

5. Stages of Competence Formation and Assessment Scale



№ p/n	Competency Number/Index	Content of competence (or parts thereof)	As a result of studying the academic discipline, students must:			Evaluation tools
			To know	Can	Possess	
1	OK-1	Ability to think abstractly	The main historical stages of the development of traumatology and orthopedics, the objectives of the discipline, the connection with other medical, biological and medical disciplines; Main terms used	To assess the contribution of domestic scientists to the development of Traumatology and Orthopedics	Ability to analyze the importance of traumatology and orthopedics at the present stage	Control questions, standard test tasks, Situational tasks
2	OK-4	Willingness to take social and ethical responsibility for the decisions made	Regulatory legal acts on working with confidential information, maintaining medical confidentiality, rules of medical ethics	Comply with the rules of medical ethics	Willingness to maintain medical confidentiality, to comply with the rules of medical ethics	
3	OK-5	Readiness for self-development, self-realization, self-education, use of creative potential	The main methodological approaches to working with educational, scientific, reference, medical literature, including the Internet	Independent but work with educational, scientific, reference, medical literature, including on the Internet	A systematic approach to the analysis of educational, scientific, reference, medical information, including Internet sources	
4	OPK-4	Ability and willingness to implement ethical and deontological principles in professional activities	Ethical and deontological aspects are interrelated "doctor-doctor", "doctor-patient"	Conduct a physical examination of the patient, taking into account ethical and deontological principles	Possess the skills of communication with the patient, relatives Kami colleagues, junior staff	

5	OPK-5	Ability and willingness to analyze the results of one's own activities to prevent professional mistakes	Iatrogenic causes of diseases of the musculoskeletal system	Identify symptoms of side effects and complications of drug therapy	Ability to analyze the results of one's activities	
6	OPK-6	Readiness to maintain medical records	Know the basic medical documentation (in the hospital)	Be able to fill out an educational medical history	Ability to maintain medical records	
7	OPK-7	Readiness to use the basic physicochemical, mathematical and other natural scientific concepts and methods in solving professional problems	Causes and mechanisms of the development of diseases of the musculoskeletal system	Analyze the causes and mechanisms of the development of diseases of the musculoskeletal system,	Ability to analyze the cause-and-effect relationships of diseases of the musculoskeletal system	
8	OPK-8	Readiness for medical use of medicines and other substances and their combinations in solving professional problems	Mechanism of action of prescribed drugs, indications and contraindications In the 19th century, the Non-drug Toz methods of treatment	It is necessary to substantiate pathogenetic traumatology and orthopedics of diseases of the musculoskeletal system	Ability to prescribe treatment taking into account the clinical situation	
9	OPK-9	Ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Causes of diseases of the musculoskeletal system	To recognize the relationship between the manifestations of the disease in a particular patient and impaired functioning of the musculoskeletal system	Skills in diagnosing the functioning of the disorders	
10	OPK-11	Readiness for the use of medical devices provided for by the procedures	Progress of some examination methods (X-ray, ultrasound,	Use medical equipment The First T	Skills in the use of medical equipment in the examination	

		for the provision of medical care	MRI)		of patients	
11	PP-5	Readiness to collect and analyze the patient's complaints, medical history, examination results, laboratory, instrumental methods in order to recognize the condition or establish the presence or absence of the disease	Methods of collecting complaints, medical history	Analyze complaints, medical history, physical examination, laboratory and instrumental examination data	Ability to analyze anamnesti physical, clinical and instrumental data	
12	PP-6	Ability to determine the main pathological conditions, symptoms, disease syndromes, nosological forms in patients in accordance with the International Statistical Classification of Diseases and Related Health Problems - X revision, adopted by the 43rd World Health Assembly, Geneva, 1986.	Syndromes, symptoms of diseases of the musculoskeletal system, nosological forms of diseases in accordance with the ICD (within the scope of the topics covered)	Formulairo clinical diagnosis	The ability to make a clinical diagnosis and substantiate it	
13	PP-8	Ability and willingness to determine the tactics of managing patients with various pathological forms	Symptoms, syndromes of musculoskeletal diseases, complications, outcomes, principles of treatment, emergency measures	To prescribe treatment for diseases of the musculoskeletal system, taking into account medical standards. Identify complications of the disease	Ability to prescribe treatment, anticipate disease outcomes, life-threatening conditions, and provide emergency care	

14	PP-16	Readiness for educational activities to eliminate risk factors and promote a healthy lifestyle	Risk factors for diseases of the musculoskeletal system, know the principles of disease prevention	To substantiate preventive measures for diseases of the musculoskeletal system	The ability to conduct conversations about a healthy lifestyle, prescribe preventive measures	
15	PP-20	Readiness for analysis and public presentation of medical information based on evidence-based medicine	The main methodological approaches to working with educational, scientific, reference, medical literature, including the Internet	Defend the educational medical history, report on the training duty	Systematic approach to the presentation of information	
16	PP-21	Ability to participate in scientific research	The main scientific directions of the department	Document the results of scientific research and report them	Willingness to participate in scientific research	