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MINISTRY OF SCIENCE AND HIGHER EDUCATION

RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

NORTH-CAUCASUS FEDERAL UNIVERSITY

APPROVED

Assoc. Prof. Kubanov S.I.

PhD in Medical Sciences

Dean

Faculty of Medicine and Biology

ASSESSMENT TOOLS FUND FOR THE DISCIPLINE

«Evidence-Based Medicine»

Name of the discipline (module)

- Specialty: 31.05.01 General Medicine
- Mode of training: Full-time
- Year of commencement of studies: 2026
- Delivered in Semester 12.

Introduction

1. Intended for carrying out current control of academic performance progress and intermediate attestation in the discipline of Evidence-Based Medicine for students of the specialty (majoring in) 31.05.01 General Medicine.

2. The ATF is an appendix to the program of the discipline (module) «Evidence-Based Medicine»

3. Developer(s): G.S. Ivchenko, Acting Head of the Department of Propaedeutics of Internal Diseases

4. Expert examination of the ATF has been completed.

Expert group:

Chairperson: S.I. Kubanov, Associate Professor of the Department of Surgery, Orthopedics and Traumatology (Full Name, Position)

Committee members: T.I. Dzhandarova, Head of the Department of Anatomy and Histology
O.Yu. Pozdnyakova, Professor of the Department of Therapy

Employer organization representative: Vilensky I.L., Chief Physician of Independent CDL, LLC

Expert conclusion – the ATF allows evaluating the level of competency levels and is recommended to be employed in the educational process.

5. The validity period for the ATF shall be determined by the period of implementation of the educational program.

1. Description of Evaluation Criteria at Various Stages of Their Formation, Description of Evaluation Scales

Levels of formation of competence(s), indicator(s)	Descriptors			
	Minimum level not achieved (Unsatisfactory) 2 points	Minimum level (Satisfactory) 3 points	Intermediate level (Good) 4 points	High level (Excellent) 5 points
Competency: UC-2. Capable of managing a project at all stages through its life cycle.				
Learning outcomes for the discipline (module): Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-1 UC-2 formulates the goal of the project, determines a set of interrelated tasks ensuring its achievement, and determines the expected results of solving the tasks	Does not define the goal of the project, does not determine a set of interrelated tasks.	Defines the goal of the project, determines a set of interrelated tasks	Defines the goal of the project, determines a set of interrelated tasks ensuring its achievement	Defines the goal of the project, determines a set of interrelated tasks ensuring its achievement, and determines the expected results of solving the tasks
Learning outcomes for the discipline (module): Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-2 UC-2 develops an action plan for solving project tasks, choosing the	Does not develop an action plan for solving project tasks	Develops an action plan for solving project tasks	Develops an action plan for solving project tasks, choosing the optimal way to solve them	Develops an action plan for solving project tasks, choosing the optimal way to solve them, based on current legal norms and available resources and constraints

optimal way to solve them, based on current legal norms and available resources and constraints				
Learning outcomes for the discipline (module): Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-3 UC-2 ensures project execution in accordance with the established goals, deadlines, and costs, based on current legal norms, available resources, and constraints, including using digital tools	Does not ensure project execution	Ensures project execution in accordance with the established goals, deadlines, and costs	Ensures project execution in accordance with the established goals, deadlines, and costs, based on current legal norms, available resources, and constraints	Ensures project execution in accordance with the established goals, deadlines, and costs, based on current legal norms, available resources, and constraints, including using digital tools
Competency: UC-6 . Capable of identifying and implementing the priorities of their own activity and ways to improve it based on self-assessment and lifelong education.				
Learning outcomes for the discipline (module): Raising a comprehensively developed personality. Indicator: ID-1 UC-6 establishes personal and professional goals in accordance with the level of their resources and action priorities, for successful development in	Does not set personal and professional goals	Sets personal and professional goals	Sets personal and professional goals in accordance with the level of their resources and action priorities	Sets personal and professional goals in accordance with the level of their resources and action priorities, for successful development in the chosen field of professional activity

the chosen field of professional activity.				
Learning outcomes for the discipline (module): Raising a comprehensively developed personality. Indicator: ID-2 UC-6 implements and adjusts a personal and professional development strategy, taking into account conditions, means, personal capabilities, career growth stages, time perspective of activity development, and labor market requirements.	Does not implement and does not adjust a personal and professional development strategy	Implements and adjusts a personal and professional development strategy	Implements and adjusts a personal and professional development strategy, taking into account conditions, means, and personal capabilities	Implements and adjusts a personal and professional development strategy, taking into account conditions, means, personal capabilities, career growth stages, time perspective of activity development, and labor market requirements
Learning outcomes for the discipline (module): Raising a comprehensively developed personality. Indicator: ID-3 UC-6 critically assesses the efficiency of using time and other resources when solving the tasks set in the chosen field of professional activity.	Does not assess the efficiency of using time and other resources	Critically assesses the efficiency of using time and other resources	Critically assesses the efficiency of using time and other resources when solving the tasks set	Critically assesses the efficiency of using time and other resources when solving the tasks set in the chosen field of professional activity
Competency: PC-10 Ready to be involved in assessing the quality of medical care provision using key medical-statistical indicators.				

Learning outcomes for the discipline (module): Readiness for communication in verbal and written forms. Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-1 PC-10 Conducts calculation and analyzes indicators of medical care quality	Neither calculates not analyzes	Does calculation and analyzes	Does calculation and analyzes quality indicators	Does calculation and analyzes indicators of medical care quality
Learning outcomes for the discipline (module): Readiness for communication in verbal and written forms. Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-2 PC-10 Develops measures aimed at increasing the quality of medical care	Does not develop measures	Develops measures	Develops measures aimed at increasing the quality	Develops measures aimed at increasing the quality of medical care
Competency: PC-11. Ready for the analysis and public presentation of medical information based on evidence-based medicine.				
Learning outcomes for the discipline (module): Readiness for communication in verbal and written forms. Acquisition of	Does not work independently	Works independently	Works independently with sources	Works independently with sources of scientific and medical information

special medical skills and their application in practical healthcare. Indicator: ID-1 PC-11 Works independently with sources of scientific and medical information				
Learning outcomes for the discipline (module): Readiness for communication in verbal and written forms. Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-2 PC-11 Compiles reports (sections of a report), literature reviews, presentations on a topic or its section (stage of an assignment)	Does not compile reports (sections of a report), literature reviews	Compiles reports (sections of a report), literature reviews	Compiles reports (sections of a report), literature reviews, presentations on a certain topic	Compiles reports (sections of a report), literature reviews, presentations on a topic or its section (stage of an assignment)
Learning outcomes for the discipline (module): Readiness for communication in verbal and written forms. Acquisition of special medical skills and their application in practical healthcare. Indicator: ID-3 PC-11 Publicly presents scientific	Does not present publicly	Presents publicly	Presents scientific information publicly	Publicly presents scientific information based on evidence-based medicine

information based on evidence- based medicine				
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The evaluation of the competency formation level in the discipline is carried out on the basis of the Regulations on conducting current control of academic progress and intermediate attestation of students in higher education educational programs – Bachelor’s programs, Specialist’s programs, Master’s programs – at the Federal State Autonomous Educational Institution of Higher Education NORTH-CAUCASUS FEDERAL UNIVERSITY in its current edition.

**ASSESSMENT TOOLS FOR CHECKING THE LEVEL OF COMPETENCY
DEVELOPMENT**

Task Number	Correct Answer	Content of the Question	Competency
12th semester			
1.	c	Choose the type of clinical study design that provides data with the highest level of evidence: Select one answer: a. Open-labeled study b. Case-control study c. Randomized controlled double-blind clinical trial d. Cohort study e. Case series study	UC-2
2.	a	What is the "sensitivity of a diagnostic test"? Select one answer: a. The proportion of true positive test results b. The proportion of true negative test results c. The probability of the presence of a disease when a positive test result is obtained d. The probability of the absence of a disease when a negative test result is obtained	UC-2
3.	a	In which phase of clinical trials do healthy volunteers participate? Select one answer: a. Phase I b. Phase II c. Phase III d. Phase IV (post-marketing) phase e. Preclinical trial phase	UC-2
4.	e	A diagnostic test for screening examination must meet the following requirements: Select one answer: a. Be relatively inexpensive b. Give a result within a few minutes c. Be simple to perform d. Not require special preparation of the patient e. All answers are correct	UC-2
5.	a	A randomized controlled trial is: Select one answer: a. a prospective study; b. a case-control study; c. a cohort study; d. a cross-sectional study.	UC-2
6.	e	A clinical question consists of the following components: Select one answer: a. Patient or clinical situation b. Intervention (measures of influence undertaken) c. Comparison of the effectiveness of interventions (influences)	UC-2

		d. Outcomes (results) of interventions e. All of the above	
7.	b	What is the "specificity of a diagnostic test"? Select one answer: a. The proportion of true positive test results b. The proportion of true negative test results c. The probability of the presence of a disease when a positive test result is obtained d. The probability of the absence of a disease when a negative test result is obtained	UC-2
8.	a	Which method of clinical research from the list below occupies the highest step in the hierarchy of evidence-based medicine methods? Select one answer: a. Meta-analysis of randomized clinical trials b. Systematic review of randomized clinical trials c. Cohort study d. Randomized controlled clinical trial e. Case-control study	UC-6
9.	b	If we want to find a systematic review of guaranteed high quality containing reliable information on a topic of interest to us, we should perform a search in this very database of biomedical research. Select one answer: a. MEDLINE b. Cochrane Library c. eLibrary d. RxList e. Google Scholar	UC-6
10.	a	The criteria for selecting patients for participation in a clinical trial (the so-called "inclusion criteria"), as well as the criteria for excluding patients from the study, are formulated: Select one answer: a. Before the start of the study (at the stage of writing its protocol) b. At the stage of enrolling patients in the study c. During the actual study d. At the stage of statistical analysis of the study data	UC-6
11.	b,c,d.	Serious adverse events arising from the use of therapeutic interventions include: Select one or more answers: a. The appearance of abnormal laboratory values b. A life-threatening condition c. Death d. Prolongation of the current hospitalization e. A non-life-threatening condition	UC-6
12.	a, c, d.	The causes of systematic errors in the collection and analysis of clinical trial results are the following flaws in their planning and execution: Select one or more answers:	UC-6

		a. Randomization of patients is not carried out when distributing them into comparison groups, which leads to incomparability of the experimental and control groups at the start of the study in terms of important characteristics influencing its outcome b. Random deviations in the recorded results due to the inevitable error of the measurement methods used c. The effect of the experimental therapy in the experimental group is compared with the absence of treatment in the control group (i.e., patients in the control group are not prescribed either a placebo or standard therapy) d. "Blinding" is not performed, i.e., concealment of the randomization results from patients and researchers, which makes possible subjectivity in recording the results, as well as their deliberate falsification during the study e. Too small a sample size (i.e., an insufficient number of patients in the comparison groups), which sharply increases the influence of random processes not controlled by the researchers on the study outcome	
13.	a, b, f.	The disadvantages of conducting clinical trials without a control group are: Select one or more answers: a. The impossibility of accounting for the role of the placebo effect in the final effectiveness of the intervention b. The impossibility of accounting for the role of the nocebo effect in the final assessment of the side effects of the intervention c. The need to include an excessive number of patients in the study in order to ensure its sufficient power d. The inevitable refusal of a large number of patients to participate in such a study e. The complexity of statistical processing of the study results f. The impossibility of assessing the contribution of the cyclic (self-limiting) course of the disease to the recovery of patients or the improvement of their condition and well-being against the background of the treatment being conducted	UC-6
14.	a, d.	Which methods allow achieving homogeneity of the qualitative and quantitative composition of the experimental and control groups during a randomized controlled clinical trial (RCT)? Select one or more answers: a. Stratification (division of the group into subgroups according to a given characteristic/characteristics) b. "Blinding" (concealment of the randomization results)	UC-6

		c. Placebo control d. Randomization (truly random distribution of patients into comparison groups)	
15.	b, e.	A randomized controlled clinical trial (RCT) must provide answers to the following questions: Select one or more answers: a. What is the typical clinical picture of the disease being studied, its outcomes, and complications? b. Is the therapeutic intervention being studied truly effective for a particular disease or condition? What is the quantitative measure of this effectiveness? c. What risk factors influence the development of a particular disease and the frequency of its adverse outcomes? d. What is the etiology of the disease being studied? e. What is the safety profile of the therapeutic intervention being studied (side effects, drug interactions)? What is the benefit-risk ratio of the therapeutic intervention being studied? f. To what extent do the pharmacokinetic and pharmacodynamic parameters of the generic drug being studied correspond to those of the original drug?	UC-6
16.	a, b, c.	The methodological quality of controlled studies of the efficacy and safety of therapeutic interventions depends on: Select one or more answers: a. the risk of systematic errors; b. the initial comparability of the groups; c. the correctness of the statistical analysis; d. the number of patients in the study.	PC-10
17.	b, c.	Clinically significant outcomes include: Select one or more answers: a. reduction of blood pressure to normal; b. duration of hospitalization; c. disability; d. reduction of glycated hemoglobin to normal.	PC-10
18.	It is an approach to medical practice in which decisions on the use of preventive, diagnostic, and therapeutic interventions are made based on the available scientific	Definition of "Evidence-Based Medicine"	PC-10

	evidence of their efficacy and safety.		
19.	Development of clinical guidelines for practicing physicians, including the definition of tasks, description of diseases, algorithms of diagnostic procedures, treatment, complications, prognosis, and indications for hospitalization. Implementation of standardization systems in healthcare. Improvement of physician-patient interaction.	Goals of evidence-based medicine	PC-10
20.	It is a study that is used to describe the characteristics of the population or phenomenon being studied. It does not provide answers to the questions of how, when, and why these characteristics arose.	Definition of "Descriptive Studies"	PC-10
21.	Single-group study model. When using it, all subjects receive the	The most frequently used models for conducting clinical studies	PC-10

	same experimental treatment. Parallel-group study model. When using it, subjects in two or more groups receive different courses of treatment or different doses of drugs. Crossover model. Allows evaluating the effects of both the study drugs and the comparative courses of treatment on the same subjects.		
22.	This is a concept of scientific methodology, meaning the combination of the results of several studies by statistical methods to test one or more interrelated scientific hypotheses. Goals of meta-analysis: Generalization of knowledge. Allows summarizing data from various studies, creating a more	Definition and goals of "Meta-Analysis"	PC-10

	objective picture. Increasing precision. Increases statistical power by combining large samples. Identification of trends. Helps to identify general trends or differences that may have been missed in individual studies		
23.	It is a design of repeated studies in which each group of patients receives treatment during different periods of time, and sometimes several therapy options, i.e., patients in the course of the same study move from the experimental group to the control group and vice versa.	Definition of "Crossover Design"	PC-10
24.	c	Choose the type of clinical study design that provides data with the highest level of evidence: Select one answer: a. Open-labeled study b. Case-control study c. Randomized controlled double-blind clinical trial d. Cohort study e. Case series study	PC-11
25.	a	What is the "sensitivity of a diagnostic test"? Select one answer:	PC-11

		a. The proportion of true positive test results b. The proportion of true negative test results c. The probability of the presence of a disease when a positive test result is obtained d. The probability of the absence of a disease when a negative test result is obtained	
26.	a	In which phase of clinical trials do healthy volunteers participate? Select one answer: a. Phase I b. Phase II c. Phase III d. Phase IV (post-marketing) phase e. Preclinical trial phase	PC-11
27.	e	A diagnostic test for screening examination must meet the following requirements: Select one answer: a. Be relatively inexpensive b. Give a result within a few minutes c. Be simple to perform d. Not require special preparation of the patient e. All answers are correct	PC-11
28.	a	A randomized controlled trial is: Select one answer: a. a prospective study; b. a case-control study; c. a cohort study; d. a cross-sectional study.	PC-11
29.	e	A clinical question consists of the following components: Select one answer: a. Patient or clinical situation b. Intervention (measures of influence undertaken) c. Comparison of the effectiveness of interventions (influences) d. Outcomes (results) of interventions e. All of the above	PC-11
30.	b	What is the "specificity of a diagnostic test"? Select one answer: a. The proportion of true positive test results b. The proportion of true negative test results c. The probability of the presence of a disease when a positive test result is obtained d. The probability of the absence of a disease when a negative test result is obtained	PC-11

2. Description of the Evaluation Scale

Within the framework of the rating system, students' academic progress in each discipline is evaluated during current control and intermediate attestation. The rating system for assessing students' knowledge is based on the use of a combination of control activities to check the covered material (checkpoints), optimally located throughout the entire time interval of studying the discipline. The principles of the rating system for assessing students' knowledge are based on the

requirements described in the Regulations on the organization of the educational process based on the rating system for assessing students' knowledge at NCFU.

3. Criteria for Evaluating Competencies

The grade **Excellent** shall be awarded to a student if the theoretical content of the course has been mastered completely, without gaps; the material is presented exhaustively, consistently, clearly, and logically; the student freely copes with tasks, questions, and other types of knowledge application; uses additional material in the answer; all tasks provided for by the program are completed, and the quality of their execution is evaluated by a number of points close to the maximum; analyzes the obtained results; demonstrates independence when performing tasks.

The grade **Good** is to be awarded to a student if the theoretical content of the course is mastered completely, the necessary practical competencies are mainly formed, all educational tasks provided for by the training program are completed, and the quality of their execution is sufficiently high. The student firmly knows the material, presents it competently and strictly on the merits of the matter, without allowing significant inaccuracies in answering the question.

The grade **Satisfactory** is awarded to a student in case the theoretical content of the course has been mastered in part only, but the gaps are not of a significant nature, most of the tasks provided for by the program are completed, but contain errors, the student allows inaccuracies and insufficiently correct wording when answering the question, and violations of logical sequence are observed in the presentation of the program material.

The grade **Unsatisfactory** is awarded to a student if they do not know a significant part of the program material, allow significant errors, perform practical works with great difficulty and uncertainty, the necessary practical competencies are not formed, most of the educational tasks provided for by the training program are not completed, and the quality of their execution is evaluated by a number of points close to the minimum.

