ЛД-21

Federal State Budgetary Educational Institution of
Higher Education
"NORTH OSSETIAN STATE MEDICAL ACADEMY" of the
Ministry of Health of the Russian FEDERATION

APPROVED
Rector of FSBEI HE NOSMA
MOH Russia
O. V. Remizov
«24» May 2023

ДОКУМЕНТ ПОДПИСАН
ЭЛЕКТРОННОЙ ПОДПИСЬЮ

Сертификат: 2D4EFF8215A48D63793F851FADB089F4
Владелец: Ремизов Олег Валерьевич
Действителен: с 23.05.2023 до 15.08.2024

EDUCATIONAL TRAINING PROGRAM OF THE DISCIPLINE

"PHARMACOLOGY"

the main professional educational program of higher education-specialty program in the specialty 31.05.01 General Medical, approved on 24.05.2023

Form of education Full-time
The period of development 6
Department of Pharmacology with Clinical Pharmacology

Vladikavkaz, 2023

When developing the work program , the disciplines are based on:

1. Federal State Educational Standard in the specialty 31.05.01 Medical business, approved by the Ministry of Education and Science of the Russian Federation "August 12", 2020 No. 988

2. The curriculum of the OPOP in the specialty 31.05.01 Medical business
   ЛД-21-01-21,
   ЛД-21-02-22
   approved by the Academic Council of the Federal State Budgetary Educational Institution of the Ministry of Health of the Russian Federation on March 30, 2022, Protocol No. 6.

The working program of the discipline was approved at the meeting of the Department of Pharmacology with Clinical Pharmacology on May 22, 2023, Protocol No. 12.

The working program of the discipline was approved at the meeting of the central coordinating Educational and Methodological Council of March 23, 2023, Protocol No. 5.

The working program of the discipline was approved by the Academic Council of the Federal State Budgetary Educational Institution of the Ministry of Health of the Russian Federation on May 24, 2023, Protocol No. 8

Developers:
Head of the Department of Pharmacology
with Clinical Pharmacology,
Professor, MD. L.Z. Bolieva

Associate of the Department of Pharmacology
with clinical pharmacology, Ph.D. M.D. Daurova

Reviewers:

Z.T. Astakhova - Head of the Department of Internal Diseases No. 4 of the Federal State Budgetary Educational Institution of the Ministry of Health of the Russian Federation, MD, Professor.

V.A. Morozov - Head of the Department of Pharmacy, K.L. Khetagurov North Ossetian State University, Ph.D., Associate Professor

The content of the work program

1. name of the discipline;
2. the list of planned learning outcomes in the discipline, correlated with the planned results of the development of the educational program;
3. indication of the place of discipline in the structure of the educational program;
4. the volume of the discipline in credit units indicating the number of academic or astronomical hours allocated for contact work of students with the teacher (by type of training sessions) and for independent work of students;
5. the content of the discipline, structured by topics (sections) with an indication of the number of academic or astronomical hours allocated to them and types of training sessions;
6. the list of educational and methodological support for independent work of students in the discipline;
7. assessment materials for conducting intermediate certification of students in the discipline;
8. the list of basic and additional educational literature necessary for the development of the discipline;
9. the list of resources of the information and telecommunication network "Internet" (hereinafter referred to as the "Internet"), necessary for the development of the discipline;
10. methodological guidelines for students on the development of the discipline;
11. list of information technologies used in the implementation of the educational process in the discipline, including a list of software and information reference systems (if necessary);
12. description of the material and technical base necessary for the implementation of the educational process in the discipline.
13. conducting educational activities using e-learning and distance learning technologies

2. The list of planned learning outcomes in the discipline and the results of the development of the educational program

No. n/a	Competence number/index	The content of the discipline (or part of it)	Topic of the lesson (section)	Indicators of competence achievement	Development results		
					To know	be able to	own
1	2	3	4	5	6	7	8
1.	**GCP-7**	**GCP-7** Capable of prescribing, monitoring effectiveness and safety	Introduction to Pharmacology	**ID-1 GCP-7** Conducts effective, safe therapy based on the clinical recommendations of the Ministry of Health of Russia.	The content of the discipline, its tasks, the history of the development of domestic pharmacology, achievements and problems of Russian pharmacology.	Apply the acquired knowledge	Use information resources
	PC-3	**PC-3** Prescribing treatment and monitoring its effectiveness and safety	General recipe	**ID-2 PC-3** Prescribes medications, medical devices and therapeutic nutrition, taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care	The recipe, its structure Principles of composing recipes. Forms of prescription forms. Solid soft, liquid dosage forms Dosage forms for injection The rules for prescribing them in prescriptions State Pharmacopoeia. The concept of the rules of prescription and over-the-counter medicines. Documents regulating the turnover of medicines. Rules of storage and use of medicines	Write prescriptions for various dosage forms	Rules for prescribing prescriptions for narcotic, potent drugs

			General pharmacology.		Definition of the concepts of pharmacokinetics and pharmacodynamics, routes of drug administration, features of absorption, distribution, biotransformation, excretion; factors affecting the absorption, distribution, metabolism and excretion of drugs from the body; pharmacokinetic indicators: volume of distribution (Vd), elimination rate constant (Kelim), half-elimination period (t1/2), clearance (Cl), equilibrium concentration (Css), bioavailability (F) , the value of these indicators.	Calculate the main pharmacokinetic parameters	An algorithm for evaluating the main parameters of pharmacokinetics of drugs

			Agents affecting the peripheral nervous system		Principles of classification of medicines, names of pharmacological groups and international nonproprietary names, as well as physico-chemical characteristics of drugs, pharmacodynamics, pharmacokinetics of drugs of these groups, main dosage forms, routes of administration 1. means affecting afferent innervation 2. means affecting efferent innervation: • agents acting on cholinergic synapses • agents acting on adrenergic synapses	Write prescriptions for medicines according to the appropriate indications	The algorithm for choosing the drug, dosage form and dosage regimen depending on the clinical situation

			Agents affecting the central nervous system		Principles of classification of general anesthetics, ethyl alcohol, hypnotics, antiepileptic drugs, antiparkinsonian drugs, analgesics, psychotropic drugs, antipsychotics, antidepressants, drugs for the treatment of mania, anxiolytics, sedatives, psychostimulants, nootropic drugs, analeptics, drugs that cause drug dependence. Names of pharmacological groups and international nonproprietary names. As well as the physico-chemical characteristics of drugs, pharmacodynamics (main effects, localization and mechanism of action), side effects, indications for use, have an idea about the pharmacokinetics of drugs of these groups, the main dosage forms, routes of administration.	Write prescriptions for medicines according to the appropriate indications	The algorithm for choosing the drug, dosage form and dosage regimen depending on the clinical situation

			Means affecting the functions of executive bodies		Principles of classification, names of pharmacological groups and international nonproprietary names, physico-chemical characteristics, as well as their pharmacodynamics, side effects, indications for use, have an idea of the pharmacokinetics of drugs of these groups, the main dosage forms, ways of administration of drugs affecting the functions of the respiratory system, drugs affecting the cardiovascular system, drugs affecting the functions of the digestive system, drugs affecting the tone and contractile activity of the myometrium, drugs affecting the blood system, diuretics, hypolipidemic agents.	Write prescriptions for medicines according to the appropriate indications	The algorithm for choosing the drug, dosage form and dosage regimen depending on the clinical situation
			Substances with a predominant effect on the processes of tissue metabolism, inflammation and immune processes		Principles of classification of hormone preparations, their synthetic substitutes and antagonists, vitamin preparations, preparations of water-soluble vitamins, drugs used for obesity osteoporosis, anti-gouty, anti-inflammatory, anti- allergic drugs, drugs that affec immune processes.	Write prescriptions for medicines according to the appropriate indications	The algorithm for choosing the drug, dosage form and dosage regimen depending on the clinical situation

			Antimicrobial, antiviral and antiparasitic agents. Antitumor agents.		Principles of classification of antiseptic and disinfectants, antibacterial chemotherapeutic agents (beta-lactams, macrolides and azalides, tetracyclines, phenicols, aminoglycosides, polymyxins, lincosamides, glycopeptides, fusidines, sulfonamide preparations, quinolone derivatives, synthetic antimicrobials of various chemical structures), anti-syphilitic agents, anti-tuberculosis agents, antiviral agents, antiprotozoal agents, antifungal agents, synthetic antifungal agents, antitumor (antiblastoma) agents, the names of their pharmacological groups and international nonproprietary names.		

3. The place of discipline in the structure of the educational program

The discipline "Pharmacology" refers to the mandatory part of Block 1 of the Federal State Educational Standard in the specialty 31.05.01
"Medical business".

4. The scope of the discipline

No. n/a	Type of work		Total credits	Total hours	Term	
					V	VI
					hours	
1	2		3	4		
1	**Contact work of students with the teacher (total), including:**		**-**	**146**	100	46
2	Lectures (L)		-	44	28	16
3	Clinical Practical training (CPT)		-	102	72	30
4	Seminars (S)		-	-	-	
5	Laboratory work (LW)		-	-	-	
6	**Independent work of a student (IWOAS)**		**-**	**70**	44	26
7	*Type of intermediate certification*	credit (H)				
		exam (E)	**-**	**36**	-	36
8	total: Total labor intensity	hours		**252**	144	108
		Z	**7**		4	3

5. Content of the discipline

№ №	Semester No.	Name of the section of the academic discipline (module)	Types of educational activities, including independent work of students (in hours)				Forms of ongoing monitoring of academic performance *(by semester weeks)*
			L	**PL**	**IWOAS**	**in total**	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	V	Introduction. The general recipe. General pharmacology.	4	18	10	32	TT, ST, TT Boundary control work
2	V	Agents affecting the peripheral nervous system	10	14	11	35	TT, ST, TT

3	V	Drugs that affect the central nervous system.	6	18	11	35	TT, ST, TT

4	V	Means affecting the functions of executive bodies.	8	22	12	42	TT, ST, TT
5	VI	Means affecting the functions of executive bodies.	2	4	3	9	TT, ST, TT
6	VI	Substances with a predominant effect on the processes of tissue metabolism, inflammation and immune processes.	2	10	9	21	TT, ST, TT
7	VI	Antimicrobial, antiviral, antifungal agents. Antiblastoma agents.	12	16	14	42	TT, ST, TT
		total:	**44**	**102**	**70**	**216**	

Note: I - interview, TT - test tasks, ST - situational tasks, TT - training tasks

6. The list of educational and methodological support for independent work of students in the discipline

No./ n	Semester No.	Name of the educational and methodological development
1	5	Bolieva Z.L., Byazrova S.S., Filippova Yu.A., Volkova A.B., Ovsyannikova A.I., Daurova M.D., Balaeva D.H., Archegova, E.A. Baraeva M.K., Fedorova I.R. General recipe: Textbook. - Vladikavkaz, 2017.- 47c.
2	5	Bolieva Z.L., Ovsyannikova A.I., Daurova M.D., Archegova E.G.. General pharmacology. Study guide. - Vladikavkaz. - 2017. - 49 p.
3	5	Bolieva L.Z., Ovsyannikova A.I.,Daurova M.D. Drugs affecting the peripheral nervous system. Educational and methodical manual. - Vladikavkaz. - 2017.- 55 p.
4	5	Bolieva L.Z., Byazrova S.S., Vyalkova A.B. Drugs affecting the central nervous system. Educational and methodical manual. - Vladikavkaz. - 2017.- 63 p.
5	5	Bolieva L.Z., Daurova M.D., Archegova E.G., Baraeva M.K. Medicines affecting the cardiovascular system. Educational and methodical manual - Vladikavkaz.- 2017.- 72 p.
6	5,6	Bolieva L.Z., Chochieva A.R., Byazrova S.S. Medicines affecting the functions of executive organs, inflammation, metabolism // Educational and methodical manual. - 70 p . Vladikavkaz. - 2008.- UMO stamp No. 17-28/674 dated 17.12.2008.
7	6	Bolieva L.Z., Ovsyannikova A.I., Daurova M.D. Archegova E.G.,Byazrova S.S. Chemotherapeutic agents. Educational and methodical manual.- Vladikavkaz.- 2017.- 53 p.

7. Assessment materials for the interim certification of students in the discipline

No./ n	No./n	Semester No.	Evaluation indicator(s)	Evaluation criterion(s)	Rating scale	Name of the FOS
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**GCP-7 PC-3**	5,6	cm. the standard for assessing the quality of education, approved. By order of the FGBOU IN SOGMA Ministry of Health of Russia dated 10.07.2018., No.264/o	cm.the standard for assessing the quality of education, approved. By order of the FGBOU IN SOGMA Ministry of Health of Russia dated 10.07.2018. , No.264/o	cm. the standard for assessing the quality of education, approved. By order of the FGBOU IN SOGMA Ministry of Health of Russia dated 10.07.2018. , No.264/o	Exam questions; Exam tickets; Exam tasks; Benchmarks of test tasks

8. Перечень основной и дополнительной учебной литературы, необходимой для освоения дисциплины

Основная литература

№	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров		Наименование ЭБС
				в библиотеке	на кафедре	Наименование ЭБС/ссылка в ЭБС
1	2	3	4	7	8	
1.						
1.	Фармакология: учебник	Харкевич Д.А.	М.: ГЭОТАР-Медиа, 2010 2015	60 80		«Консультант студента» http://www.studmedlib.ru/book/ISBN9785970423806.html

Дополнительная литература

п/№	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров		Наименование ЭБС
				в библиотеке	на кафедре	Наименование ЭБС/ссылка в ЭБС
1	2	3	4	7	8	
1.	Общая рецептура: учебное пособие.	Болиева З.Л, Бязрова С.С., Филиппова Ю.А., Вялкова А.Б., Овсянникова А.И., Даурова М.Д., Баллаева Д.Х., Арчегова, Э.А. Бораева М.К., Фидарова И.Р.	Владикавказ, 2017	-	1	-

2.	Общая фармакология: учебное пособие.	Болиева Л.З., Овсянникова А.И., Даурова М.Д.,	Владикавказ, 2017	-	1	-
		Арчегова Э.Г.				
3.	Лекарственные средства, влияющие на периферический отдел нервной системы: учебно-методическое пособие.	Болиева Л.З., Овсянникова А.И., Даурова М.Д.	Владикавказ, 2017	-	1	-
4.	Лекарственные средства, влияющие на центральную нервную систему: учебно-методическое пособие.	Болиева Л.З., Вялкова А.Б., Бязрова С.С	Владикавказ, 2017	-	1	-
5.	Лекарственные средства, влияющие на сердечно-сосудистую систему: учебно-методическое пособие.	Болиева Л.З., Даурова М.Д., Арчегова Э.Г., Бораева М.К.	Владикавказ, 2017	-	1	-
6.	Лекарственные средства, влияющие на функции исполнительных органов, воспаление, метаболизм: учебно-методическое пособие.	Болиева Л.З., Чочиева А.Р., Бязрова С.С.	Владикавказ, 2008	-	1	-
7.	Химиотерапевтические средства: учебно-методическое пособие.	Болиева Л.З., Овсянникова А.И., Даурова М.Д. Арчегова Э.Г., Бязрова С.С.	Владикавказ, 2017	-	1	-
8.	Руководство к лабораторным занятиям по фармакологии: учебное пособие	Харкевич Д.А.	ГЭОТАР-Медиа, 2010	29	1	«Консультантстудента» http://www.studmedlib.ru/book/ISBN9785970419885.html
9.	Фармакология: учебное пособие.	Майский В.В.	М.: ГЭОТАР-Медиа, 2006	102	4	«Консультантстудента» http://www.studmedlib.ru/book/ISBN5970402605.html
10.	Электронная энциклопедия лекарств(РЛС)		М.:2015			ЭБ СОГМА

9. the development of the discipline

СОГЛАСОВАНО
Зав. библиотекой

1. Interregional Society of Evidence-based Medicine Specialists.
http://www.osdm.org/index.php
2. Moscow Center for Evidence-Based Medicine
http://evbmed.fbm.msu.ru/

10. Methodological guidelines for students on the development of the discipline

The training consists of contact work (146 hours), including a lecture course (44 hours) and practical classes (102h.), and independent work (70 hours). The teaching methodology consists in the consistent study of general pharmacology, general formulation and various groups of pharmacological drugs. For each section, the department has developed guidelines for students, as well as guidelines for teachers. In accordance with the requirements of the Federal State Educational Standard-3 HPE, active and interactive forms of classes are widely used in the educational process. The proportion of classes conducted in interactive forms is at least 40% of classroom classes. The following organizational structure of a practical class in private pharmacology can be proposed:

1. Introductory speech of the teacher, formulation of the purpose and objectives of the lesson

2. Discussion of homework, answers to students' questions.
3. Performing control tasks according to a medical prescription.
4. Performing programmed tasks for independent work
5. Discussion of the material on the topic of the lesson.
6. Solving multi-stage situational and role-playing tasks (tasks for training).
7. Hearing of abstracts.
8. Independent work with annotations and instructions for drugs.
9. Summing up the lesson, the final word of the teacher.

The plan of practical classes includes final classes that combine the material of a number of topics. In such classes, students learn to generalize the acquired learning material. Control tasks in the final classes allow you to assess the degree of assimilation of the topics covered.

Work with educational literature is considered as a type of educational work in the discipline of pharmacology and is performed within the hours allotted for its study (in the section SRS).

Independent work implies the use of methodological recommendations developed at the department on the discipline "Pharmacology" for students studying in the specialty "Medical science", the assimilation of lecture material, the student's work on issues submitted for practical training; the study of basic and additional sources of information on practical classes: a) preparation and assimilation of the content of practical classes, registration and delivery of work to the teacher; b) performance of test tasks.

Types of student's educational activities:

1) independent work under the guidance of a teacher (consultations): consultations of the student with the teacher on the theoretical course; performing tasks according to the recipe;

2) independent work on the types of individual tasks and control measures: individual tasks and control measures for the volume of classroom and independent work of the student according to the plan of the educational program, based on the time budget for a specific discipline.

11. The list of information technologies used in the implementation of the educational process in the discipline

Microsoft Office
PowerPoint;
Internet Exploer

12. Description of the material and technical base necessary for the implementation of the educational process in the discipline

No./n	Name of the equipment	Quantity	Technical condition
1	2	3	4
Special equipment			
1.	Computer	4	2 – satisfactory 2 – for debiting
2.	A laptop	4	4 – satisfactory
3.	Projector	2	1 – satisfactory 1 – requires repair
4.	Copying equipment: scanner, copier, printer	5	5– satisfactory
5.	Uninterruptible power supply	2	For debiting
Tables			
6.	Thematic tables	12	4 -need to be replaced

13. Conducting educational activities using e-learning and distance learning technologies

In the conditions of the introduction of restrictive measures (quarantine) associated with an unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection and other force majeure events that do not allow for face-to-face training, it is possible to study this discipline or part of it using e-learning and distance learning technologies.

Teaching the discipline in the situations described above will be carried out through the development of an electronic course with access to video lectures and interactive course materials: presentations, articles, additional materials, tests and various tasks. When conducting training sessions, ongoing monitoring of academic performance, as well as intermediate certification of students, the platforms of the electronic information and educational environment of the academy and / or other e-learning systems recommended for use at the academy can be used, such as Moodle, Zoom, Webinar и др.

Lectures can be presented in the form of audio, video files, "live lectures", etc.

Seminars and practical classes can be held on-line in both synchronous and asynchronous mode. Seminars can be held in the form of web conferences.