

**MINISTRY OF SCIENCE AND HIGHER EDUCATION
RUSSIAN FEDERATION**

**FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF
HIGHER EDUCATION
NORTH-CAUCASUS FEDERAL UNIVERSITY**

Methodological Guidelines
for Students on arranging and performing independent work
in the Discipline of "ANESTHESIOLOGY, RESUSCITATION, INTENSIVE
THERAPY"
for Students majoring (Specialty) in 31.05.01 General Medicine

INTRODUCTION.

The purpose of the discipline is to provide students with knowledge of the pathophysiology of terminal conditions and clinical death, the basics of resuscitation measures, and the legal, ethical, and deontological aspects of cardiopulmonary resuscitation. Mastering the principles of intensive care and resuscitation, the basic methods of providing first aid in emergency situations, and gaining an understanding of the principles of organization and capabilities of modern specialized anesthesiology and resuscitation services, as well as modern methods of monitoring and detoxification used in intensive care. Students will also acquire knowledge on the diagnosis and treatment of critical conditions in patients with surgical, therapeutic, and other profiles.

Objectives of the discipline:

- ✓ To consider the etiology and pathogenesis of critical conditions at the modern level, the pathophysiological essence of the processes occurring during the dying and recovery of the organism.
- ✓ To teach students how to diagnose terminal conditions.
- ✓ To teach students a set of resuscitation measures for acute respiratory and circulatory disorders and clinical death; to apply modern methods of resuscitation and intensive care in providing assistance to patients and victims in critical conditions of various etiologies;
- ✓ To teach students the simplest methods of pain relief during painful procedures and surgical interventions, and to manage pain syndromes;
- ✓ To familiarize students with the necessary amount of theoretical knowledge on legal, ethical, and deontological foundations in the field of intensive care.
- ✓ Final classes are conducted in the form of an oral interview or written work.

As a result of studying the discipline, a student should know:

- National legislation and international regulations governing anti-doping relations; the concept of doping, the history of anti-doping in sports, general principles of anti-doping, the damage caused by doping to the idea of sports, and the risk of doping.
- Legislation of the Russian Federation in the field of health care, regulatory legal acts and other documents that determine the activities of medical organizations and medical workers.
- General principles of the organization of medical care for the population.
- Principles of organizing sanitary and anti-epidemic (preventive) measures to prevent the occurrence and spread of infectious diseases.
- Regulations on medical care, clinical guidelines (treatment protocols) on medical care, and standards of medical care.
- Methods of laboratory and instrumental research for assessing the state of health, medical indications for conducting research, and rules for interpreting their results.
- Etiology, pathogenesis and pathomorphology, clinical picture, differential diagnosis, features of the course, complications and outcomes of diseases of internal organs.
- Methods of collecting complaints, medical history, and patient's condition.
- The method of a complete physical examination of a patient (examination, palpation, percussion, and auscultation).
- International Classification of Diseases.
- Patterns of functioning of a healthy human body and mechanisms of ensuring health from the perspective of the theory of functional systems; features of regulation of functional systems of the human body in pathological processes.
- List of laboratory and instrumental research methods for assessing the patient's condition, the main medical indications for conducting research, and the interpretation of the results.
- Etiology, pathogenesis and pathomorphology, clinical picture, differential diagnosis, features of the course, complications and outcomes of diseases of internal organs.
- Methodology for collecting complaints and anamnesis from patients (or their legal representatives).

- Methods of physical examination of patients (examination, palpation, percussion, and auscultation).
- Clinical signs of sudden circulatory and/or respiratory failure.
- Rules for performing basic cardiopulmonary resuscitation.
- Principles of operation of devices for external electroimpulse therapy (defibrillation).
- Rules for performing external electrical impulse therapy (defibrillation) in case of sudden cessation of blood circulation and/or breathing.
- Modern methods of using medicines, medical devices, and therapeutic nutrition for diseases and conditions in patients in accordance with current medical care regulations, clinical recommendations (treatment protocols), and medical care guidelines.
- Mechanism of action of medicines, medical devices and therapeutic nutrition, medical indications and contraindications to their use; complications, caused by their use.
- Modern methods of non-pharmacological treatment of diseases and conditions in patients in accordance with the current regulations on medical care and clinical recommendations (treatment protocols) on medical care.
- The mechanism of action of non-drug treatment; medical indications and contraindications for its prescription; side effects and complications caused by its use.
- The procedure for providing palliative medical care.
- The procedure for temporary disability examination and the signs of temporary disability.
- Procedure for referring a patient for medical and social examination.
- Signs of persistent impairment of body functions caused by diseases, consequences of injuries, or defects.
- Rules for the registration and issuance of medical documents when patients are referred for specialized medical care, sanatorium treatment, or medical and social examination.
- Measures for the patient's medical rehabilitation, medical indications and contraindications for their implementation, taking into account the diagnosis.
- Medical indications and contraindications for the appointment of spa treatment as a stage of medical rehabilitation for patients.
- Features of medical rehabilitation for elderly and senile patients.
- Management tactics for patients with various diseases.
- Fundamentals of legislation on sanitary and epidemiological welfare of the population.

Must be able to:

- Conduct and correct preventive work on violations of anti-doping legislation in sports.
- Collect complaints, patient's life and disease history, and analyze the information obtained.
- Conduct a complete physical examination of the patient (examination, palpation, percussion, and auscultation) and interpret its results.
- To justify the necessity and scope of a patient's laboratory examination.
- To justify the necessity and scope of a patient's instrumental examination.
- To justify the necessity of referring a patient for consultations with specialist doctors.
- ☐ Analyze the results of the patient's examination, and if necessary, justify and plan the scope of additional tests.
- Interpret the results of collecting information about the patient's condition.
- Interpret the data obtained during the patient's laboratory examination.
- Interpret the data obtained during the patient's instrumental examination.
- Interpret the data obtained during the patient's consultations with specialist doctors. ☐
- To carry out early diagnosis of diseases of internal organs.
- To carry out differential diagnosis of diseases of internal organs from other diseases.
- To determine the priority of the volume, content and sequence of diagnostic measures
- To determine medical indications for providing emergency, including emergency specialized, medical care.

- To apply medical devices in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the issues of providing medical care, care taking into account the standards of medical care.
- Assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional tasks.
- Identify clinical signs of conditions requiring medical care in an emergency form.
- Perform measures to provide medical care in an emergency form.
- Identify conditions requiring medical care in an emergency form, including clinical signs of sudden cessation of circulation and breathing.
- Perform basic cardiopulmonary resuscitation in combination with electrical impulse therapy (defibrillation).
- Develop a treatment plan for the patient's disease and condition based on the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines and clinical recommendations (treatment protocols).
- To prescribe medications, medical devices, and therapeutic nutrition, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with the current medical care guidelines and clinical recommendations (treatment protocols) for medical care.
- To prescribe non-pharmacological treatment, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with the current medical care guidelines and clinical recommendations (treatment protocols) for medical care.
- To assess the effectiveness and safety of the use of medicines, medical devices, and therapeutic nutrition.
- To determine the signs of temporary disability and the signs of persistent impairment of body functions caused by diseases, consequences of injuries or defects.
- To determine medical indications for carrying out medical rehabilitation measures, including when implementing an individual rehabilitation or habilitation program for disabled people.
- To carry out medical rehabilitation measures for a patient.
- To determine the specialist doctors for carrying out rehabilitation measures for a patient in need of medical rehabilitation, taking into account the diagnosis.
- To prescribe spa treatment for a patient who needs medical rehabilitation, including the implementation of an individual rehabilitation or habilitation program for disabled people.
- To monitor the implementation and evaluate the effectiveness and safety of rehabilitation measures, including the implementation of an individual rehabilitation or habilitation program for disabled people, taking into account the diagnosis.
- determine the scope and location of necessary medical treatment for patients.
- To plan, analyze, and evaluate the quality of medical care, the health status of the population, and the impact of environmental and occupational factors on it.
- to justify the choice of research material from a microbiological perspective when diagnosing infectious and opportunistic diseases.

Must own:

- Forms and methods of conducting preventive information and practical anti-doping measures.
- Skills of collecting complaints, patient's life and disease history.
- Skills of conducting a full physical examination of the patient (examination, palpation, percussion, auscultation).
- Skills of formulating a preliminary diagnosis and drawing up a plan for laboratory and instrumental examinations of the patient.
- Skills of referring the patient for laboratory examination if there are medical indications.
- Skills for referring to instrumental examination in the presence of medical indications.

- Skills for referring a patient to a consultation with specialist doctors in the presence of medical indications.
- Skills for referring a patient for specialized medical care in inpatient or day hospital conditions in the presence of medical indications.
- Skills for conducting differential diagnosis with other diseases/conditions, including urgent ones.
- Skills in establishing a diagnosis, taking into account the current international statistical classification of diseases and health-related problems.
- Skills in studying morphofunctional, physiological conditions and pathological processes in the human body to solve professional tasks.
- Skills in assessing the condition of a patient who requires medical care in an urgent or emergency situation.
- Skills in recognizing conditions that occur in sudden acute diseases, acute exacerbations of chronic diseases without obvious signs of a threat to the patient's life and requiring emergency medical care.
- Skills in providing emergency medical care to patients with sudden acute diseases, conditions, acute exacerbations of chronic diseases without obvious signs of a threat to the patient's life.
- Skills in recognizing conditions that pose a threat to the patient's life, including conditions of clinical death (stoppage of vital functions of the human body (circulation and/or breathing), requiring medical care in an emergency form.
- Skills in providing medical care in an emergency form to patients with conditions that pose a threat to the patient's life, including clinical death (stoppage of vital functions of the human body (circulation and/or breathing).
- Skills in the use of medicines and medical devices in the provision of medical care in emergency or urgent forms.
- Skills in developing a treatment plan for a disease or condition, taking into account the diagnosis, age, and clinical picture, in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care.
- Skills in prescribing medications, medical devices, and therapeutic nutrition, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines, clinical recommendations (treatment protocols), and medical care procedures.
- Skills in prescribing non-pharmacological treatment, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines, clinical recommendations (treatment protocols), and medical care procedures.
- Skills in assessing the effectiveness and safety of the use of medicines, medical devices, therapeutic nutrition, and other methods of treatment.
- Skills in providing palliative medical care in collaboration with specialist doctors and other medical professionals.
- Skills in organizing personalized patient treatment, including pregnant women, elderly and senile patients, and assessing the effectiveness and safety of treatment.
- Skills in conducting temporary disability examinations and working as part of a medical commission conducting temporary disability examinations.
- Skills in preparing the necessary medical documentation for conducting medical and social examinations in federal state medical and social examination institutions.
- Skills in performing medical rehabilitation measures for patients, including when implementing an individual rehabilitation or habilitation program for disabled people.
- Skills in referring a patient in need of medical rehabilitation to a specialist doctor for the purpose of prescribing and conducting medical rehabilitation measures, including when implementing an individual rehabilitation or habilitation program for disabled people.

- Skills of referring a patient in need of medical rehabilitation to a specialist doctor for the appointment and conduct of sanatorium treatment, including when implementing an individual rehabilitation or habilitation program for the disabled.
- Skills for evaluating the effectiveness and safety of patient's medical rehabilitation measures.
- Skills of referral of a patient with a persistent impairment of body functions, due to diseases, the consequences of injuries or defects, for medical and social expertise.

Methodological Recommendations for Studying Theoretical Material

When performing the independent study of theoretical material, the student must follow the rules as set below. The working curriculum of the respective academic discipline shall be recommended to be used as the basis for such activity. According to the schedule of classroom lessons and independent work, a different number of hours is to be allocated for studying individual topics. A significant portion of the student's independent work should be allocated to mastering the material on the covered topic, writing a summary (notes) on the specified theoretical blocks, and searching for additional literature based on the NCFU library and via the Internet system. The lecture material shall not cover all theoretical material; the greater part of it must be mastered through independent work. Given the above, working with the recommended literature is mandatory. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration. In the process of this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. First, studying the recommended literature is to be done. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration.

During this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. If necessary, one should seek (advice) consultation from the instructor. When going to a consultation, it is necessary to thoroughly think through the questions that require clarification. Keeping records contributes to turning reading into an active process, mobilizing motor memory along with visual memory. The following should be born in mind: a student who systematically keeps records creates their own individual stock of auxiliary materials for a quick review of what has been read and for the mobilization of accumulated knowledge. Records are especially important and useful when they reflect the thoughts that arose during independent work.

It is important to develop the students' capacity to compare sources and to think through the material being studied.

Improving note-taking skills among students is of great importance.

The instructor may recommend the following main forms of recording to students: a plan (simple and detailed), excerpts, and theses (abstracts).

The results of note-taking can be presented in various forms.

- A plan is an outline of the read material, a brief (or detailed) list of questions reflecting the structure and sequence of the material.
- A detailed plan fully replaces a summary.
- A summary (notes) is a systematized, logical presentation of the source material. Four types of summaries are distinguished:
 - Outline-summary (Plan-notes) – this is an expanded, detailed plan in which sufficiently detailed records are provided for those points of the plan that need explanation.

- Textual summary – this is the reproduction of the most important provisions and facts of the source.
- Free summary – these are clearly and briefly formulated (stated) main provisions resulting from a deep understanding of the material. It may contain excerpts, quotations, and theses; part of the material may be represented by a plan.
- Theme-based summary – this is compiled on the basis of studying a number of sources and gives a more or less exhaustive answer according to a certain scheme (issue).

Methodological Guidelines for the Preparation for Practical Activities

When preparing for practical activities, the recommendation implies studying the control questions for the given lesson and the theoretical material from one's own notes.

The main form of work during the lessons is an interview (discussion). Each student must be ready to speak on all issues raised in the plan and demonstrate maximum activity during their consideration.

The speech must be constructed freely, convincingly, and with arguments. The instructor ensures that the speech is not reduced to a reproductive level (simple reproduction of the text); simple reading of the summary is also not allowed.

It is necessary for the speaker to show their own attitude towards what they are talking about, express their personal opinion and understanding, substantiate it, and be able to draw the correct conclusions from what has been said. In doing so, the student may refer to the entries in the summary, directly to the primary sources, use knowledge of previously studied disciplines, etc. In addition, to obtain a grade at an advanced level, students solve situational tasks based on the results of the mastered topics.

During the execution of practical works, a defense of practical skills is provided, the full list of which is specified in the fund of assessment tools.

Methodological Recommendations for the Preparation of Presentations and Reports

The report must contain elements of novelty; along with the fundamental aspect, an analysis of the current state of the problem under study must be carried out, as well as inclusion in regional issues. The report must include an introduction, a theoretical part, a conclusion, a list of literature, and a presentation that reveals the essence of the topic in graphs, pictures, diagrams, and formulas.

The report is recommended to be submitted on 1 printed sheet. The text of the work must be printed with 1.5 line spacing on one side of a standard sheet (A4) of white paper.

The text and other printed elements of the work must be black, and the contours of letters and signs must be clear, without halos and shading. The font must be Times New Roman, size 14. The titles of chapters and paragraphs are highlighted in bold. The sheet with text must have margins: left – 30 mm, right – 10 mm, top – 20 mm, bottom – 20 mm.

Page numbering of the text is done in the lower right corner of the sheet. It is necessary to number pages starting from the page where the Introduction is printed, on which the number 3 is placed. After that, all pages, including appendices, are numbered.

A space equal to two intervals is placed between the title of the chapter and the title of the paragraph of this chapter, and the title of the paragraph must not be separated from the text of this paragraph by a space. The titles of paragraphs shall be separated from the text of the previous paragraph by a space equal to two intervals. Each chapter, as well as the introduction, conclusions, appendices, and the list of used literature, begin on a new page. The word Chapter is not to be written. Chapters have ordinal numbers within the entire work, designated by Arabic numerals (for example: 1, 2, 3), followed by a period.

The word **PARAGRAPH** or the paragraph symbol (§) is not placed in the title. Paragraphs have ordinal numbers within the chapters, designated by Arabic numerals (for example: 1.1. and 1.2.).

Headings of chapters and paragraphs in the text must be centered; a period shall not be placed at the end of the title of the chapter and paragraph. It is not allowed to hyphenate (transfer) a part of a word in a heading. 4.5. The numbering of tables and figures can be running (continuous) or relate to the number of the chapter and paragraph. For example, if a table or a figure is included in the text of the first paragraph of the second chapter, the numbering is as follows: Table 2.1.1., Fig. 2.1.1.

The last digit means the ordinal number of the table (or figure) in this paragraph.
The table is to be placed as the next page after the first mention of it in the text.

10. Educational and methodological and information support of the discipline

10.1. List of basic and additional literature required for the development of discipline (module)

10.1.1. List of basic literature:

1. Burmistrova, O. Yu. Fundamentals of Resuscitation Medicine: Textbook / O. Yu. Burmistrova. – Saint Petersburg: Lan, 2020. – 224 pp. – ISBN 978-5-8114-3981-2. – Text: electronic version // Lan: Electronic Library System. – URL: <https://e.lanbook.com/book/133915>
2. Prasmytskyi, O. T. Anesthesiology and Resuscitation Medicine: Textbook / O. T. Prasmytskyi, S. S. Grachev. Minsk: Novoye Znanie, 2017. 304 pp. ISBN 978-985-475-872-5. Text: electronic format; available via Lan's electronic library system at <https://e.lanbook.com/book/90706>.
3. Guide to Extracorporeal Blood Purification in Intensive Care: A Manual edited by L. A. Bokeriy and M. B. Yarustovsky. 3rd ed. Moscow: National Medical Research Center of Clinical Hematology named after A.N. Bakuleva, 2016. – 804 pp. – ISBN 978-5-7982-0360-4. – Text: electronic // Lan: Electronic Library System. – URL: <https://e.lanbook.com/book/102438>

10.1.2. List of additional literature:

1. Grigoriev, E. V. Resuscitation and Intensive Care: A Collection of Tests and Situational Tasks / E. V. Grigoriev, N. F. Ivannikov, and A. S. Zabolotin. – Kemerovo: Kemerovo State Medical Academy, 2006. – 72 p. – ISBN 2227-8397. – Text: electronic // IPR BOOKS Electronic Library System: [website]. – URL: <http://www.iprbookshop.ru/6206.html>
2. Diagnostics and intensive care for sepsis : an educational and methodological manual / compiled by G. V. Gritsan [et al.]. Krasnoyarsk : KRASNOGMU named after prof. V.F. Voino-Yasenetsky, 2018. 61 p. – Text : electronic // Lan :electronic library system. – URL: <https://e.lanbook.com/book/131399>
3. Kushnarenko, K. E. Reanimation and Intensive Care in Accidents: A Study Guide / K. E. Kushnarenko, K. G. Shapovalov. – Chita: Chita State Medical Academy, 2011. – 38 p. – ISBN 2227-8397. – Text: electronic // Electronic library system IPR BOOKS : [website]. – URL: <http://www.iprbookshop.ru/55332.html> .

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INTRODUCTION.

The purpose of the discipline is to provide students with knowledge of the pathophysiology of terminal conditions and clinical death, the basics of resuscitation measures, and the legal, ethical, and deontological aspects of cardiopulmonary resuscitation. Mastering the principles of intensive care and resuscitation, the basic methods of providing first aid in emergency situations, and gaining an understanding of the principles of organization and capabilities of modern specialized anesthesiology and resuscitation services, as well as modern methods of monitoring and detoxification used in intensive care. Students will also acquire knowledge on the diagnosis and treatment of critical conditions in patients with surgical, therapeutic, and other profiles.

Objectives of the discipline:

- ✓ To consider the etiology and pathogenesis of critical conditions at the modern level, the pathophysiological essence of the processes occurring during the dying and recovery of the organism.
- ✓ To teach students how to diagnose terminal conditions.
- ✓ To teach students a set of resuscitation measures for acute respiratory and circulatory disorders and clinical death; to apply modern methods of resuscitation and intensive care in providing assistance to patients and victims in critical conditions of various etiologies;
- ✓ To teach students the simplest methods of pain relief during painful procedures and surgical interventions, and to manage pain syndromes;
- ✓ To familiarize students with the necessary amount of theoretical knowledge on legal, ethical, and deontological foundations in the field of intensive care.
- ✓ Final classes are conducted in the form of an oral interview or written work.

As a result of studying the discipline, a student should know:

- National legislation and international regulations governing anti-doping relations; the concept of doping, the history of anti-doping in sports, general principles of anti-doping, the damage caused by doping to the idea of sports, and the risk of doping.
- Legislation of the Russian Federation in the field of health care, regulatory legal acts and other documents that determine the activities of medical organizations and medical workers.
- General principles of the organization of medical care for the population.
- Principles of organizing sanitary and anti-epidemic (preventive) measures to prevent the occurrence and spread of infectious diseases.
- Regulations on medical care, clinical guidelines (treatment protocols) on medical care, and standards of medical care.
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- Etiology, pathogenesis and pathomorphology, clinical picture, differential diagnosis, features of the course, complications and outcomes of diseases of internal organs.
- Methods of collecting complaints, medical history, and patient's condition.
- The method of a complete physical examination of a patient (examination, palpation, percussion, and auscultation).
- International Classification of Diseases.
- Patterns of functioning of a healthy human body and mechanisms of ensuring health from the perspective of the theory of functional systems; features of regulation of functional systems of the human body in pathological processes.
- List of laboratory and instrumental research methods for assessing the patient's condition, the main medical indications for conducting research, and the interpretation of the results.
- Etiology, pathogenesis and pathomorphology, clinical picture, differential diagnosis, features of the course, complications and outcomes of diseases of internal organs.
- Methodology for collecting complaints and anamnesis from patients (or their legal representatives).

- Methods of physical examination of patients (examination, palpation, percussion, and auscultation).
- Clinical signs of sudden circulatory and/or respiratory failure.
- Rules for performing basic cardiopulmonary resuscitation.
- Principles of operation of devices for external electroimpulse therapy (defibrillation).
- Rules for performing external electrical impulse therapy (defibrillation) in case of sudden cessation of blood circulation and/or breathing.
- Modern methods of using medicines, medical devices, and therapeutic nutrition for diseases and conditions in patients in accordance with current medical care regulations, clinical recommendations (treatment protocols), and medical care guidelines.
- Mechanism of action of medicines, medical devices and therapeutic nutrition, medical indications and contraindications to their use; complications, caused by their use.
- Modern methods of non-pharmacological treatment of diseases and conditions in patients in accordance with the current regulations on medical care and clinical recommendations (treatment protocols) on medical care.
- The mechanism of action of non-drug treatment; medical indications and contraindications for its prescription; side effects and complications caused by its use.
- The procedure for providing palliative medical care.
- The procedure for temporary disability examination and the signs of temporary disability.
- Procedure for referring a patient for medical and social examination.
- Signs of persistent impairment of body functions caused by diseases, consequences of injuries, or defects.
- Rules for the registration and issuance of medical documents when patients are referred for specialized medical care, sanatorium treatment, or medical and social examination.
- Measures for the patient's medical rehabilitation, medical indications and contraindications for their implementation, taking into account the diagnosis.
- Medical indications and contraindications for the appointment of spa treatment as a stage of medical rehabilitation for patients.
- Features of medical rehabilitation for elderly and senile patients.
- Management tactics for patients with various diseases.
- Fundamentals of legislation on sanitary and epidemiological welfare of the population.

Must be able to:

- Conduct and correct preventive work on violations of anti-doping legislation in sports.
- Collect complaints, patient's life and disease history, and analyze the information obtained.
- Conduct a complete physical examination of the patient (examination, palpation, percussion, and auscultation) and interpret its results.
- To justify the necessity and scope of a patient's laboratory examination.
- To justify the necessity and scope of a patient's instrumental examination.
- To justify the necessity of referring a patient for consultations with specialist doctors.
- ☐ Analyze the results of the patient's examination, and if necessary, justify and plan the scope of additional tests.
- Interpret the results of collecting information about the patient's condition.
- Interpret the data obtained during the patient's laboratory examination.
- Interpret the data obtained during the patient's instrumental examination.
- Interpret the data obtained during the patient's consultations with specialist doctors. ☐
- To carry out early diagnosis of diseases of internal organs.
- To carry out differential diagnosis of diseases of internal organs from other diseases.
- To determine the priority of the volume, content and sequence of diagnostic measures
- To determine medical indications for providing emergency, including emergency specialized, medical care.

- To apply medical devices in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the issues of providing medical care, care taking into account the standards of medical care.
- Assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional tasks.
- Identify clinical signs of conditions requiring medical care in an emergency form.
- Perform measures to provide medical care in an emergency form.
- Identify conditions requiring medical care in an emergency form, including clinical signs of sudden cessation of circulation and breathing.
- Perform basic cardiopulmonary resuscitation in combination with electrical impulse therapy (defibrillation).
- Develop a treatment plan for the patient's disease and condition based on the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines and clinical recommendations (treatment protocols).
- To prescribe medications, medical devices, and therapeutic nutrition, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with the current medical care guidelines and clinical recommendations (treatment protocols) for medical care.
- To prescribe non-pharmacological treatment, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with the current medical care guidelines and clinical recommendations (treatment protocols) for medical care.
- To assess the effectiveness and safety of the use of medicines, medical devices, and therapeutic nutrition.
- To determine the signs of temporary disability and the signs of persistent impairment of body functions caused by diseases, consequences of injuries or defects.
- To determine medical indications for carrying out medical rehabilitation measures, including when implementing an individual rehabilitation or habilitation program for disabled people.
- To carry out medical rehabilitation measures for a patient.
- To determine the specialist doctors for carrying out rehabilitation measures for a patient in need of medical rehabilitation, taking into account the diagnosis.
- To prescribe spa treatment for a patient who needs medical rehabilitation, including the implementation of an individual rehabilitation or habilitation program for disabled people.
- To monitor the implementation and evaluate the effectiveness and safety of rehabilitation measures, including the implementation of an individual rehabilitation or habilitation program for disabled people, taking into account the diagnosis.
- determine the scope and location of necessary medical treatment for patients.
- To plan, analyze, and evaluate the quality of medical care, the health status of the population, and the impact of environmental and occupational factors on it.
- to justify the choice of research material from a microbiological perspective when diagnosing infectious and opportunistic diseases.

Must own:

- Forms and methods of conducting preventive information and practical anti-doping measures.
- Skills of collecting complaints, patient's life and disease history.
- Skills of conducting a full physical examination of the patient (examination, palpation, percussion, auscultation).
- Skills of formulating a preliminary diagnosis and drawing up a plan for laboratory and instrumental examinations of the patient.
- Skills of referring the patient for laboratory examination if there are medical indications.
- Skills for referring to instrumental examination in the presence of medical indications.

- Skills for referring a patient to a consultation with specialist doctors in the presence of medical indications.
- Skills for referring a patient for specialized medical care in inpatient or day hospital conditions in the presence of medical indications.
- Skills for conducting differential diagnosis with other diseases/conditions, including urgent ones.
- Skills in establishing a diagnosis, taking into account the current international statistical classification of diseases and health-related problems.
- Skills in studying morphofunctional, physiological conditions and pathological processes in the human body to solve professional tasks.
- Skills in assessing the condition of a patient who requires medical care in an urgent or emergency situation.
- Skills in recognizing conditions that occur in sudden acute diseases, acute exacerbations of chronic diseases without obvious signs of a threat to the patient's life and requiring emergency medical care.
- Skills in providing emergency medical care to patients with sudden acute diseases, conditions, acute exacerbations of chronic diseases without obvious signs of a threat to the patient's life.
- Skills in recognizing conditions that pose a threat to the patient's life, including conditions of clinical death (stoppage of vital functions of the human body (circulation and/or breathing), requiring medical care in an emergency form.
- Skills in providing medical care in an emergency form to patients with conditions that pose a threat to the patient's life, including clinical death (stoppage of vital functions of the human body (circulation and/or breathing).
- Skills in the use of medicines and medical devices in the provision of medical care in emergency or urgent forms.
- Skills in developing a treatment plan for a disease or condition, taking into account the diagnosis, age, and clinical picture, in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care.
- Skills in prescribing medications, medical devices, and therapeutic nutrition, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines, clinical recommendations (treatment protocols), and medical care procedures.
- Skills in prescribing non-pharmacological treatment, taking into account the patient's diagnosis, age, and clinical presentation, in accordance with current medical care guidelines, clinical recommendations (treatment protocols), and medical care procedures.
- Skills in assessing the effectiveness and safety of the use of medicines, medical devices, therapeutic nutrition, and other methods of treatment.
- Skills in providing palliative medical care in collaboration with specialist doctors and other medical professionals.
- Skills in organizing personalized patient treatment, including pregnant women, elderly and senile patients, and assessing the effectiveness and safety of treatment.
- Skills in conducting temporary disability examinations and working as part of a medical commission conducting temporary disability examinations.
- Skills in preparing the necessary medical documentation for conducting medical and social examinations in federal state medical and social examination institutions.
- Skills in performing medical rehabilitation measures for patients, including when implementing an individual rehabilitation or habilitation program for disabled people.
- Skills in referring a patient in need of medical rehabilitation to a specialist doctor for the purpose of prescribing and conducting medical rehabilitation measures, including when implementing an individual rehabilitation or habilitation program for disabled people.

- Skills of referring a patient in need of medical rehabilitation to a specialist doctor for the appointment and conduct of sanatorium treatment, including when implementing an individual rehabilitation or habilitation program for the disabled.
- Skills for evaluating the effectiveness and safety of patient's medical rehabilitation measures.
- Skills of referral of a patient with a persistent impairment of body functions, due to diseases, the consequences of injuries or defects, for medical and social expertise.

Tasks for practical classes in the discipline "Anesthesiology, Resuscitation, and Intensive Care"

Task №1.

A 75-year-old man was admitted to the emergency department with complaints of weakness, marked thirst, feeling short of breath, abdominal pain, vomiting. The first symptoms of the disease appeared 3 days ago. On examination: skin pale, dry; breathing free, FDR 26 – 28 / min, BP 160/70 mmHg, pulse 120 / min; tongue dry, abdomen swollen, painful on palpation, diuresis reduced.

Diagnosis: Acute small intestinal obstruction 3-day-old.

1. Preoperative preparation
2. Choice of anesthesia method
3. Anesthesia scheme

Complication – regurgitation.

Your actions.

Task №2.

A 38-year-old woman was admitted to the emergency department with complaints of weakness and severe abdominal pain. Delayed menstrual cycle. The first symptoms of the disease appeared 2 days ago. On examination: skin is pale, breathing is free, BDD 26 – 28V min, blood pressure 100/50 mmHg, pulse 120 per minute; abdomen painful on palpation.

Laboratory tests:

Hb – 98 g/l, Ht – 30/70, Er – 2.3×10^{12} g/l. Diagnosis: Suspected ectopic pregnancy.

1. Preoperative preparation
2. Choice of anesthesia method
3. Scheme of anesthetic assistance

After the introduction of anesthesia, pulsation is determined only on the central vessels, the pulse is of weak filling.

Possible reasons, your actions.

Task №3.

A 44-year-old woman was admitted to the emergency department with complaints of weakness, nausea, severe pain in the right hypochondrium. On examination: increased nutrition, skin of the usual color, breathing is free, FEV 22 – 24 / min, BP 130/70 mmHg, pulse 100 / min; the abdomen is painful on palpation. The patient has suffered for 5 years hormone-dependent

bronchial asthma. Laboratory tests: Hb – 124 g/l, Ht – 47, Er – 3.5×10^{12} g/l, leukocytosis – 11×10^{12} g/l, with a slight shift to the left.

Diagnosis: Acute cholecystitis.

1. Preoperative preparation
2. Choice of anesthesia method
3. Anesthesia scheme

After intubation, there was increased pressure in the respiratory tract, and wheezing was heard on auscultation of the lungs.

Possible causes and your actions.

Task №4.

A 25-year-old man was admitted to the emergency department with a penetrating chest wound on the right. On examination: pale skin, acrocyanosis, labored breathing, shallow, BDD 34-36 per minute, BP 100/60 mmHg, pulse 120 per minute; with auscultation on the right breathing is not listening. On the radiograph: On the right, the pulmonary pattern is not visible, there is a level of liquid in the VI intercostal space, and the mediastinal organs are displaced to the left. Laboratory tests: Hb – 88 g/l, Ht – 31/69, Er – 2.0×10^{12} g/l

Diagnosis: Right-sided tense hemopneumothorax.

1. Preoperative preparation
2. Choice of anesthesia method
3. Anesthesia scheme

Task № 5.

A 21-year-old woman was admitted to the emergency department with complaints of weakness, nausea, and severe abdominal pain, especially on the right side. On examination, the patient's skin was of normal color, her breathing was free, her respiratory rate was 22-24 breaths per minute, her blood pressure was 115/60 mmHg, and her pulse was 100 beats per minute. The abdomen was tender to palpation in the right iliac region. The patient had a history of multiple allergies. Laboratory tests: Hb – 130 g/l, Er – 3.5×10^{12} g/l, leukocytosis – 10×10^{12} g/l, with a slight shift to the left.

Diagnosis: Acute appendicitis.

1. Preoperative preparation
2. Choice of anesthesia method

3. Anesthesia scheme

After the hypnotic was administered, the patient's blood pressure suddenly dropped to 50/30 mmHg. The pulse was weak and tense, and the heart rate was 120 beats per minute. Possible reasons, Your actions.

Task №6 .

A 52-year-old man undergoes anesthetic support during surgery –right-sided nephrectomy (right kidney tumor). Data of laboratory examinations before surgery without pronounced pathology.

1. Selection of anesthesia method
2. Scheme of anesthetic support Intraoperative complication: wounding of the renal artery, the dome of the diaphragm.

Your actions.

Task №7.

A 28-year-old woman is to undergo surgery – osteosynthesis of the tibia bones. It is planned spinal anesthesia using heavy markain. The height woman 158 cm, weight 90 kg.

1. Calculation of the dose of local anesthetic
2. Scheme of anesthesiology assistance

15 minutes after the anesthetic was administered, the patient's blood pressure dropped to 60/40 mmHg, and they developed tachycardia with a heart rate of 132 beats per minute and a feeling of shortness of breath. Possible causes and your actions.

Task №8.

A 32-year-old woman was admitted to the emergency department with complaints of weakness, nausea, and severe pain in the right hypochondrium. On examination, the patient's skin was of normal color, her breathing was free, her respiratory rate was 22-24 breaths per minute, her blood pressure was 130/70 mmHg, and her pulse was 100 beats per minute. The abdomen was tender upon palpation. Laboratory tests: Hb – 124 g/l, er – 3.5H 1012 g/l, leukocytosis – 11H 1012 g/l, with a slight shift to the left. Diagnosis: Acute cholecystitis. Planned laparoscopic cholecystectomy.

1. Preoperative preparation
2. Choice of anesthesia method
3. The scheme of the anesthetic aid

After extubation, stridor breathing appeared, signs of hypoxia. Possible causes, your actions.

Task No. 9

A 68-year-old man on the 3rd day after gastric resection, which proceeded with technical difficulties, complained of sudden weakness, dizziness, and noise in the ears. On examination: skin pale, breathing free, RR 34–36/min, BP 70/40 mm. Hg, pulse 120/min. The abdomen is not tense, and there is a slight dullness of the percussion sound on the flanks. Laboratory tests: Hb – 88 g/l, Ht – 31/69, Er – 1.8×10^{12} g/l

Diagnosis: subcapsular rupture of the spleen. Hemorrhagic shock.

1. Necessary examination
2. Preoperative preparation
3. Choice of anesthesia method
4. Anesthesia scheme

Task №10.

A 78-year-old man undergoes an anesthetic procedure for transurethral resection of the prostate gland. The patient's laboratory tests show no significant abnormalities before the surgery.

1. Preoperative preparation
2. Selection of the anesthesia method
3. Anesthesia plan

At 60 min of the patient's operation

- a) under spinal anesthesia: complaints of dizziness, nausea, headache appeared, tachycardia arose, in the lungs moist wheezing is heard.
- b) general anesthesia: blood pressure decreased to 80/50 mm. rt. st., appeared tachycardia, arrhythmia, in the lungs moist wheezing is heard. Possible causes, your actions.

Task №11.

A 65-year-old man undergoes gastric resection under anesthesia. The patient's laboratory results before surgery show no significant abnormalities. The patient had a recent acute myocardial infarction a year ago, and his ECG shows post-infarction cardiosclerosis.

1. Preoperative preparation
2. Selection of anesthesia method
3. Anesthesia plan

During anesthesia, the patient suddenly developed hypotension (blood pressure decreased to 60/40 mmHg), tachycardia (pulse – 108 per minute), intraoperative blood loss 200 ml.

1. Your actions
2. Necessary examination

On the ECG: Q-wave 0.07, ST segment elevation in I, aVL and V1 –4

Task №12.

A 56-year-old woman is undergoing anesthetic care for a pneumonectomy. Laboratory test results before surgery show no significant pathology.

1. Preoperative preparation
2. Selection of anesthesia method
3. Anesthetic care scheme

During the surgeons' work on the root of the lung, bradycardia occurred, with a heart rate of 46 beats per minute. Possible causes and your actions.

Task №13.

A 38-year-old woman is to undergo surgery – subtotal thyroid resection. The patient was treated for a year with conservative treatment of hyperthyroidism. At the time of the operation, euthyroid state was achieved.

1. Preoperative preparation
2. Selection of anesthesia method
3. Scheme of anesthetic assistance

The operation was carried out with technical difficulties, more than 1.5 hours. 6 hours After the operation, blood pressure decreased to 80/50 mm. Hg., heart rate – 150 in min. Possible causes, your actions.

Task №14 .

A 52-year-old woman is to undergo surgery – resection of a tumor of the large intestine. The patient suffers from chronic venous insufficiency. Data of laboratory examinations before surgery without pronounced pathology.

1. Preoperative preparation
2. Selection of anesthesia method
3. Scheme of anesthesiology assistance

On the 4th day after the operation, the patient got out of bed and felt pain behind the sternum. Acrocyanosis appeared, and the patient felt short of breath. Her blood pressure dropped to 90/50 mmHg, and her heart rate was 100 beats per minute.

On the ECG, there was a high P wave, and on chest X-ray, there was a disc-shaped atelectasis. Possible causes and your actions.

Task №15.

A 35-year-old man was admitted to the emergency department with complaints of weakness and pain in the upper abdomen. The disease began acutely with a "stiletto" pain in the epigastrium 12 hours ago.

On examination: the skin is pale and dry; breathing is free, with a respiratory rate of 26-28 per minute, blood pressure of 105/70 mmHg, and a pulse of 120 per minute; the tongue is dry, and the abdomen is painful on palpation. The patient suffers from bullous disease. Laboratory tests: Hb – 130 g/l, Er – 3.5×10^{12} g/l, leukocytosis – 12×10^{12} g/l, with a slight shift to the left.

Diagnosis: perforated stomach ulcer, peritonitis.

1. Preoperative preparation
2. Choice of anesthesia method
3. Anesthesia scheme

Complications – during the anesthetic care, the pressure in the airways suddenly increased, the saturation decreased, auscultation of the right side of the breath is weakened, wheezing is heard there, percussion - tympanitis. BP – 90/60 mm. rt. st., heart rate 124 min. Possible causes, your actions.

Task №16.

A 74-year-old woman was admitted to the emergency department after a traffic accident, with a diagnosis of open fractures of both lower legs, and bleeding.

On examination: skin pale, breathing free, superficial, FEV 34-36 / min, on auscultation breathing vesicular. BP 100/60 mm. Hg, pulse 120 / min.

Laboratory tests: Hb – 90 g/l, Ht – 31/69, Er – 2.9×10^{12} g/l.

1. Preoperative preparation
2. Choice of anesthesia method
3. Anesthesia scheme

Task №17.

A 77-year-old man undergoes anesthetic support during surgery for a colon tumor. The patient suffers from IHD. The patient's height is 158 cm. Laboratory test results before surgery: complete blood count and urine test results are normal, and the biochemical test results show hypoproteinemia (total protein level of 54 g/L).

1. Preoperative preparation
2. Selection of anesthesia method
3. Anesthesia scheme

After intubation, cyanosis appeared, saturation decreased, BP decreased moderately, HR 108 per minute. When breathing, there is a lag in the excursion of the left half of the chest cell, auscultation is not audible on the left. Possible causes, your actions.

Task №18.

A 32-year-old woman will receive an anesthetic treatment for osteosynthesis bones of the right forearm. Examination revealed micrognathia, risk of difficult intubation IV on Mallampati.

1. Choosing the anesthesia method

2. The scheme of the anesthetic aid

a) Intravenous anesthesia – increased hypoxia

b) Intubation – inability to perform a normal intubation

c) Blockade of the brachial plexus – decreased saturation, moderately decreased blood pressure, HR 108 per minute. When breathing, there is a lag in the excursion of the left half of the chest, auscultation is not audible on the left.

Possible causes, your actions.

Task №19.

A 48-year-old man is scheduled for surgery due to ongoing bleeding from a gastric ulcer. Conservative therapy has been ineffective for 2 days. Laboratory tests: Hb – 80 g/L, Ht – 23, Er– 2.1×10^{12} g/L, PTI – 70% APTT – 40, fibrinogen – 2.8 g/l, fibrinogen B 1 stage, ethanol test positive.

1. Preoperative preparation

2. Choice of anesthesia method

3. Scheme of anesthetic assistance

Diapedetic bleeding appeared one hour after the start of the operation. Possible causes, your actions. The time of clot formation is more than 15 min.

Task №20.

After the patient was administered vitamin B1, he suddenly developed a urticarial rash on the lateral surfaces of the trunk, on the face, neck, and inner surfaces of the thighs. At the same time, the patient felt difficulty breathing, severe weakness, and dizziness. At the time of examination, the patient's breathing was stridorous, and there was pronounced cyanosis. auxiliary muscles are involved in the act of breathing, RR 36 per minute, BP 90/60 mm Hg, pulse 110 per minute.

Causes of respiratory and circulatory disorders. Necessary measures.

Recommended Literature

List of basic literature:

1. Burmistrova, O. Yu. Fundamentals of Resuscitation Medicine: Textbook / O. Yu. Burmistrova. – Saint Petersburg: Lan, 2020. – 224 pp. – ISBN 978-5-8114-3981-2. – Text: electronic version // Lan: Electronic Library System. – URL: <https://e.lanbook.com/book/133915>
2. Prasmytskyi, O. T. Anesthesiology and Resuscitation Medicine: Textbook / O. T. Prasmytskyi, S. S. Grachev. Minsk: Novoye Znanie, 2017. 304 pp. ISBN 978-985-475-872-5. Text: electronic format; available via Lan's electronic library system at <https://e.lanbook.com/book/90706>.
3. Guide to Extracorporeal Blood Purification in Intensive Care: A Manual edited by L. A. Bokeriy and M. B. Yarustovsky. 3rd ed. Moscow: National Medical Research Center of Clinical Hematology named after A.N. Bakuleva, 2016. – 804 pp. – ISBN 978-5-7982-0360-4. – Text: electronic // Lan: Electronic Library System. – URL: <https://e.lanbook.com/book/102438>

List of additional literature:

4. Grigoriev, E. V. Resuscitation and Intensive Care: A Collection of Tests and Situational Tasks / E. V. Grigoriev, N. F. Ivannikov, and A. S. Zabolotin. – Kemerovo: Kemerovo State Medical Academy, 2006. – 72 p. – ISBN 2227-8397. – Text: electronic // IPR BOOKS Electronic Library System: [website]. – URL: <http://www.iprbookshop.ru/6206.html>
 5. Diagnostics and intensive care for sepsis : an educational and methodological manual / compiled by G. V. Gritsan [et al.]. Krasnoyarsk : KRASNOGMU named after prof. V.F. Voino-Yasenetsky, 2018. 61 p. – Text : electronic // Lan :electronic library system. – URL: <https://e.lanbook.com/book/131399>
- Kushnarenko, K. E. Reanimation and Intensive Care in Accidents: A Study Guide / K. E. Kushnarenko, K. G. Shapovalov. – Chita: Chita State Medical Academy, 2011. – 38 p. – ISBN 2227-8397. – Text: electronic // Electronic library system IPR BOOKS : [website]. – URL: <http://www.iprbookshop.ru/55332.html>