

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Petro Mohyla Black Sea National University

Medical Institute

Department of Therapeutic and Surgical Disciplines

"APPROVE "

The first vice-rector

Ishchenko NM

“ ” 2021 year

CURRICULUM WORK PROGRAM
Anesthesiology and intensive care

Developer
Head of the Department of
Developer
Guarantor of the educational
program
Director of the Institute
Chief of EMD

Zack M.U
Zack M.U
Klymenko MO
Grishchenko GV
Shkirchak SI

Description of the educational discipline (annotation)

Title of indices	Characterization of educational discipline	
Name of the discipline	Anaesthesia and Intensive Care	
Branch of knowledge	22 "Health care"	
Specialty	222 "Medicine	
Specialization (if any)		
Educational program	Medicine	
Higher education level	Master	
Discipline status	Normative	
Curriculum	5d	
Academic year	2021-2022	
Numbers of semesters:	Day form	Absentee form
	10 th	-
Total ECTS credits / hours	3 credits / 90 hours	
Course structure: - lectures - seminars (practical, laboratory, semi-group) - hours of independent work of students	Day form	Absentee form
	10 hours	-
	30 hours	
50 hours		
Percentage of classroom load	44%	
Teaching language	English	
Form of final control	10 th semester – Exam	

Purpose, tasks and planned learning outcomes

The purpose of teaching / studying the discipline " Anaesthesia and Intensive Care " is for students to master the general issues of anesthesiology; pathological processes and pathological conditions; intensive care of acute cardiovascular and respiratory failure.

As a discipline is an integral part of clinical medicine, so the study of the basic principles of this field of science - an important moment of training a doctor of any specialty.

Objectives of study: the acquisition by the student of competencies, knowledge, skills and abilities to carry out professional activities in the specialty of:

- 1) application of general principles and methods of anesthesiological support of various surgical interventions,
- 2) possession of methods of diagnosis and assistance in the main syndromes of disorders of vital functions;
- 3) interpretation of the main clinical manifestations and laboratory parameters of disorders of vital functions;
- 4) diagnose signs of clinical death and terminal conditions, conduct cardiopulmonary and cerebral resuscitation;
- 5) the use of basic principles of emergency care for victims of man-made and natural disasters,
- 6) the use of basic algorithms for intensive care of emergencies.

Prerequisites for studying the discipline (interdisciplinary links). Anaesthesia and Intensive Care as a discipline:

a) is based on students' understanding of basic principles and knowledge of anatomy, histology, medical and biological physics, bioinorganic, bioorganic and biological chemistry, biology, normal and pathological physiology, microbiology, internal medicine, pediatrics, pharmacology and integrates with these disciplines;

b) lays the foundations for students of anesthesiology and intensive care of emergencies arising in the clinic of internal medicine, pediatrics, surgery, traumatology and orthopedics, neurosurgery, urology, obstetrics and gynecology and other disciplines, which use methods of anesthesia and intensive care teaching with these disciplines and the formation of skills to apply knowledge in the process of further study and professional activities;

c) provides an opportunity to gain practical skills and develop professional skills for the diagnosis and provision of emergency medical care and intensive care for certain pathological conditions and during the care of patients;

d) forms the methodological foundations of clinical thinking.

Expected learning outcomes. As a result of studying the discipline, students have

- Be able to examine and examine patients in the intensive care unit with a discussion of the plan and tactics of their treatment;
- To use the knowledge of mastering special practical skills on phantoms and mannequins, practical use of diagnostic methods and intensive care;
- Demonstrate mastery of methods of diagnosis and care for major syndromes of vital functions;
- Solve clinical situational problems and tests.

As a result of studying the discipline the student must:

know:

- basic concepts of general nosology: health, disease, pathological process, typical pathological process, pathological reaction, pathological condition, etiology, pathogenesis;
- modern methods of anesthesia;
- advantages and disadvantages of various methods of anesthesiological support;
- clinical manifestations of different stages of anesthesia;
- main stages of anesthesiological support;
- to plan tactics of preparation for operation and postoperative intensive care of patients of different surgical profile;
- various types of disorders of water-electrolyte metabolism and acid-base status,
- the main syndromes characteristic of hepatic and renal failure;
- clinical manifestations of comatose states of different genesis;
- different types of acute poisoning.

be able to:

- Master the stages of cardiopulmonary and cerebral resuscitation.
- Demonstrate techniques to support airway patency, artificial lung ventilation and closed heart massage, electrical defibrillation.
- Select and demonstrate various methods of intensive care for patients in the post-intensive care unit.
- Justify the choice of methods of anesthesia in various surgical interventions.
- Identify complications of anesthesia, analyze the causes and decide on methods to eliminate them.
- Formulate the basic principles of correction and intensive care of various types of disorders of water-electrolyte metabolism and acid-base status.
- To make schemes of carrying out infusion therapy at various disturbances of a homeostasis.
- To formulate the basic principles of intensive care of comatose states of different origin.
- Interpret the patterns of occurrence of violations of vital functions of the body in acute poisoning.

be competent

- on the application of knowledge of anesthesiology and intensive care to promote a healthy lifestyle, as well as to prevent the occurrence and development of complications of disease;
- about the main perspective directions of development of anesthesiology and intensive care.

The developed program corresponds to the educational-professional program (EPP) and is focused on the formation of competencies:

general (GC) – GC1-GC3 EPP:

- GC 1.** Ability to abstract thinking, analysis and synthesis, the ability to learn and master modern knowledge.
- GC 2.** Ability to apply knowledge in practical situations.
- GC 3.** Knowledge and understanding of the subject area and understanding of professional activity.

professional (PC) – PC 1 - 2; PC 7 – 9; PC 11; PC 18 EPP:

PC 1. Patient interviewing skills.

PC 2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.

PC 7. Ability to diagnose emergencies.

PC 8. Ability to determine the tactics of emergency medical care.

PC 9. Emergency care skills.

PC 11. Skills to perform medical manipulations.

PC 18. Ability to keep medical records.

program learning outcomes (PLO)- PLO 11, PLO 13-18, PLO 22, PLO 25, PLO 28, PLO 30, PLO 32, PLO 33, PLO 35, PLO 41 EPP:

PLO 11. Collect data on patient complaints, medical history, life history (including professional history), in a health care facility, its unit or at the patient's home, using the results of the interview with the patient, according to the standard scheme of the patient's survey. Under any circumstances (in the health care facility, its unit, at the patient's home, etc.), using knowledge about the person, his organs and systems.

PLO 13. In the conditions of the health care institution, its subdivision and among the attached population: be able to identify and record the leading clinical symptom or syndrome by making an informed decision, using preliminary data of the patient's history, physical examination of the patient, knowledge of the person, his organs and systems. ethical and legal norms. Be able to establish the most probable or syndromic diagnosis of the disease by making an informed decision, for the patient and the patient's examination, based on the leading clinical symptom or syndrome, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms.

PLO 14. In a health care facility, its unit: to appoint a laboratory and / or instrumental examination of the patient by making an informed decision, based on the most probable or syndromic diagnosis, according to standard schemes, using knowledge about the person, his organs and systems, adhering to ethical and legal norms. Carry out differential diagnosis of diseases by making an informed decision, according to a certain algorithm, using the most probable or syndromic diagnosis, data of laboratory and instrumental examination of the patient, knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms. Establish a preliminary clinical diagnosis by making an informed decision and logical analysis, using the most probable or syndromic diagnosis, laboratory and instrumental examination of the patient, the conclusions of differential diagnosis, knowledge of man, his organs and systems, following relevant ethical and legal norms.

PLO 15. Determine the necessary mode of work and rest in the treatment of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PLO 16. Determine the necessary therapeutic nutrition in the treatment of the disease, in a health care facility, at home and at the stages of medical evacuation, including in the field on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, following relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PLO 17. To determine the nature of treatment (conservative, operative) of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field on the basis of a previous clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes. Determine the principles of treatment of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including field conditions, based on a previous clinical diagnosis, using knowledge about the person, his organs and systems, adhering to ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PLO 18. Establish a diagnosis by making an informed decision and assessing the human

condition, under any circumstances (at home, on the street, health care facility, its units), including in an emergency, in the field, in a lack of information and limited time, using standard methods of physical examination and possible history, knowledge of the person, his organs and systems, adhering to the relevant ethical and legal norms.

PLO 22. Perform medical manipulations in a medical institution, at home or at work on the basis of previous clinical diagnosis and / or indicators of the patient's condition, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, making informed decisions and using standard techniques.

PLO 25. To form, in the conditions of a health care institution, its division on production, using the generalized procedure of an estimation of a state of human health, knowledge of the person, its bodies and systems, adhering to the corresponding ethical and legal norms, by acceptance of the reasonable decision, among the fixed contingent of the population. : dispensary groups of patients; groups of healthy people subject to dispensary supervision (newborns, children, adolescents, pregnant women, representatives of professions who must undergo a mandatory dispensary examination).

PLO 28. Organize secondary and tertiary prevention measures among the assigned population, using a generalized procedure for assessing human health (screening, preventive medical examination, medical treatment), knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision, in the conditions of the health care institution, in particular: to form groups of dispensary supervision; to organize medical and health-improving measures differentiated from the group of medical examination.

PLO 30. Carry out in the conditions of a health care institution, its subdivision: detection and early diagnosis of infectious diseases; primary anti-epidemic measures in the center of an infectious disease.

PLO 32. In the health care facility, or at the patient's home on the basis of the obtained data on the patient's health, using standard schemes, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, by making an informed decision: tactics of examination and secondary prevention of patients subject to dispensary supervision; to determine the tactics of examination and primary prevention of healthy persons subject to dispensary supervision; calculate and prescribe the necessary food for children in the first year of life.

PLO 33. Determine the presence and degree of limitations of life, type, degree and duration of disability with the issuance of relevant documents, in a health care facility on the basis of data on the disease and its course, features of professional activity.

PLO 35. On the territory of service according to standard methods of descriptive, analytical epidemiological and medical-statistical researches: to carry out screening concerning detection of the most important non-communicable diseases; evaluate morbidity, including chronic non-communicable diseases, disability, mortality, and integrated health indicators in the dynamics and when compared with average static data; identify risk factors for the occurrence and course of diseases; to form risk groups of the population.

PLO 41. In the conditions of a health care institution or its subdivision according to standard methods: to select and use unified clinical protocols for medical care, developed on the basis of evidence-based medicine, to participate in the development of local protocols for medical care, to control the quality of medical care statistical data, expert evaluation and sociological research data using indicators of structure, process and results of activities, identify factors that hinder the improvement of quality and safety of health care.

The program of the discipline

The organization of the educational process is carried out according to the European credit transfer and accumulation system (ECTS).

The program of the discipline " Anaesthesia and Intensive Care " is structured in one block.

The structure of the discipline

Topics	Hours	l.	p.	i.w.
1	2	3	4	5
Topic 1. Subject and tasks of anesthesiology and intensive therapy. Modern methods of anesthesia.	9	1	3	5
Topic 2. General principles of anesthesia surgical interventions. Features of regional anesthesia.	9	1	3	5
Topic 3. General issues of intensive care. Methods and means of assessing the patient's condition.	9	1	3	5
Topic 4. Methods of diagnosis and correction of disorders of water-electrolyte metabolism and acid-base status (ABS)	9	1	3	5
Topic 5. Intensive care of acute respiratory insufficiency (ARI).	9	1	3	5
Topic 6. Intensive care of acute circulatory disorders.	9	1	3	5
Topic 7. Intensive care of shock and traumatic injuries.	9	1	3	5
Topic 8. Intensive care of acute renal and acute liver failure.	9	1	3	5
Topic 9. Intensive care of comatose states.	9	1	3	5
Topic 10. General principles of intensive care of acute poisoning.	9	1	3	5
in general	90	10	30	50

The content of the discipline

Lecture plan

№	TOPIC	hours
1.	<p>General questions of anesthesiology.</p> <p>Definition of anesthesiology as an independent scientific and practical medical discipline, its role and place in the modern system of medical specialties. Organization of anesthesiological support in Ukraine.</p> <p>Anesthesia, its types. Theories of anesthesia. Classification of modern methods of anesthesia. Components and methods of anesthesia, main tasks: anesthesia, inhibition or exclusion of consciousness, muscle relaxation, maintenance of adequate ventilation and gas exchange, blood circulation, metabolic processes.</p>	2
2.	<p>Types of anesthesia and regional anesthesia.</p> <p>Inhalation anesthesia. Equipment and tools for inhalation anesthesia. Inhalation anesthetics. Components of general anesthesia. Stages of anesthesia. Stages and clinic of anesthesia.</p> <p>Non-inhalation anesthesia. Drugs for non-inhalation anesthesia Advantages and disadvantages. Stages and clinic of anesthesia.</p> <p>Regional anesthesia. Types and methods of regional anesthesia. Features of general anesthesia in outpatient and emergency conditions. Complications of general and regional anesthesia. Occupational hazards in anesthesiology.</p>	2
3.	<p>General issues of intensive care.</p> <p>Organization of resuscitation care and intensive care in Ukraine.</p> <p>Terminal conditions. Causes of primary cardiac arrest. Stages of cardiopulmonary and cerebral resuscitation.</p> <p>Signs of clinical death. Causes of airway obstruction and methods of restoring their patency. Artificial lung ventilation. Indirect heart massage. Evaluation of the effectiveness of resuscitation measures.</p> <p>Features of resuscitation in children of different ages (newborns, infants, children 1 year and older) and the elderly.</p>	2
4.	<p>Intensive care for circulatory disorders.</p> <p>Types of circulatory arrest. The scope and justification of drug therapy during resuscitation, ways and methods of drug administration. ECG diagnosis such as circulatory arrest. Determination of indications for defibrillation and open heart massage. Defibrillation techniques and safety rules when performing defibrillation.</p> <p>Intensive care after resuscitation: restoration of tissue perfusion, improvement of blood rheology; restoration of gas exchange; correction of metabolic disorders. Intensive care of cerebral edema.</p> <p>Improving brain metabolism and eliminating reperfusion complications. Restoration of integrative function of the brain.</p>	2

5.	<p>Methods of objective assessment of the patient's condition (victim). Methods and means of assessing the condition and determining the possibility of saving the patient. Measures to restore brain function. Clinical features, biochemical and instrumental methods for determining brain death. The concept of euthanasia. Features of the doctor-resuscitator's relationship with the victim's relatives and specialists of related specialties. Questions of deontology. Ethical and socio-legal issues.</p>	2
in general		10

Plan of practical classes

№	TOPIC	hours
1.	<p>Topic 1. Subject and tasks of anesthesiology and intensive care. Modern methods of anesthesia. Definition of anesthesiology as an independent scientific and practical medical discipline on anesthesia and management of vital functions of the body, its role and place in the modern system of medical specialties. History of development of anesthesiology and intensive care as a science and clinical discipline. The importance of the introduction of computer technology in the organization of work and clinical activities of the anesthesiologist. Advantages and disadvantages of different methods of anesthesia. Clinical manifestations of different stages of anesthesia. The main stages of anesthesia The choice of methods of anesthesia for various surgeries. Tactics of preparation for surgery and postoperative intensive care of patients of different surgical profile. Complications of anesthesia, the causes of their occurrence and decision on methods of their elimination.</p>	3
2.	<p>Topic 2. General principles of anesthesiological support of surgical interventions. Features of regional anesthesia. Anesthesia, its types. Theories of anesthesia. Classification of modern methods of anesthesia. Components and methods of anesthesia, main tasks: anesthesia, inhibition or exclusion of consciousness, muscle relaxation, maintenance of adequate ventilation and gas exchange, blood circulation, metabolic processes. Inhalation anesthesia. Apparatus and instruments for inhalation anesthesia. Inhalation anesthetics. Stages of anesthesia. Stages and clinic of anesthesia. Non-inhalation anesthesia. Drugs for non-inhalation anesthesia. Advantages and disadvantages. Regional anesthesia. Types and methods of regional anesthesia. Technique and methods of spinal puncture and catheterization of the epidural space. Various methods of intensive care of patients in the post-resuscitation state.</p>	3
3.	<p>Topic 3. General issues of intensive care. Methods and means of assessment of the patient's condition.</p>	

	<p>Organization of emergency care and intensive care. Terminal states. Causes of primary cardiac arrest. Stages of cardiopulmonary and cerebral resuscitation. Causes of airway obstruction and methods of restoring their patency. Artificial lung ventilation. Indirect heart massage. Evaluation of the effectiveness of resuscitation measures. Types of circulatory arrest. The scope and justification of drug therapy during resuscitation, ways and methods of drug administration. ECG-diagnosis of the type of circulatory arrest. Determination of indications for defibrillation and open heart massage. Defibrillation techniques and safety rules when performing defibrillation. Intensive care of cerebral edema. The concept of decortication, decerebration and brain death.</p> <p>Clinical signs, biochemical and instrumental methods for determining brain death. The concept of euthanasia. The problem of life and death. Questions of deontology. Ethical and socio-legal issues.</p>	3
4.	<p>Topic 4. Methods of diagnosis and correction of disorders of water-electrolyte metabolism and acid-base status (ABS)</p> <p>Physiological mechanisms of maintaining the internal environment of the organism, methods of its control. Pathophysiology of water-electrolyte metabolism and acid-base state. The concept of homeostatic functional system, molarity, osmolarity. Types of water metabolism disorders, their causes and methods of diagnosis and correction. Metabolism of basic electrolytes - sodium, potassium, chlorine, calcium - causes of possible disorders, methods of correction.</p> <p>Physiological and buffer systems of ABS regulation. Types of acid-base disorders, methods of laboratory diagnosis and intensive care of metabolic acidosis, metabolic alkalosis, respiratory acidosis and respiratory alkalosis.</p>	3
5.	<p>Topic 5. Intensive care of acute respiratory failure (ARF).</p> <p>Physiology and pathophysiology of respiration. Non-respiratory lung function. Anatomical and physiological features of the respiratory system in children and the elderly.</p> <p>Etiology and pathogenesis of ARF, classification, clinical course. Diagnostic algorithms. Hypoxia, its types, clinical signs, diagnosis. Hypercapnia, clinical signs.</p> <p>Methods of intensive care ARF. Means to ensure free airway patency and improve lung drainage function. Fighting hypoxemia. Methods of oxygen therapy. Indications for the use of spontaneous breathing under constant positive pressure (SBCPB) and artificial lung ventilation (ALV), contraindications and possible complications. Use of hyperbaric oxygenation.</p> <p>Features of intensive care in children with acute respiratory insufficiency.</p>	3
6.	<p>Topic 6. Intensive care of acute circulatory disorders.</p> <p>Physiology and pathophysiology of blood circulation. Systemic oxygen transport as an indicator of the adequacy of cardiovascular function.</p> <p>Mechanisms of development of acute circulatory failure. Determination of types of critical hemodynamic disorders - heart and vascular insufficiency, hypovolemia. Criteria for microcirculation disorder.</p>	3

	Causes, clinical manifestations and diagnosis of acute heart failure, cardiac arrhythmias. The main directions of intensive care. Age features of the cardiovascular system and mechanisms of development of critical hemodynamic disorders and their treatment. Pathophysiology, diagnosis, features of the course and intensive care for dizziness and collapse.	
7.	Topic 7. Intensive care of shock and traumatic injuries. Shock, see shock. Pathophysiology, diagnosis, features of the course, intensive care for various types of shock (hemorrhagic, traumatic, burn, anaphylactic, septic). Features of infusion-transfusion therapy of different types of shock, characteristics of infusion media. Pathophysiology, diagnosis, features of the course, intensive care and measures to prevent complications of severe traumatic brain injury (TBI), polytrauma, long-term compression syndrome, electric trauma.	3
8.	Topic 8. Intensive care of acute renal and acute liver failure. Anatomy and physiology of the urinary system. ALF, forms of ALF, pathophysiology, clinical course, physiological and biochemical disorders. Diagnostic methods. Intensive care (IC) algorithms at different stages of ALF. Methods outside of renal clearance (hemodialysis, hemofiltration, ultrafiltration, peritoneal dialysis). Etiological factors, pathophysiology of development, clinical course of acute liver failure. IC methods of acute liver failure.	3
9.	Topic 9. Intensive care of comatose states. Methods of differential diagnosis of comatose states. Determining the depth of the coma. Intensive care for insects of various etiologies (hypo-, hyperglycemic, hyperosmolar, hepatic, uremic). Intensive care of cerebral edema, convulsive and hyperthermic syndromes in children.	3
10.	Topic 10. General principles of intensive care of acute poisoning. Intensive therapy of acute poisoning by tranquilizers, barbiturates, opiates, organophosphorus substances, ethyl and methyl alcohols, carbon monoxide, acids and alkalis, poisonous fungi. Features of emergency care for bites of poisonous insects, snakes and animals.	3
in general		30

Tasks for independent work

For independent work of students the tasks of theoretical character which are insufficiently thoroughly considered within lectures and practical employments are taken out. The student must study literary sources and be ready to answer questions during practical classes and exam. Tasks and tasks are of a practical nature.

№	TOPIC	hours
1.	Development of anesthesiology and resuscitation in Ukraine and the world	5
2.	The choice of methods of anesthesia and features of anesthesia in certain areas of surgery	5

3.	Features of anesthesia in outpatient and emergency conditions	5
4.	Methods of diagnosis and correction of disorders of water-electrolyte metabolism and acid-base status (ABS). Physiological and buffer systems of regulation.	5
5.	Shocks and traumatic injuries. Pathophysiology of certain types of shock. Traumatic shock. Polytrauma. Prolonged compression syndrome. Traumatic brain injury. Electrotrauma	5
6.	Etiological factors, pathophysiology of development, clinical course of acute renal and hepatic failure	5
7.	Methods of differential diagnosis of comatose states	5
8.	Intensive care of acute respiratory failure in some pathological conditions in the postoperative period with drowning and aspiration syndrome, airway foreign bodies, hanging, mechanical asphyxia	5
9.	Causes, clinical manifestations and diagnosis of acute heart failure, cardiac arrhythmias	5
10.	The concept of acute poisoning	5
in general		50

Individual tasks

- Selection and review of scientific literature on the subject of the program in anesthesiology and intensive care at the choice of the student with the writing of the abstract and its public defense.
- Selection and review of scientific literature on research topics of the department.
- Research on the topic of research work of the department with the publication of results in scientific journals.
- Participation in the student scientific group and speeches at scientific forums.
- Participation in student competitions
- Alternation in intensive care units.

Typical test problems to be solved in practical classes (examples)

1. Acute respiratory failure in the early postoperative period leads to:

- 1) increased blood pressure with vasopressors;
- 2) non-physiological effects of mechanical ventilation;
- 3) postoperative pain;
- 4) restriction of mobility of a diaphragm owing to a paresis of intestines.

2. To ensure effective postoperative analgesia use:

- 1) mezon;
- 2) central analgesia with narcotic and non-narcotic analgesics;
- 3) epidural blockade;
- 4) ephedrine .

3. Normalization of sputum drainage is carried out using:

- 1) aerosol inhalation with warm water,
- 2) isotonic sodium chloride solution;
- 3) mucolytics;
- 4) vibration and percussion chest massage;
- 5) all answers are correct.

4. Mendelssohn's syndrome is:

- 1) a sharp decrease in blood pressure;
- 2) acute vascular insufficiency;
- 3) collapse;
- 4) significant aspiration of gastric contents, which can lead to asphyxia due to bronchial obstruction, to the development of asthma similar condition and pulmonary edema.

5. Treatment of aspiration syndrome:

- 1) immediate removal of contents from the respiratory tract;
- 2) intravenous atropine sulfate;
- 3) euphylline;
- 4) glucocorticoids;
- 5) ethamsylate.

6. Prevention of Mendelssohn's syndrome:

- 1) removal of gastric contents before surgery,
- 2) administration of antacids during premedication;
- 3) intubation in Fowler's position on the operating table using Sellick's technique.

7. Diagnostic criteria for respiratory distress syndrome:

- 1) the transition of fluid from the tissues into the vascular bed;
- 2) increase in renal blood flow;
- 3) bilateral infiltration of the lungs on the frontal radiograph of the chest;
- 4) narrowing of vascular capacity.

8. Intensive care for respiratory distress syndrome:

- 1) respiratory therapy aimed at eliminating acute respiratory failure;
- 2) treatment of the underlying disease that caused respiratory distress syndrome;
- 3) prevention (treatment) of multiple organ failure that accompanies respiratory distress syndrome.

9. For the treatment of asthmatic conditions in patients can be used only:

- 1) norepinephrine;
- 2) mezaton;
- 3) angiotensin;
- 4) prednisolone

10. Treatment of patients with asthma in the first 6 hours is carried out using the main areas:

- 1) increase of the central venous pressure to 150–200 mm of waters.
- 2) restoration of airway patency;
- 3) normalization of hemodynamics;
- 4) correction of metabolism.

Ensuring the educational process

1. Multimedia projectors, computers, screens for multimedia presentations, lecture presentations.
2. Diagrams, tables, tests, video.
3. Technical teaching aids: simulator operating class.
4. Differential tickets.

Final control

List of questions of final control (differential test)

1. Clinical death, definition, diagnosis.
2. Signs of resuscitation efficiency, indications for termination of resuscitation.
3. Ways of drug administration during resuscitation and their substantiation.
4. Electrical defibrillation technique.
5. Indications for direct heart massage.
6. Complications of resuscitation.
7. The concept of decortication, decerebration, brain death.
8. The main directions of treatment in the post-intensive care period.
9. Intensive care of cerebral edema.
10. Classification of types of anesthesia.
11. The main components of the anesthesia machine.
12. Measures to prevent fires and explosions in the operating room.
13. Respiratory contours, advantages, disadvantages.
14. Inhalation anesthetics: pharmacokinetics, clinical course.
15. Components of general anesthesia.
16. Stages of anesthesia.
17. Premedication, its types.
18. Preparing patients for surgery and anesthesia.
19. Ether anesthesia clinic.
20. Mask method of general anesthesia.
21. Endotracheal anesthesia. Indications, methods.
22. Pharmacology of muscle relaxants
23. Complications of general anesthesia.
24. Non-inhalation anesthetics: pharmacokinetics, clinical course.
25. Types and methods of regional anesthesia.
26. Features of general anesthesia in outpatient and emergency settings.
27. Features of preparation of patients for surgery and anesthesia.
28. Physiological and pathophysiological features of general anesthesia in children and elderly patients
29. The role of water and electrolytes in the body.
30. The concept of osmolarity, its correction.
31. Clinical signs of dehydration and hyperhydration.
32. Hypertensive dehydration. Causes, clinical signs, methods of correction.
33. Isotonic dehydration. Causes, clinical signs, methods of correction.
34. Hypotonic dehydration. Causes, clinical signs, methods of correction.
35. Hypertensive hyperhydration. Causes, clinical signs, methods of correction.
36. Isotonic hyperhydration. Causes, clinical signs, methods of correction.
37. Hypotonic hyperhydration. Causes, clinical signs, methods of correction.
38. Causes and signs of hypo- and hypernatremia, methods of treatment.
39. Pathophysiological disorders in hypo- and hyperkalemia, clinic, diagnosis, correction.
40. The concept of acidosis, diagnosis, correction.
41. The concept of alkalosis, diagnosis, correction.
42. Characteristics of solutions for infusion therapy.
43. Indications for parenteral nutrition.
44. Features of infusion therapy and correction of water-electrolyte circulation and acid-base state disorders in diabetes mellitus.
45. Features of infusion therapy and correction of disorders of water-electrolyte circulation and acid-base state in the postoperative period.
46. Features of infusion therapy and correction of water-electrolyte circulation and acid-base state disorders in peritonitis.
47. Features of infusion therapy and correction of water-electrolyte circulation and acid-base state disorders in pancreatic necrosis.
48. Causes and pathogenesis of acute renal failure (ARF).

49. Differential diagnosis of prerenal, renal and postrenal oliguria, anuria.
50. Stages of the clinical course of ARF. Basic principles of ARF treatment.
51. Uremic coma, principles of intensive care.
52. Indications for hemodialysis.
53. Calculation of daily fluid requirements of patients with ARF.
54. Causes of acute liver failure.
55. Clinical manifestations of acute liver failure. Laboratory diagnostics.
56. Basic principles of treatment of liver damage.
57. Hepatic coma, principles of intensive care
58. Basic Intensive care principles of acute poisoning.
59. Basic principles of forced diuresis.
60. Extracorporeal methods of detoxification, indications and contraindications, technical means, technique of execution.
61. Principles of antidote therapy.
62. Intensive care in methyl alcohol poisoning.
63. Intensive care in case of poisoning by ethyl alcohol and its surrogates.
64. Intensive care in opiate and barbiturate poisoning.
65. Intensive care in organophosphorus poisoning.
66. Intensive care in acid and alkali poisoning.
67. Intensive care in carbon monoxide poisoning.
68. Intensive care in poisoning by poisonous mushrooms.
69. Features of emergency care for insect and animal bites.
70. Types of disorders of consciousness, assessment of the depth of disorders of consciousness.
71. Principles of Intensive care in comatose states of various origins.
72. Intensive care hypoglycemic coma.
73. Intensive care hyperglycemic coma.
74. Intensive care hyperosmolar coma.
75. Intensive care hyperthermic syndrome in children.
76. Classification of hypoxia, clinic, differential diagnosis of different types of hypoxia.
77. Hypercapnia, clinic.
78. Hypocapnia, clinic.
79. Basic principles of ABF intensive care.
80. Oxygen therapy: methods, indications, toxic effects of oxygen.
81. Ventilation, indications, methods, criteria of efficiency.
82. Methods of restoring airway patency and improving lung drainage function.
83. Principles of differentiated therapy of asthmatic condition.
84. Emergency care for various types of pulmonary edema.
85. Aspiration syndrome, pathogenesis, clinical manifestations, intensive care.
86. Resuscitation and intensive care for various types of drowning.
87. Respiratory distress syndrome in adults, etiology, pathogenesis, clinical signs, intensive care.
88. Resuscitation and intensive care of pulmonary embolism and its branches.
89. Acute heart failure Intensive care
90. Intensive care acute cardiac arrhythmias.
91. Features of the course and intensive care for dizziness and collapse.
92. Intensive care traumatic shock.
93. Intensive care hemorrhagic shock.
94. Intensive care burn shock
95. Intensive care anaphylactic shock.
96. Intensive care toxic-infectious shock.
97. Resuscitation and Intensive care in case of electric shock.
98. Resuscitation and Intensive care in lightning.
99. Resuscitation and intensive care for long-term compression syndrome.
100. Intensive care with polytrauma.

"0" version of the ticket exam**Petro Mohyla Black Sea National University**

Level of higher education - master

Field of knowledge: 22 Healthcare

Specialty 222 Medicine

Course - **Anaesthesia and Intensive Care****Option № 0**

1. Signs of resuscitation efficiency, indications for termination of resuscitation - **maximum number of points - 20.**
2. The concept of alkalosis, diagnosis, correction - **the maximum number of points - 20.**
3. The basic principles of forced diuresis - **the maximum number of points - 20.**
4. Intensive care of anaphylactic shock - **the maximum number of points - 20.**

*Approved at the meeting of the Department of Therapeutic and Surgical Disciplines
protocol № _____ from «__» _____ 2022 p.*

Head of the Department**Doctor of Medical Sciences Zak M.Yu****Examiner****docent Hryshchenko H.V.****Example of a task****Option № 0****I. Questions**

- a. Clinical manifestations of acute liver failure.
- b. Electrical defibrillation technique.

II. Tests**In the treatment of patients with pulmonary edema use the main directions, except:**

- 1) improving tissue oxygenation;
- 2) defoaming;
- 3) reducing blood pressure in a small circle blood circulation, before and after exercise;
- 4) dehydration of the lungs by reducing BCC;
- 5) it is necessary to keep the average blood pressure not lower than 100 mm Hg. Art.

Plasma expanders are all infusion measures except:

- 1) 7.5% sodium chloride solution;
- 2) 10% hydroxyethyl starch solution;
- 3) 10% sodium chloride solution;
- 4) 10% dextran-40 solution;
- 5) gelofusine.

In the treatment of anaphylactic shock in the first place you need to use:

- 1) dexamethasone;
- 2) prednisolone;
- 3) adrenaline;
- 4) diphenhydramine;
- 5) norepinephrine.

Risk factors for pulmonary embolism:

- 1) deep vein thrombosis of the lower extremities and pelvis;
- 2) operations on the abdominal cavity and pelvis;
- 3) prolonged immobilization, especially in the elderly and senile;
- 4) cardiovascular diseases;
- 5) malignant neoplasms;
- 6) pregnancy and childbirth;
- 7) nephrotic syndrome;
- 8) young age.

The gold standard in the diagnosis of pulmonary embolism is:

- 1) computed tomography of the thoracic cavity;
- 2) radiograph of the thoracic cavity;
- 3) ultrasound of the lungs and bronchi;
- 4) bronchoscopy;
- 5) X-ray contrast angiopulmonography.

In conditions of hypovolemic shock long-term (within 4 h) ensuring the elimination of intravascular fluid deficiency is achieved by infusion:

- 1) hypertonic sodium chloride solution 7.5%,
- 2) refortan plus;
- 3) reosorbilact;
- 4) Ringer's solution;
- 5) 5% solution glucose;
- 6) perfluoroane.

To reduce the formation of the mediator of inflammation of bradykinin in traumatic shock should be used:

- 1) diphenhydramine
- 2) prednisolone;
- 3) heparin;
- 4) calcium chloride;
- 5) contracal.

Dopamine antagonism is detected by all drugs except:

- 1) haloperidol;
- 2) aminazine;
- 3) cerucal;
- 4) contracal.

One of the reliable signs of heart failure is:

- 1) increase in blood pressure with stable central venous pressure,
- 2) decrease in blood pressure with increasing central venous pressure;
- 3) decrease in blood pressure with a decrease in central venous pressure;
- 4) increase in blood pressure with a decrease in central venous pressure.

In the treatment of pulmonary embolism, the primary measure is:

- 1) blood transfusion;
- 2) use of dopamine;
- 3) use of adrenaline;
- 4) use of vicasol, aminocaproic acid and vitamin C;
- 5) use of plasma substitutes;
- 6) anticoagulant therapy;
- 7) thrombolytic agents.

And so 15 options

Evaluation criteria and tools for diagnosing learning outcomes

Control methods

- Survey (testing of theoretical knowledge and practical skills).
- Test control.
- Writing a review of scientific literature (abstracts).
- Preparation of presentations.

Current control. Testing in practical classes of theoretical knowledge and the acquisition of practical skills, as well as the results of independent work of students. Supervised by teachers according to the specific purpose of the curriculum. Assessment of the level of students' preparation is carried out by: interviewing students, solving and analyzing situational tasks and test tasks, monitoring the acquisition of practical skills.

Intermediate control. Checking the possibility of using students for the practical application of theoretical knowledge and practical skills on all topics studied, as well as the results of independent work of students. Carried out in the last lesson on the topic by passing practical skills, testing.

Final control. Students who have attended all lectures, classroom classes, full-time independent work and scored at least 70 points per semester in the semester are allowed to take the final control (exam).

Distribution of points received by students

The student can get a maximum of 120 points for current learning activities. Accordingly, a positive assessment in each seminar can be from 3.5 to 6 points. A score below 3.5 points means "unsatisfactory", the lesson is not credited and is subject to practice in the prescribed manner.

In order to assess learning outcomes, the final control in the form of diff. offset. The maximum score on the diff. credit - 80 points. The exam is considered passed if the student received at least 50 points.

Assessment of student performance

Type of activity (task)	Maximum number of points
practical lesson 1	6
practical lesson 2	6
practical lesson 3	6
practical lesson 4	6
practical lesson 5	6
practical lesson 6	6
practical lesson 7	6
practical lesson 8	6
practical lesson 9	6
practical lesson 10	6
practical lesson 11	6
practical lesson 12	6

practical lesson 13	6
practical lesson 14	6
practical lesson 15	6
practical lesson 16	6
practical lesson 17	6
practical lesson 18	6
practical lesson 19	6
practical lesson 20	6
in general	120
exam	80
together with the exam	200

Criteria for assessing knowledge

With a score of 5.1 - 6 points in the practical lesson and 71 - 80 points in the test (A on the ECTS scale and 5 on the national scale) the student's response is evaluated if he demonstrates a deep knowledge of anesthesiology and intensive care, the ability to apply theoretical material for practical analysis and has no inaccuracies.

With a score of 4.1 - 5 points in the practical lesson and 61-70 points in the test (B and C on the ECTS scale and 4 on the national scale) the answer is evaluated if it shows knowledge, the ability to apply them in practice, but some fundamental inaccuracies are allowed.

With a score of 3.5 - 4 points in the practical lesson and 50-60 points in the test (D and E on the ECTS scale and 3 on the national scale) the student's response is evaluated provided that he knows the main theoretical principles and can use them in practice.

Recommended sources of information

Basic

1. Local Anesthesia Techniques in Oral and Maxillofacial Surgery / Author(s): Sean M. Healy and Francis B. Quinn
2. Manual for male circumcision under local anaesthesia / Author(s): World health Organization
3. Understanding Anesthesia A Learners Handbook / Author(s): Karen Raymer, MD, MSc, FRCP(C), McMaster University
4. Author(s): Karen Raymer, MD, MSc, FRCP(C), McMaster University / Author(s): A. Matveevskii, S. White
5. Local and regional anesthesia / Author(s): Carroll Woolsey Allen
6. Local anesthesia in dentistry. / Author(s): Guido Fischer
7. Lecture Notes Clinical Anaesthesia / Author(s): Carl L Gwinnutt

Additional

1. Pre operative Assessment and Patient Preparation / Author(s): The Association of Anaesthetists of Great Britain and Ireland
2. Professional Anesthesia Handbook / Author(s): SHARN Inc
3. Regional Anesthesia for Office Procedures Part I. Head and Neck Surgeries / Author(s): Gohar A. Salam, M.D., D.O., North Shore University Hospital At Manhasset, Manhasset

4. Update in Anesthesia / Author(s): The Journal of the World Federation of Societies of Anaesthesiologists
5. Historical Anaesthetic Equipment Home Page / Author(s): John Oyston
6. Greater Houston Anesthesiology / Author(s): Greater Houston Anesthesiology
7. Journal of Education in Perioperative Medicine / Author(s): Armin Schubert
8. Molecular Pain / Author(s): Jianguo Gu and Min Zhuo
9. Indian Journal of Anesthesia

Information resources

1. www.hhs.gov/about/hhs-headquarters/index.html
2. <https://meshb.nlm.nih.gov/record/ui?ui=D014483>
3. www.nbu.gov.ua.
4. www.dsns.gov.ua.
5. www.moz.gov.ua.