

**Federal State Autonomous Educational Institution of Higher Education
"Peoples' Friendship University of Russia"**

Medical Institute

Recommended by ISSC

THE WORKING PROGRAM OF THE DISCIPLINE

Name of discipline: Clinical pharmacology

Recommended for the field of study / specialty: 31.06.01 Clinical Medicine

Program focus (profile): 14.01.04 Internal disease: heart failure

Qualification (degree) of the graduate : Researcher. Research teacher.

Form of study: full-time (3 years)

1. Goals and objectives of the discipline:

Discipline objectives:

- providing graduate students with information for mastering knowledge of clinical pharmacology in the amount necessary for further training and professional activity in medicine (practical health care).

Discipline objectives:

- to acquire special knowledge on general and specific issues of clinical pharmacology;
- to master modern technologies of the activity of a doctor - clinical pharmacologist, necessary for practical work in various fields of health care;
- to ensure the personal and professional growth of the student, which is necessary for his self-realization as a specialist.

2. Place of discipline in the structure of EP:

The discipline "Clinical pharmacology" belongs to the variable part of Block 1, is an optional discipline, read in the 4th semester (4 EC, 144 hours).

In the process of mastering the discipline, the following universal competencies (UC) are formed:

- the ability to plan and solve problems of their own professional and personal development (UC-6).

In the process of mastering the discipline, the following general professional competencies (GPC) are formed:

- the ability and readiness to conduct applied scientific research in the field of biology and medicine (GPC-2);
- the ability and willingness to analyze, generalize and publicly present the results of completed scientific research (GPC-3);
- the ability and readiness to use the laboratory and instrumental base for obtaining scientific data (GPC-5);

In the process of mastering the discipline, the following professional competencies (PC) are formed:

- ability and readiness to analyze, generalize and publicly present the results of scientific research in the field of clinical medicine (PC-2);
- readiness to use laboratory and instrumental base for obtaining scientific data (PC-4);

Table 1 shows the previous and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix of EP HE.

Table No. 1

Prior and subsequent disciplines aimed at the formation of competencies

P / p No.	Code and name of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
General cultural competences			
1	UC-6	Pedagogics of higher education, Internal medicine, Heart failure, Lab and functional diagnostics	Practice
General professional competencies			
2	GPC-2	Methodology of scientific research, Internal medicine, Heart failure, Lab and functional diagnostics	Practice
3	OPK-3	Methodology of scientific research, Internal medicine, Heart failure, Lab and functional diagnostics	Practice

four	OPK-5	Internal medicine, Heart failure, Lab and functional diagnostics	Practice
Professional competence			
five	PC-2	Methodology of scientific research , Internal medicine, Heart failure, Lab and functional diagnostics	Practice
6	PC-4	Internal medicine, Heart failure, Lab and functional diagnostics	Practice

3. Requirements for the results of mastering the discipline:

As a result of mastering the discipline, a graduate student should know: clinical pharmacology of essential drugs used in general medical practice (pharmacodynamics, pharmacokinetics, indications and contraindications, dosage regimen, interaction, side effects); know the issues of organizing control over the conduct of modern, rational pharmacotherapy with the principles of identifying and registering side effects and measures to stop them; know the indications for an acute drug test.

As a result of mastering the discipline, a postgraduate student should be able to: organize research of the main indicators of pharmacodynamics and pharmacokinetics of drugs; conduct a search on clinical pharmacology using information systems; predict the possibility of developing side effects and prevent them, and when they develop, stop them .

As a result of mastering the discipline, a postgraduate student must possess : the skills of the correct prescription of medicines; n skills Finding and medicinal preparations using information systems; skills predicts anija the possibility of side effects and preventing eniya them, and in the development of their kupirova Niya.

4. Scope of discipline and types of educational work

The total workload of the course is 4 credit points.

No.	Type of study load	Total hours
one.	Auditory lessons	eighteen
	Including:	
1.1	Lectures	6
1.2	Other occupations	
	<i>Including</i>	
1.2.1	Practical lessons (PZ)	12
1.2.2	Seminars (C)	
1.2.3	Laboratory exercises (LZ)	
	Of these, in an interactive form (IF)	
2.	Independent work of graduate students (academic hours)	126
	<i>Including:</i>	
2.1	Course project (work)	
2.2	Calculation and graphic works	
2.3	abstract	
2.4	Preparation and passing of interim / final certification	27
	<i>Other types of independent work</i>	
3.	Total labor intensity (academic hours)	144
	Total labor intensity (credit units)	4

5. Content of the discipline

5.1 Content of discipline sections

No. / p / p	The name of the discipline section	Section Contents
1	General principles of clinical pharmacology.	<p>General questions of clinical pharmacology . The subject and objectives of clinical pharmacology, sections of clinical pharmacology. The concept of pharmacodynamics. The chemical nature of target molecules. Determination of pharmacokinetics. Bioavailability, protein binding, biotransformation in the liver, excretion of drugs. The concept of pharmacogenetics. Interaction of drugs. Side effects of drugs. By types of pharmacotherapy, nomenclature of drugs. Clinical trials of new drugs.</p>
2	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Cardiology.	<p>Clinical pharmacology of drugs affecting vascular tone. Vasoconstrictors; peripheral vasodilators - with a predominant effect on arterioles, venules and mixed action; stimulators of central α-adrenoceptor selectivity - tive agonists imidazoline receptor; sympatholytics, ganglionic, converting enzyme inhibitors, angiotensin receptor antagonists II , blockers "slow" calcium channels, dihydropyridines and nedigidropiridiny, β-blockers: non-selective - nye selective. Indications for use. Principles of drug selection, determining routes of administration, ratio - tional dosing regimen of the drug in view of the severity of disease, presence of concomitant diseases, condition excretion organs and metabolic effect of the drug on myocardial contractility, the state of peripheral blood vessels, drug interaction, degree and type of violations of gastric secretion, the presence of hypersensitive data FC, as well as factors of - changing the sensitivity to the drug. Diagnosis, correction and prevention of undesirable - GOVERNMENTAL reactions. Withdrawal syndrome. Possible interactions with their combined appointment and with drugs from other groups. Methods for assessing the effectiveness and safety.</p> <p>Clinical pharmacology of drugs affecting the basic functions of the myocardium. Drugs with an inotropic effect on the myocardium - cardiac glycosides. Cardiac glycosides dosing regimen depending on the state of the GI tract, metabolism and excretion organs of the patient, the number and the rhythm of cardiac contractions, contractility and conduction state myo - infarction, development rate effects, drug interactions and factors contributing to the change in sensitivity to drugs. Diagnosis, correction and prevention of undesirable - GOVERNMENTAL reactions. Possible interactions with their combined appointment and with drugs from other</p>

		<p>groups. Antiarrhythmic drugs of the 1st, 2nd, 3rd, 4th classes. Antiarrhythmic drugs with ak - ciency.</p> <p>The choice of an antiarrhythmic drug, its dosage regimen and route of administration, taking into account the PD and PK characteristics, the severity of the underlying and the presence of concomitant diseases, the state of the metabolic and excretion organs, the type of arrhythmias, the state of myocardial contractility and conductivity, the level of blood pressure and taking into account drug interactions, as well as factors promoting measurable - neniyu sensitivity to the drug. Methods for assessing the effectiveness and safety. Diagnostics, correction and prevention of adverse reactions.</p> <p>Clinical pharmacology of diuretics.</p> <p>Carbonic anhydrase inhibitors. Osmodiuretics. Loop diuretics. Diuretics acting on the cortical segment of Henle's loop. Potassium-sparing diuretics.</p> <p>Selection diuretics, dosage regimen and mode of administration depending on the PK and PD, tyazhe - STI disease and urgent conditions, severity of the accounting syndrome, disorders elec - trolitnogo balance, acid-base balance, blood pressure, the state of excretion organs and metabolism, drugs - interaction and factors contributing to change drug sensitivity . Me - tody evaluation of efficacy and safety. Diagnosis, correction and prevention rather than - -negative reactions. Possible interactions when combined with their appointment and prep - Tami other groups.</p>
3	<p>Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Hematology. Endocrinology.</p>	<p>Clinical and pharmacological approaches to the selection and use of drugs that affect hemostasis and hematopoiesis. Anticoagulants: direct, indirect. Fibrinolytic agents, which increase clotting - Bridges blood. Fibrinolysis inhibitors. Drugs that reduce platelet aggregation. Means to stop bleeding in patients with re - mofiliey (kriopretsipiat VIII factor, antihemophilic plasma). Principles for selection and definition - Lenia dosing regimen depending on the state of coagulation, antisvortyvayuschey, fib-rinoliticheskoy patient systems, data PK and PD medications and their characteristics at Zabolev - liver niyah, kidney, stomach, hemopoietic organs, the cardiovascular system, the application at different times pregnancy, lactating women and the elderly. Methods for assessing the effectiveness - ciency and safety. Diagnostics, correction and prevention of ADR. The interaction possible - Wii with combined their purpose and with the preparations of other groups.</p> <p>Clinical pharmacology of drugs used in endocrinology.</p> <p>Clinical pharmacology of drugs and hypoglycemic drugs affecting - boiling thyroid function. Clinical and pharmacological approaches to the selection of groups</p>

		and specific drugs for the pharmacotherapy of diabetes mellitus, hypo- and hyperfunction of the thyroid gland. Oral hypoglycemic agents: 1) sulfonyl-urea derivative of I and II generation; 2) biguanides. Human insulins (ultrafast acting, short acting, neutral; medium duration; long acting). Insulins of animal origin. Pre - Paraty thyroid hormones. Emergency therapy in endocrinology. The choice of dosing and route of administration mode, depending on the PK and PD, severity Zabolev - Niya and urgent conditions, the state of urinary organs and metabolism. Drug interac - interacting. Methods for assessing the effectiveness and safety. Diagnostics, correction and profilak - teak side effects. Possible interactions with their combined appointment and with drugs from other groups.
4	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Bullets m onologiy a.	Clinical pharmacology of broncho-obstructive syndrome . Xanthine derivatives - simple, prolonged theophyllines. M-anticholinergics, adrenergic stimulants. In-stimulants in ₂ -stimulatory - selective short-and long-term the action - Wii. Expectorants of reflex action, resorptive action. Mucolytic agents. Mast cell membrane stabilizers. Leukotriene receptor inhibitors. Anti-histamines. Principles of drug selection, determining routes of administration, methods of delivering drugs to the respiratory - nye path (solutions through metered dose inhalers, nebulizers, the use of spacers, Su - hai powder via spinhalera, diskhalera et al.) And efficient dosing regimen prepa - Ratov taking into account the reversibility of airway obstruction , the severity of bronchial obstruction, quant - OPERATION aND quality sputum, heart rate, blood pressure, Nara - solutions of myocardial excitability and conductivity data FC, and the factors that modify Chuv - ity of a drug. The concept of stepwise therapy for bronchial asthma and chronic obstructive pulmonary disease. Diagnostics, correction and prevention of adverse reactions. Receptor desensitization Syndrome (tachyphylaxis, internalization and downregulation - again - vitie resistance to B-stimulants), methods for its prevention and correction. Methods for assessing the effectiveness and safety. Assessment of the quality of life. Compliance concept. Diagnostics, correction and prevention of adverse reactions. Possible interactions with combines - Vannes their purpose and with the preparations of other groups.
5	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Gastroenterology.	Clinical and pharmacological approaches to the selection and use of drugs for diseases of the digestive system. Drugs that reduce digestive secretion: M-anticholinergics, Ng-histamine blockers, proton pump inhibitors (1st, 2nd generations). Antacids, gastrocytoprotectors, drugs affecting gastrointestinal motility

		<p>prokinetics. Antibacterial pre - Paraty. Enzyme and antifermental drugs, antidiarrheal agents, reducing mo - Torik gastrointestinal tract, absorbent and protective, restoring the balance of intestinal microflora, intestinal antiseptics, laxatives. Sorbents. Cholaretics and cholenokinetics. Hepatoprotectors. Means that change the motility of the gastrointestinal tract: antispasmodics, laxatives. Indications for use. Principles of drug selection, determining routes of administration, ratio - tional dosing regimen of the drug in view of the degree and type of violations of gastric secre - tion, motility of the gastrointestinal tract, liver function changes, presence of inflammatory - GOVERNMENTAL changes in the bile ducts in the liver, jaundice, presence intolerance, data PK, as well as factors that change the sensitivity to the drug. Diagnostics, correction and prevention of adverse reactions. Possible interactions with their combined appointment and with drugs from other groups. Methods for assessing the effectiveness and safety. Pharmacotherapy standards in gastroenterology.</p>
6	<p>Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions.</p>	<p>Clinical and pharmacological approaches to the selection and use of antimicrobial drugs. Classification of antibiotics. General features of antimicrobial drugs. The mechanism of action of @□- λαχταμ□antibiotics, their effects, undesirable side effects, interactions with other drugs. The mechanism of action of macrolides, fluoroquinolones, aminoglycosides, tetracyclines, glycopeptides, lincosamines, nitroimidazoles, their effects, undesirable side effects, interactions with other drugs. Anti - fungal drugs, antiviral drugs. Classification. Mechanism of action. Indications for their use. Diagnostics, correction and prevention of ADR. The interaction possible - Wii with combined their purpose and with the preparations of other groups. Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs. Systemic and inhaled glucocorticosteroids. Non-steroidal anti-inflammatory drugs. Selective inhibitors of cyclooxygenase-2. Selecting Principles and ways of administration, the dosing regimen protivovospalitel - -inflammatory drugs in view of features PD, action mechanism chronopharmacology FC - meta - bolizma and removal from organism, the characteristics of the inflammatory process: localization int - intensity, the state of the digestive tract, circulatory system, etc. Methods of Evaluation. efficiency and without - pasnosti. Diagnostics, correction and prevention of adverse reactions. Possible inter - action pri_kombinirovannom their purpose and with the preparations of other groups.</p>

	<p>Clinical pharmacology of psychotropic drugs. Psychostimulants. Antipsychotics. Tranquilizers. Antidepressants. Sleeping pills. Nootropics. Indications and principles for selection, determination of dosing regimen psychotropic drugs depending on the mechanism of action, metabolism and excretion of the organism, the characteristics of psycho - Cesity status, age characteristics; interaction with other drugs. Methods of assessment - efficacy and safety. Diagnostics, correction and prevention of ADR. Possible interactions with the combined administration of drugs and with drugs from other groups.</p> <p>Clinical pharmacology of cytostatics and immunosuppressants. Drug groups: alkylating, antimetabolites of folic acid, purine, pyrimidine. Various synthetic drugs. Herbal products. Principles of selecting and determining the dosing regimen of anticancer drugs (mechanism of action, metabolism and excretion, type of tumor localization, the growth rate and malignancy, generalization of the process, the condition of organs and systems), species combinations thereof. Methods for assessing the effectiveness and safety. Diagnostics, correction and prevention of adverse reactions.</p>
--	--

5.2. Section of disciplines and types of classes

No. p / p	Name section	Lectures	Practical exercises and laboratory work			CP C	Total
			P Z	L R	Including in IF		
4 semester							
1	General principles of clinical pharmacology.	1	1			21	23
2	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Cardiology.	1	3			21	25
3	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Hematology. Endocrinology.	1	2			21	24
4	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Pulmonology.	1	1			21	23
5	Clinical and pharmacological approaches to the selection and use of	1	1			21	23

	drugs for diseases of internal organs and emergency conditions. Gastroenterology.						
6	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions.	1	4			21	26
TOTAL		6	12			126	144

6. Practical lessons (seminars)

No. p / p	Discipline section	Practical training topics (seminars)	Labor intensity (hours)
1	General principles of clinical pharmacology.	1. General questions of clinical pharmacology.	1
2	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Cardiology.	1. Clinical pharmacology of drugs affecting vascular tone. 2. Clinical pharmacology of drugs affecting the basic functions of the myocardium. 3. Clinical pharmacology of diuretics.	3
3	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Hematology. Endocrinology.	1. Clinical and pharmacological approaches to the selection and use of drugs that affect hemostasis and hematopoiesis. 2. Clinical pharmacology of drugs used in endocrinology.	2
4	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Pulmonology.	1. Clinical pharmacology of broncho-obstructive syndrome.	1
5	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions. Gastroenterology.	1. Clinical and pharmacological approaches to the selection and use of drugs for diseases of the digestive system.	1
6	Clinical and pharmacological approaches to the selection and use of drugs for diseases of internal organs and emergency conditions.	1. Clinical and pharmacological approaches to the selection and use of antimicrobial drugs. 2. Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs. 3. Clinical pharmacology of psychotropic drugs. 4. Clinical pharmacology of cytostatics and immunosuppressants.	4

7. Material and technical support of the discipline:

P / p No.	Department name	Name of special * rooms and rooms for independent work	Name of benefits, equipment
1.	Department of Internal Medicine with a course of cardiology and functional diagnostics named after V.S. Moiseeva	Moscow, st. Vavilova, 61, GBUZ "GKB im. V.V. Vinogradov DZ Moscow " 10 classrooms for 30, a conference hall for 200 training and seating places.	Lecture rooms are equipped with multimedia equipment. The offices are equipped with computers and Internet access, there is a scientific laboratory for genetic research. 1 lecture hall (multimedia projector, screen), 1 lecture room (laptop, LCD plasma screen). ECG rooms, ECHO-cardiography, functional diagnostics laboratory, general clinical laboratory, wards with patients of various therapeutic and cardiological profiles. Sets of specialized furniture, technical means: a dummy for practicing physical examination skills (2 pcs.), A multimedia projector (4 pcs.), A plasma panel (3 pcs.), A laptop (8 pcs.), A tablet (11 pcs.), A personal computer (7 pcs), magnetic board. A set of dummies, a set of educational videos and presentations, a set of analog and digital radiographs, tomograms, sonograms, angiograms, educational posters and tables.

8. Educational-methodical and informational support of the discipline

a) main literature

1. BG Katzung, M. Kruidering-Hall, AJ Trevor. Pharmacology Examination & Board Review. 12th Edition. McGraw-Hill Education. 2019.- 586. eBook conversion by code Mantra Version 1.0.
2. D. Zipes, P. Libby et all. Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine, 2-Volume Set, 11th Edition. Elsevier, 2018.-- 2128.
3. Hurst's The Heart, 14th Edition. V. Fuster, RA Harrington, J. Narula, ZJ Eapen . McGraw-Hill Education , 2017 . - 2208
4. Heart Failure: A Companion to Braunwald's Heart Disease, 3th Edition. D. Mann, GM Felker. Saunders, 2015.-- 784
5. Harrison's Principles of Internal Medicine, 20th Edition. D. Kasper, AS Fauci, SL Hauser, DL Longo, JL Jameson, J. Loscalzo. McGraw-Hill Education / Medical , 2018.
6. Davidson's Principles and Practice of Medicine, 23th Edition. SH Ralston, ID Penman, M. W. J. Strachan . Elsevier , 2018 . - 1440
7. Evidence-Based Medicine - 5th Edition. S. Straus, P. Glasziou, S. Richardson, B. Haynes. Elsevier , 201 8.- 336.
8. Guidelines for the diagnosis and treatment of chronic heart failure. European Heart Journal (2008) 22, 1527-1560
9. American College of Cardiology / European Society of Cardiology Clinical Expert Consensus Document on Hypertrophic Cardiomyopathy European Heart Journal (2010) 24, 1965-1991
10. Guidelines on Prevention, Diagnosis and Treatment of Infective Endocarditis Executive Summary European Heart Journal (2009) 25, 267-276
11. ACC / AHA / ESC guidelines for the management of patients with atrial fibrillation. European Heart Journal (2010) 22, 1852-1923
12. Guidelines on diagnosis and treatment of pulmonary arterial hypertension European Heart Journal (2010) 25, 2243–2278

13. Guidelines for the management of patients with atrial fibrillation. www . cardiosite . ru
14. Expert Consensus Document on the Use of Antiplatelet Agents. European Heart Journal (2014) 25, 166-181
15. VNOK recommendations for the treatment of acute coronary syndrome without persistent ST-segment elevation on ECG. www . cardiosite . ru
16. Recommendations for the diagnosis, treatment and prevention of arterial hypertension in children and adolescents of the All-Russian Scientific Society of Cardiology and the Association of Pediatric Cardiologists of Russia. www . cardiosite . ru
17. Clinical pharmacology: textbook. for universities / ed. V.G. Kukes.-3rd ed., Revised. and additional - M.: GEOTAR - Media, 2006.-936 p. - (Educational literature for medical universities)
18. Clinical pharmacology: textbook. for universities with C D - disc / ed. V.G. Kukes.-4th ed., Revised. and additional - M.: GEOTAR - Media, 2009.-1056 pp. - (Educational literature for medical universities)
19. Clinical pharmacology and pharmacotherapy: textbook / ed .: V.G. Kukes, A.K. Starodubtsev. - 3rd ed., Add. and revised - M.: GEOTAR-Media, 2012 .-- 832 p. : ill. + 1 email wholesale disk.

b) additional literature

1. The ESC Textbook of Cardiovascular Medicine. TF Lüscher, JA Camm, G. Maurer, P. Serruys. Oxford University Press, 201 8 .
2. Oxford Textbook of Advanced Heart Failure and Cardiac Transplantation - Oxford Medicine. MJ Domanski, MR Mehra, MA Pfeffer. Oxford University Press , 2016 .-- 442.
3. The ESC Textbook of Intensive and Acute Cardiovascular Care. M. Tubaro, P. Vranckx, S. Price, C. Vrints . Oxford University Press, 2015 .-- 799.
4. The EHRA book of Pacemaker, ICD, and CRT Troubleshooting. H. Burri, C. Israel, J.-C. Deharo. Oxford, 2015 .-- 310.
5. The EACVI Textbook of Cardiovascular Imaging. JL Zamorano et al. Oxford University Press, 2015 .-- 678 .
6. The ESC Handbook on Cardiovascular Pharmacology. JC Kaski, KP Kjeldsen. Oxford University Press, 2019.-960.
7. How to Read a Paper: The Basics of Evidence-based Medicine and Healthcare, 6th Edition . Trisha Greenhalgh. Blackwell Bmj Books, 2006 .-- 229.
8. Clinical Pharmacokinetics: Theoretical, Applied and Analytical Aspects: Manual / Ed. V.G. Kukes. - M.: GEOTAR-Media, 2009 .-- 432 p. : ill. - (Series "Library of a specialist doctor"). Student advisor
9. Clinical pharmacology and pharmacotherapy in real medical practice: master class: textbook / V.I.Petrov. - M.: GEOTAR-Media, 2011 .-- 880 p. : ill.
10. Clinical pharmacology. General questions of clinical pharmacology: workshop: textbook / ed. V. G. Kukes; D. A. Sychev, L. S. Dolzhenkova, V. K. Prozorova. - M.: GEOTAR-Media, 2011 .-- 224 p. : ill. Student advisor
11. Clinical Pharmacology: Selected Lectures / S.V. Okovity, V.V. Gaivoronskaya, A.N. Kulikov, S.N. Shulenin. - M .: GEOTAR-Media, 2009 .-- 608 p .: ill.
12. Moiseev V.S., Kobalava Zh.D., Moiseev S.V. Internal Medicine with the Basics of Evidence-Based Medicine and Clinical Pharmacology. Moscow, GEOTAR-Media 2010

c) journals:

1. Journal of the American College of Cardiology.
2. JACC: Heart Failure.
3. JACC: Cardiovascular Imaging.
4. Circulation.

5. Circulation: Heart Failure.
6. European Heart Journal.
7. European Journal of Heart Failure.
8. European Heart Journal - Cardiovascular Imaging.
9. EP-Europace.
10. JAMA: Cardiology
11. JAMA : Internal Medicine .

Internet resources:

1. <http://www.regmed.ru/search.asp> - the site of Roszdravnadzor, which contains standard clinical and pharmacological articles (TCFS) of medicines registered in Russia.
2. <http://www.essentialdrugs.org/elek/> - E-LEK Network for Russian-speaking countries of the WHO Essential Drugs and Drug Policy Division: clinical pharmacologists discussion club, drug use news.
3. <http://www.rspor.ru> - Interregional public organization "Society for Pharmacoeconomic Research".
4. <http://www.rspor.ru/index.php?mod1=formular&mod2=db1&mod3=db2> - Formular Committee of the Russian Academy of Medical Sciences.
5. <http://www.formular.ru> - Site "Formular system of Russia"
6. <http://antibiotic.ru/iacmac/> - Interregional Association for Clinical Microbiology and Antimicrobial Chemotherapy (IACMAC).
7. <http://www.eacpt.org> - European Society of Clinical Pharmacologists and Pharmacotherapists.
8. <http://www.ascpt.org/> - American Society of Clinical Pharmacologists and Pharmacotherapists.
9. <http://medicine.iupui.edu/flockhart/> - Drug Interaction Resource.
10. <http://www.fda.gov> - United States Food and Drug Administration (FDA).
11. <http://www.pharmgkb.org/> - The largest resource on pharmacogenetics.
12. <http://www.cc.nih.gov/researchers/training/principles.shtml> - Postgraduate Lectures Principles of Clinical Pharmacology from the US National Institutes of Health Clinical Center.
13. Portal of the All-Russian Scientific Society of Cardiology and the Association of Pediatric Cardiologists of Russia. <http://www.cardiosite.ru/>
14. Portal of the European Association of Cardiology. <http://www.escardio.org/>
15. American Heart Association website. <http://www.heart.org/HEARTORG/>
16. American Heart Association website. www.acc.org
17. Electronic library system of RUDN University;
18. RUDN educational portal (<http://web-local.rudn.ru>);
19. Scientific electronic library (<http://elibrary.ru/defaultx.asp>);
20. Universal library the ONLINE (<http://biblioclub.ru>);
21. Library of electronic journals BENTHAM OPEN (<http://www.Benthamscience.Com/open/a-z.Htm>);
22. Elsevier Electronic Journal Library (<http://www.Elsevier.Com/about/open-access/open-archives>)
23. Medical online library MedLib (<http://med-lib.ru/>);
24. Recommendations of the Russian Society of Cardiology www.scardio.ru
25. US National Library of Medicine National Institutes of Health: <http://www.ncbi.nlm.nih.gov/pubmed/>
26. Scientific electronic library: <http://library.ru/defaultx.asp>

9. Methodical instructions for students on mastering the discipline :

In practical classes and lectures in the classroom, the relevant topics are analyzed using multimedia technology (computer, projector). For classes and lectures, presentations prepared

in Microsoft PowerPoint are intended. The main purpose of practical training is to study the etiology, pathogenesis, clinic, diagnostic methods, differential diagnosis and treatment of cardiac diseases.

Independent work of a graduate student

Independent work of graduate students during extracurricular hours can take place as in a computer class, where graduate students can study material on the presentations prepared by the teachers of the department, as well as on computer tests.

As one of the forms of independent work, it is envisaged that graduate students prepare abstracts for various sections of the course and presentations of reports at meetings of the department.

Extracurricular independent work of a postgraduate student includes:

- The study of material on the textbook, teaching aids on paper and electronic media.
- Preparation of an abstract message / presentation on a selected topic.
- Preparation for the execution of tests and test tasks.


10. Funds of evaluation tools for intermediate certification in the discipline

Materials for assessing the level of mastering the educational material of the discipline "Clinical pharmacology" (evaluation materials), including a list of competencies indicating the stages of their formation, description of indicators and criteria for assessing competencies at different stages of their formation, description of assessment scales, typical control tasks or other materials necessary to assess knowledge, skills, skills and (or) experience of activity, characterizing the stages of the formation of competencies in the process of mastering the educational program, methodological materials that determine the procedures for assessing knowledge, skills, skills and (or) experience of activities that characterize the stages of formation competencies are developed in full and are available for students on the discipline page at TUIS RUDN.

The program has been drawn up in accordance with the requirements of the OS of VO RUDN.

Developers:

Associate Professor of Department Internal diseases
with a course of cardiology and functional
diagnostics named after V. S. Moiseev
position, department name


signature

E.O.Kotova.
initials, surname


Head of the Department of Internal diseases
with a course of cardiology and functional
diagnostics named after V. S. Moiseev
position, department name


signature

Kovalava Zh. D.
initials, surname

Program Manager


Head of the Department of Internal diseases
with a course of cardiology and functional
diagnostics named after V. S. Moiseev
position, department name


signature

Kovalava Zh. D.
initials, surname

Head of the Department

Head of the Department of Internal diseases
with a course of cardiology and functional
diagnostics named after V. S. Moiseev
position, department name


signature

Kovalava Zh. D.
initials, surname