

MINISTRY OF HEALTH PROTECTION OF UKRAINE
O DESKA NATIONAL MEDICAL UNIVERSITY
Faculty medical number 1
Department of Anesthesiology, intensive care and emergency medicine

Syllabus of the elective educational discipline
" POLYTRAUMA: DIAGNOSIS AND INTENSIVE THERAPY "

Amount	90 hours (3 credits)
Semester, year of study	X I -X II , 6th year of study
Days, time, place	The educational discipline is conducted according to the approved class schedule Clinical bases of the department - ORH, Center of Reconstructive and Restorative Medicine (University Clinic)
Teacher(s)	Associate professor, MD Inna Serhiyivna Hrychushenko Associate professor, MD Volodymyr Mykhailovych Nosenko Associate professor, MD Lyudmila Oleksiivna Sobitnyak Assistant Yurii Oleksandrovych Potapchuk Assistant Hanna Oleksandrivna Danylova Assistant Denis Serhiyovych Volodychev Assistant Oleksandr Olegovich Korotkov
Contact phone number	Hrychushenko I.S. 093-797-13-53 Nosenko V.M. 050-628-42-98 Sobitnyak L.O. 097-207-76-23 Potapchuk Yu.O. 093-305-24-51 Danylova G.O. 066-286-01-68 Volodychev D.S. 096-797-59-79 Korotkov O.O. 093-911-24-57
E-mail	Hrychushenko I.S. sherlokfox@gmail.com Nosenko V.M. volodymyrnosenko@gmail.com Sobitnyak L.O. ludmilasobitniak@gmail.com Yu.O. Potapchuk dr.potapchuck@gmail.com Danylova G.O. emergencyanna@gmail.com Volodychev D.S. denis.volodychev@onmedu.edu.ua Korotkov O.O. sashakorotkov58@gmail.com
Workplace	ORH base Center of Reconstructive and Restorative Medicine (University Clinic)

Consultations	<p>Face-to-face consultations: Thursday – from 2:00 p.m. till 4:00 p.m.; Saturday - from 9.00 till 13.00. Online consultations: Thursday - from 14:00 till 16:00; Saturday - from 9.00 till 13.00 Microsoft Teams or through Telegram/Viber .</p> <p>The link to the online consultation is provided to each group during classes separately.</p>
----------------------	---

COMMUNICATION

Communication with the applicant will be carried out in the classroom (face-to-face).

During distance learning, communication is carried out through the Microsoft platform Teams , as well as e-mail correspondence, Telegram/Viber messengers (through created groups, separately through the head of the group).

ABSTRACT OF THE EDUCATIONAL DISCIPLINE

Subject of discipline study

The subject of study of the educational discipline " POLY TRAUMA: DIAGNOSTICS AND INTENSIVE THERAPY " is: the concept of gender trauma. Classification of polytrauma. Complications of polytrauma. Pathophysiological basis of polytrauma. Assessment of the severity of the patient's condition and injury. Concept of hypovolemic shock. Determination of the degree of blood loss. Massive bleeding with polytrauma. Determination of the degree of shock. Peculiarities of intensive therapy of hypovolemic shock in polytrauma. Pathogenesis of multiple organ failure syndrome (MSF) . Application of the concept of Damage Control . The concept of prolonged compression syndrome. Peculiarities of the course of various types of injuries in polytrauma. Early and late complications of polytrauma: diagnosis and treatment. Violation of hemostasis and thrombotic complications in polytrauma

Course prerequisites and post-requisites (The place of the discipline in the educational program)

Intensive therapy, as a science, is closely related to other fundamental medical disciplines and:

a) is based on the study of human anatomy; histology, biochemistry, physiology, pathomorphology; pathophysiology; internal medicine, pediatrics, pharmacology and integrates with these disciplines, etc.;

b) lays the foundations for students to study intensive care of emergency conditions that arise in the clinic of internal medicine, pediatrics, surgery, traumatology and orthopedics, neurosurgery, urology, obstetrics and gynecology and other educational disciplines where methods are used intensive care, which

involves the integration of teaching with these disciplines and the formation of skills to apply knowledge in the process of further education and professional activity;

c) provides an opportunity to acquire practical skills and develop professional skills for diagnosis and provision of emergency medical care and intensive therapy for certain pathological conditions.

Purpose of the discipline:

Acquisition by the student of higher education of knowledge and formation of elements of professional competences in the field of intensive therapy and improvement of skills and competences acquired during the study of previous disciplines.

With discipline:

- mastering the basic measures necessary for the organization of work in the intensive care unit
- acquiring practical skills for providing medical assistance in emergency situations
- acquisition of practical skills for preparing and conducting diagnostics and intensive therapy for polytrauma ;
- acquisition of skills and abilities to examine the patient and record the results in the relevant medical documentation;
- formation of moral and ethical and deontological qualities during professional communication with the patient.

Expected results:

As a result of studying the academic discipline, the applicant must:

Know:

- concept of polytrauma, mechanisms of polytrauma occurrence;
- classification of traumatic injuries;
- clinical picture in case of polytrauma;
- methods of providing first aid for polytrauma;
- vehicle immobilization means;
- provision of first aid to a patient with polytrauma;
- complications of polytrauma;
- diagnostic methods for various injuries;
- signs of damage to internal organs;
- principles of polytrauma treatment;
- probable errors and dangers during treatment;
- the concept of prolonged compression syndrome;
- clinical picture of a patient with prolonged compression syndrome;
- methods of examination of a patient with prolonged compression syndrome;
- first aid to a patient with prolonged compression syndrome;
- treatment of a patient with prolonged compression syndrome;

- complications of prolonged compression syndrome.

Be able:

- 1) diagnose polytrauma;
- 2) provide first aid to a patient with polytrauma (including transport immobilization);
- 3) outline a treatment plan for a patient with polytrauma;
- 4) indicate indications for surgical intervention in case of polytrauma;
- 5) diagnose damage to internal organs in polytrauma;
- 6) provide first aid to a patient with prolonged compression syndrome suspension (including transport immobilization);
- 7) outline a treatment plan for a patient with long-term syndrome compression;
- 8) diagnose complications of polytrauma and provide in such a situation help;
- 9) to diagnose complications of pr
- 10) Administration of medicinal substances (intravenous jet and drip, intraosseous), in particular in field conditions
- 11) Provision of peripheral venous and intraosseous access
- 1 2) Diagnosis and provision of first medical and medical aid in case of:
 - Hypovolemic, distributive variants of shock
 - Acute vascular insufficiency (collapse)
 - Acute blood loss (external and internal)

DESCRIPTION OF THE EDUCATIONAL DISCIPLINE

Forms and methods of education

The discipline will be taught in the form of practical classes (30 hours), organization of the applicant's independent work (60 hours).

Teaching methods : practical classes, independent work of the acquirer

- **Practical classes:** conversation, role-playing, solving clinical situational problems, practicing the skills of patient examination, practicing the skills of performing manipulations according to the list, instruction and practicing skills on simulation dummies, training exercises on the differential diagnosis of the most common diseases. The teacher uses interactive teaching methods such as "Microphone", "Unfinished sentence", "Discussion", "Method of competitive groups", "Brainstorming", "Case", etc.
- **Independent work of the applicant** with the active consultation of the teacher: independent work with the recommended basic and additional literature, with electronic information resources, independent work with the bank of test tasks Step-2, independent mastering of the algorithms of communication with the patient.

Content of the academic discipline

Topic 1. Polytrauma: terminology, classification and pathophysiological bases.

The concept of gender trauma. Classification of polytrauma. Syndrome of mutual aggravation. Complications of polytrauma. Traumatic disease. The concept of "golden hour" in polytrauma. Pathophysiological basis of polytrauma.

Topic 2. Modern algorithm of examination and provision emergency medical assistance to the victims pre-hospital stage. Primary and secondary examination.

Primary examination (according to ABC C scheme). Medical triage (primary and secondary) . Secondary review (ABCDE). Detection and correction of conditions that directly threaten the patient's life . Organization of emergency medical care for persons with polytrauma at the pre-hospital stage . Emergency conditions and other resuscitation measures .

Topic 3. Features of diagnosis and intensive therapy of hypovolemic shock in polytrauma.

Assessment of the severity of the patient's condition and injury. Concept of hypovolemic shock. Determination of the degree of blood loss. Massive bleeding with polytrauma. Determination of the degree of shock. Peculiarities of intensive therapy of hypovolemic shock in polytrauma.

Topic 4. Multiple organ failure syndrome in trauma.

The concept of multiple organ failure syndrome (POF). Reasons for the occurrence of SPON. Pathogenesis of multiple organ failure syndrome (POF). The main symptoms of SPON. Treatment of SPON.

Topic 5 . Infusion-transfusion therapy for polytrauma : indications and rules of conduct, side effects and complications . Effectiveness and safety of infusion therapy .

Indications and rules for infusion therapy: fluid resuscitation, provision of physiological needs for fluid and electrolytes, replenishment of fluid and electrolyte deficits, redistribution of fluid in the body, special situations.

Adverse events and complications: hyperhydration, electrolyte disturbances, anaphylaxis, acute renal failure, cerebral edema, hypothermia, coagulopathy, complications associated with intravascular access.

Understanding of indications and contraindications for prescribing infusions, the type and composition of the infusion medium, the final purpose of infusion, potential side effects of drugs, prevention of complications. Taking into account the age and history of the patient, control of dosage, rate and volume of infusions, route of administration; a rational combination of various infusion agents. Monitoring during infusion therapy (clinical and laboratory).

Topic 6 . The concept of Damage Control in polytrauma.

Treatment tactics in Damage Control . Application of the concept of Damage Control . Indications for using Damage Control tactics .

Topic 7. Long-term compression syndrome .

The concept of prolonged compression syndrome. Classification. Pathogenesis. Clinical picture. Treatment.

Topic 8. Features of diagnosis, intensive therapy for neurotrauma (severe TBI) .

Etiology, pathogenesis, classification of traumatic brain injury (TBI). Clinical manifestations and features of the course of severe TBI , complications. Examination and analysis of examination results. Determination of motor, sensory and cognitive disorders. Treatment.

Topic 9. Features of diagnosis, intensive therapy for spinal cord injury (SCI).

Etiology, pathogenesis, classification spinal cord injury (SCI). Clinical manifestations of HSMT , complications. Examination and analysis of examination results. Treatment.

Topic 10. Management of a patient with a thoracic injury.

Etiology, pathogenesis, classification of thoracic trauma. Clinical manifestations and complications. Examination. Treatment.

Topic 11. Management of a patient with an abdominal injury.

Etiology, pathogenesis, classification of thoracic trauma. Clinical manifestations and complications. Examination. Treatment.

Topic 12. Early and late complications of polytrauma: diagnosis and treatment.

Classification of complications in polytrauma. Diagnosis of early and late complications during polytrauma. Treatment. Purulent-septic complications in polytrauma. Toxic complications in polytrauma (acute renal failure).

Topic 13. Violations of hemostasis and thrombotic complications in polytrauma

Concept of hemostasis. "Triad of death" in polytrauma: metabolic acidosis, hypothermia and coagulopathy. DVZ-syndrome.

Topic 14. Compartment syndrome in polytrauma

The concept of compartment syndrome in polytrauma. Pathogenetic aspects of the occurrence of compartment syndrome. Anticipation of complications with compartment syndrome. Criteria for diagnosis and treatment of compartment syndrome.

List of recommended literature:

Basic literature:

1. Kostenko V.O. Pathophysiology of the blood system: education. manual. Magnolia Publishing House, 2020. 164 p.
2. Orlyk V.V. Transfusion medicine: a textbook. "Medytsina" publishing house, 2023. 424 p.
3. Potapov O.O., Rubanets M.M., Kmyta O.P. Clinical aspects of transfusion: teaching. manual. Sumy, 2019. 396 p.
4. Research methods in hematology: study guide / edited by Professor L.N. Seizures Sumy, 2019. 55 p.
5. Research methods in hematology: study guide / edited by Professor L.N. Seizures Sumy, 2019. 55 p.

Auxiliary:

1. Bilayaeva A.V. The patient's hemomanagement program: training. manual. Kyiv-Vinnytsia, 2019. 68 p.
2. Clinical laboratory diagnostics: a textbook / Lapovets L.E., Lebed G.B., Yastremska O.O, etc. - 2nd ed. Kyiv, 2021. 472 p.
3. Katerenchuk I. Clinical interpretation and diagnostic value of laboratory indicators in general medical practice: training. manual. Medknyga Publishing House, 2020. 228 p.
4. Onopriychuk D.V., Maligonova A.I. Synopsis of gastroenterology and hematology: study guide. Ruta Publishing House, 2022. 348 p.

Electronic information resources

1. <https://moz.gov.ua/> - Ministry of Health of Ukraine, register of medical and technological documents
2. <http://www.nbu.gov.ua/> - National Library of Ukraine named after V.I. Vernadskyi
3. <http://www.esicm.org>
5. <https://www.cochrane.org> - Cochrane - library: Cochrane Reviews - Cochrane database of systematic reviews
6. <http://www.nlm.nih.gov/> US National Library of Medicine (NLM) IResources for researchers / Biomedical literature
7. <https://www.ncbi.nlm.nih.gov/> - NCBI - National Center for Biotechnology Information
8. <http://www.pubmed.gov> I PubMed is an electronic database of medical and biological publications
9. <http://www.library.gov.ua/> National Scientific Medical Library of Ukraine
10. <http://testcentr.org.ua/> Testing Center of the Ministry of Health of Ukraine
11. <http://www.pubmed.com/> English text database of medical and biological publications
12. <https://emedicine.medscape.com/> English-language web resource for doctors and other healthcare professionals
13. <http://www.esicm.org> Official website of the European Association of Intensive Care

14. <http://www.espen.org> The official website of the European Association of Parenteral and Enteral Nutrition
15. <http://www.ncbi.nlm.nih.gov/PubMed/> Search resource of medical literature and "PubMed"

EVALUATION

Forms and methods of control:

Current control:

tests of the initial and final level of knowledge on the topic of practical training;
 oral answer to standardized questions based on the material of the current topic, previous topics and lecture material;
 solving typical and atypical clinical situational problems;
 control of practical skills;
 control of the acquirer 's activity while working in small groups.

Final control: credit.

Evaluation of the current educational activity in a practical session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, solving a situational clinical problem
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score IS 2.
2. Evaluation of practical skills and manipulations on the subject of the lesson:
 - methods: assessment of the correctness of the performance of practical skills
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score IS 2.

The grade for one practical lesson is an arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Current evaluation criteria in practical training

Rating	Evaluation criteria
"5"	The graduate of high education is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills during the examination of a patient and the interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the topic of the class, demonstrates clinical thinking.
"4"	The graduate of high education has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a patient and the interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the topic of the class, demonstrates

	clinical thinking.
"3"	The graduate of high education acquirer does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational clinical problem, demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with significant errors.
"2"	The graduate of high education does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data.

The credit is given to the graduate of high education who has completed all the tasks of the working program of the educational discipline, took an active part in practical classes, completed and defended an individual task and has an average current score of not less than 3.0 and has no academic debt.

The credit is carried out: at the last class before the start of the examination session - with the ribbon system of education, at the last class - with the cyclic system of education.

The score for the credit is the arithmetic mean for all components according to the traditional four-point scale and has a value that is rounded according to the method of statistics with two decimal places after the comma.

Self-employed and higher education students

Tasks for independent work:

- ***preparation for practical classes***
 - theoretical training
 - performance of test tasks
 - solving situational problems
 - practical skills training

EDUCATIONAL DISCIPLINE POLICY

Deadlines and Rescheduling Policy:

- Absences of classes for non-respectable reasons will be worked out according to the schedule of the teacher on duty.
- Absences due to valid reasons are processed according to an individual schedule with the permission of the dean's office.

Academic Integrity Policy:

Applicants must observe academic integrity, namely:

- independent performance of all types of work, tasks, forms of control provided for by the work program of this educational discipline;
- references to sources of information in the case of using ideas, developments, statements, information;

- observance of legislation on copyright and related rights;
- provision of reliable information about the results of one's own educational (scientific) activities, used research methods and sources of information;

Unacceptable in educational activities for participants of the educational process are:

- the use of family or official ties to obtain a positive or higher grade during any form of control of learning results or advantages in scientific work;
- use of prohibited auxiliary materials or technical means (cheat sheets, notes, micro-earphones, telephones, smartphones, tablets, etc.) during control measures;
- passing procedures for control of training results by fake persons.

For violation of academic integrity, students may be held to the following academic responsibility:

- reduction of assessment results of individual survey, use of test tasks, assessment for solving situational tasks, use of individual task, credit, etc.;
- repeated assessment (test tasks, situational tasks, individual task, assessment, etc.);
- appointment of additional control measures (additional situational tasks, individual tasks, tests, etc.);
- conducting an additional inspection of other works authored by the violator.

Attendance and Tardiness Policy:

State of health : applicants suffering from acute infectious diseases, including respiratory diseases, are not allowed to attend classes.

Lateness to classes is not acceptable. A student who is late for a class can attend it, but if the teacher has put "nb" in the journal, he must work it out in the general order.

Use of mobile devices in :

The use of any mobile devices is prohibited. In case of violation of this point, the student must leave the class and the teacher will write "nb" in the journal, which he must work out in the general order.

Mobile devices may be used by the applicant with the permission of the instructor if they are required for the completion of the assignment.

Behavior in the audience:

The behavior of applicants and teachers in the classrooms should be working and calm, strictly comply with the rules established by the Regulations on academic integrity and ethics of academic relations at Odessa National Medical University, in accordance with the Code of Academic Ethics and University Community Relations of Odessa National Medical University, Regulations on Prevention and detection of academic plagiarism in the research and educational work of students of higher education, scientists and teachers of Odessa National Medical University.