



«APPROVED»
Rector of SKMA
Seitzhanova Zh.S.
» 05 2025y.



SOUTH KAZAKHSTAN
MEDICAL
ACADEMY

EDUCATIONAL PROGRAM OF THE RESIDENCY
7R01142 "CLINICAL PHARMACOLOGY"

Shymkent, 2025

QONTUSTIK KAZAKHSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ	SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
Department of «Pharmacology, Pharmacotherapy and Clinical Pharmacology»	41/11 R
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The educational program of the residency 7R01142 "Clinical Pharmacology" was developed by the Department of «Pharmacology, Pharmacotherapy and Clinical Pharmacology»

Head of the Department of «Pharmacology, Pharmacotherapy and Clinical Pharmacology»

Candidate of pharm.sciences, Professor

Protocol № 9 from « 15 » 04 2025y.

 Toxanbayeva Zh.S.

Agreed with the employer:

Head of the Regional Center

Phthisiopulmonology, Professor



Bekturganov R.S.

Discussed at the meeting of the AC therapeutic profile

Chairman of the AC, Candidate of Medical Sciences

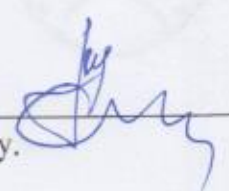
Protocol № 4 from « 21 » 04 2025y.

 Kauyzbai Zh.A.

Approved by the Clinical Council

Chairman, Professor

Protocol № 8 from « 25 » 04 2025y.

 Nurmashev B.K.

Approved by the Academic Council

Protocol № 13 from « 02 » 05 2025y.

QONTUSTIK-KAZAKHSTAN MEDISINA AKADEMIIASY «QNTYCTIK KAZAKHCTAN MEДИЦИНА АКАДЕМИЯСЫ» АҚ		SOUTH KAZAKHISTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
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Passport of the educational program

1. The mission of the educational program

Training of competitive personnel in the field of clinical pharmacology with a high level of professionalism to meet the needs of the national and regional healthcare system, demonstrating continuity in continuous professional development and social responsibility for contributing to the development of medicine.

2. The purpose of the educational program

Training of a clinical pharmacologist with professional knowledge and independently providing rational pharmacotherapy in accordance with modern principles of evidence-based medicine.

3. Justification of the OP

Clinical pharmacology is a science that studies all aspects of the relationship between drugs and humans. The main goal of clinical pharmacologists is to directly or indirectly improve the quality of treatment of patients by improving the use of medicines and stimulating their safer and more effective administration. The need for clinical pharmacologists in the Republic of Kazakhstan at all levels of medical care is very high. A clinical pharmacologist is an expert in the critical evaluation of new and old treatment methods, which means that in order to achieve a high level of efficacy and safety of pharmacotherapy, the evaluation process must be systematic and continuous.

At the national level, the issues of rational use of medicines, effective drug provision in the healthcare system are reflected in the main regulatory documents: "On approval of the rules for assessing the rational use of medicines" Order of the Minister of Health of the Republic of Kazakhstan dated November 3, 2020 No. KR DSM-179/2020, On approval of the rules for the formation of the Kazakhstan National Drug Form, and also, the rules for the development of drug formularies of healthcare organizations" Order I.O. The Minister of Health of the Republic of Kazakhstan dated December 24, 2020 No. KR DSM-326/2020, On approval of the rules for the implementation of the formulary system", Order of the Minister of Health of the Republic of Kazakhstan dated April 6, 2021 No. KR DSM -28, etc.

The need of medical organizations for clinical pharmacologists is the justification for the discovery and the need to train pharmacologists, primarily at the regional level, taking into account the main strategies and programs for the development of the healthcare system at the international, national and regional levels in order to increase the level of rational use of medicines.

4. The professional standard on the basis of which the educational program is developed

- Professional standard "Clinical Pharmacology" (Order of the Minister of Health of the Republic of Kazakhstan dated January 25, 2024 No. 46 "On approval of professional standards in the field of healthcare".
- The standard of organization of medical care in clinical pharmacology in the Republic of Kazakhstan. Order of the Minister of Health of the Republic of Kazakhstan dated April 19, 2023 No. 75.
- Order of the Minister of Health of the Republic of Kazakhstan dated 07/04/2022 No. KR DSM-63 "On the approval of state mandatory standards for the levels of education in the field of healthcare";
- On amendments and additions to the Order of the Minister of Health of the Republic of Kazakhstan "On Approval of the list of medical specialties of residency programs" dated May 25, 2021 No. KR DSM - 43 and "On Approval of standard training programs in medical and pharmaceutical specialties" dated January 9, 2023 No. 4. (Order of the Minister of Health of the Republic of Kazakhstan dated 10 November 2023, No. 164).

5. Field of professional activity. Healthcare

6. Objects of professional activity. Medical organizations providing inpatient and outpatient care, healthcare systems of the Republic of Kazakhstan

General information

1	Registration number	7R01100277
2	Code and classification of the field of education	7R01 Health care (medicine)
3	Code and classification of training areas	7R011 Healthcare
4	Group of educational programs	R042 Clinical pharmacology
5	Code and classification of the field of education	7R01142 Clinical pharmacology
6	Type of EP	Updated EP
7	ISCED level	7
8	The level of the NRK	7
9	ORC Level	7
10	Distinctive features of the EP	compiled according to the professional standard
	Partner University	
	Partner University	
11	List of competencies	C 1 Patient supervision: prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all levels of medical care, achieving clinical efficacy and safety of drug therapy, rational use of medicines to improve the quality of medical care and treatment outcomes. C 2 Communication and collaboration: He is able to effectively interact with the patient, his environment, and healthcare professionals in order to achieve the best results for the patient, and organize and provide advice to medical professionals on rational use of medicines. C 3 Safety and quality: He is able to assess risks and use the most effective methods to ensure a high level of safety and quality of medical care, participate in the activities of the formulary system of the healthcare organization, monitor and evaluate the use of medicines. C 4 Public health: He is able to act within the legal and organizational framework of the healthcare system of the

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		Republic of Kazakhstan in his specialty, provide basic assistance in emergency situations, work as part of interprofessional teams to implement national health promotion policies, provide organizational, methodological, and advisory assistance to healthcare organizations on issues of clinical pharmacology and rational use of medicines. C 5 Study: He is able to formulate adequate research questions, critically evaluate professional literature, effectively use international databases in his daily activities, and participate in the work of a research team. C 6 Training and development: He is able to study independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development.
12	Learning outcomes	LO1 Able to provide advice to doctors and patients on the rational choice and use of medicines; to identify, register and prevent adverse reactions of medicines. LO2 He is able to organize a formulary system in medical organizations and effectively interact with healthcare professionals. LO3 Able to monitor the effectiveness and safety of the use of medicines; to conduct pharmacotherapy based on the choice of medicines, taking into account the pathological and physiological profile of the patient using international guidelines and clinical protocols. LO4 Able to act according to the principles of organizational and methodological work of a clinical pharmacologist in healthcare organizations on the rational use of medicines and drug provision, work as part of interprofessional teams to implement the policy of strengthening the health of the nation. LO5 He is able to formulate adequate research questions, critically evaluate the professional literature on clinical pharmacology, conduct pharmacoepidemiological and pharmaco-economic research in healthcare organizations based on evidence-based practice using an international database and digital tools. LO6 Able to study independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development in the field of clinical pharmacology.
13	Form of training	full

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14	Language of instruction	Russian, Kazakh
15	Volume of loans	140
16	Duration of training	2 years
17	Qualification awarded	Doctor clinical pharmacologist
17	Existence of the annex to the license for the direction of personnel training	KZ 36LAA00011387
19	Availability of EP accreditation	Yes
	Name of the accreditation body	IAAR "Independent Agency of Accreditation and rating"
	The validity period of the accreditation	№ KZ73LAA00011788. 26.05.2023 - 25.05.2028
20	Information about disciplines	Appendix 1.2

Appendix 1.1

Matrix of correlation of learning outcomes according to the educational program as a whole with the competencies being formed

	LO1	LO2	LO3	LO4	LO5	LO6
K1	+	+	+			
K2		+		+		
K3			+		+	
K4				+		
K5					+	
K6						+

Appendix 1.2

Matrix of achievability of competencies/learning outcomes

№	The name of the discipline	A brief description of the discipline (30-50 words)	Cycle	Component	The number of credits.	Generated Learning Outcomes
The cycle of core disciplines Required component						
1	Clinical pharmacology (general issues of clinical pharmacology and clinical and pharmacological characteristics of individual groups and drugs).The	The discipline covers principles of organization and functioning of clinical and pharmacological services in healthcare organizations of the Republic of Kazakhstan. Regulatory legal acts of the clinical and pharmacological service. Clinical pharmacology as a clinical specialty. International name of medicines. Original and reproduced medicines. Registration and regulation of	PD	UC	38	LO1 LO2 LO3

	formula system.	medicines in the Republic of Kazakhstan. Innovative dosage forms and drug delivery systems. The formula system.				
2	Clinical pharmacology and principles of rational pharmacotherapy in pediatric practice	Features of pharmacodynamics and pharmacokinetics in children and newborns. Features of dosage, dosage forms and means of delivery in children. Rational therapy of diseases in children based on the principles of evidence-based medicine. Clinical and pharmacological approaches, taking into account individual characteristics of pharmacokinetics and pharmacodynamics, to the choice and rational use in neonatology.	PD	UC	15	LO1 LO3
3	Clinical pharmacology and principles of rational pharmacotherapy for certain diseases	Clinical pharmacology and principles of rational pharmacotherapy for oncological diseases; immunodeficiency diseases, orphan diseases, autoimmune diseases. Clinical pharmacology and principles of rational pharmacotherapy in diseases requiring surgical intervention. Principles of rational pharmacotherapy in the elderly.	PD	UC	42	LO1 LO2 LO3
4	Assessment of the use of medicines and clinical and pharmacological expertise. Adverse drug reactions	Rules for evaluating the rational use of medicines. Rules for the examination of medicines. Evaluation of medicines from the point of view of evidence-based medicine. Pharmacokinetics and pharmacodynamics of drugs. Indicators for evaluating the use of medicines. Pharmacovigilance. Diagnosis, registration, prevention and correction of adverse drug reactions. Pharmacogenetic studies.	PD	UC	12	LO3 LO6

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5	Search, evaluation and adaptation of international recommendations, guidelines and clinical protocols in Kazakhstan	The place of clinical protocols, recommendations and guidelines in clinical practice developed on the basis of evidence-based medicine. Work with the MedElement reference system, electronic resources of the Republican Center for Health Development, electronic resource Medi.ru . Methods of implementation and evaluation of the effectiveness of the implementation of clinical protocols in practical healthcare. Experience of application and adaptation of international recommendations in the healthcare system of the Republic of Kazakhstan.	PD	UC	8	LO4 LO6
6	Rational antibacterial therapy and antibiotic prophylaxis. Problems of antibiotic resistance	Pharmacodynamics, pharmacokinetics, spectrum of antimicrobial activity. Principles of choice (empirical and etiotropic), determination of the dosage regimen depending on the localization of infection and severity of the condition, kidney function. Methods for evaluating the effectiveness and safety of antimicrobial drugs based on the principles of evidence-based medicine. A combination of antimicrobial drugs and interactions when co-administered with drugs of other groups. Pharmacological incompatibility in the appointment of antimicrobial agents.	PD	UC	9	LO1 LO2
7	Stages of clinical research and regulation of drug provision in medical institutions	The purpose of clinical research and its stages. Methodology of organization, conduct and audit of clinical trials. Development of a protocol for research and testing of medicines. International and national standards GLP, GMP and GCP. Rules for providing medicines to medical organizations. Development of a hospital drug form. Analysis of the need and preparation of an application for medicines.	PD	UC	10	LO4 LO5 LO6

The cycle of core disciplines

Component of choice

8	Clinical pharmacology in obstetrics and gynecology	Clinical pharmacology of medicines for treatment in obstetrics and gynecology. Rational use of medicines for anomalies of labor activity, placental insufficiency, uterine bleeding. Rational pharmacotherapy of diseases in pregnant women and maternity women; toxicosis and gestosis; menopause and menopause. Modern methods of hormonal contraception.	PD	EC	4	LO1 LO3 LO6
9	Clinical pharmacology in anesthesiology and resuscitation	Rational therapy of pain syndrome and postoperative pain. Rational therapy of emergency conditions. Rational use of medicines in the complex treatment of collapse, fainting and shock states. Rational use of medicines used in the anaesthetic support of surgical intervention. Medicines used in pediatric anesthesiology.	PD	EC	4	LO1 LO3
10	Regulation of medicines. Counterfeit medicines. Advertising of medicines.	Principles of the control and authorization system for the registration of new domestic and foreign medicines. Regulation of medicines. Falsification of medicines: definition; factors contributing to falsification; background and the need to combat falsified medicines. Advertising of medicines. Rules for issuing permits for advertising medicines. Critical analysis and evaluation of advertising information.	PD	EC	4	LO4 LO6
11	Rational antibiotic therapy in newborns	This discipline examines the role of the use of antibacterial drugs in newborns in order to increase the effectiveness and safety of their use and includes basic strategies to improve the rational use of antibacterial drugs.	PD	EC	4	LO1 LO2 LO3

12	Research management	The discipline covers the principles and methods of effective management of scientific activities, including the organization, planning, financing and evaluation of scientific projects. It is aimed at developing the skills of managing research groups, coordinating scientific efforts, optimizing the processes of creating new knowledge and technologies, using the capabilities of AI and digital platforms, as well as putting scientific developments into practice.	PD	EC	4	LO5 LO6
	Total:				138	
	Final certification:				2	
	Total:				140	

Professional standard: "Clinical Pharmacology"

Profession card "7.2 Doctor-clinical pharmacologist"	Mandatory labor functions:	1. Providing advice to medical professionals on the rational use of medicines in medical organizations.
		2. Participation in the functioning and maintenance of the formulary system in a medical organization.
		3. Participation in the implementation of measures for the rational and safe use of medicines in a medical organization.
		4. Cooperation with other specialists and health services on issues of diagnosis, treatment, rehabilitation.
	Additional labor functions:	1. Receiving and advising patients and their legal representatives on the rational use of medicines.
		2. Continuous professional development.

Labor function 1: Providing advisory assistance to medical workers on the rational use of medicines in medical organizations.	Skill 1: Advising doctors on the use of medicines from the standpoint of evidence-based medicine.	Skills: 1. Conducting a search for information in reliable sources about medicines and electronic evidence-based medicine. 2. Conducting a critical analysis of scientific publications, clinical research results, and clinical recommendations. 3. Advising doctors on the choice and rational use of medicines. 4. Interpretation of the results of clinical, laboratory and instrumental methods for evaluating the safety and efficacy of medicines and their combinations. Knowledge: 1. Principles of rational pharmacotherapy from the perspective of scientifically based medical practice. 2. Principles of anatomical, therapeutic and chemical classification of medicines. 3. The procedure for providing medical care, clinical treatment protocols and clinical recommendations on the profile of the medical organization.
Labor function 2: Participation in the functioning and maintenance of the formulary system in a medical organization.	Skill 1: Participation in the formation of the medical organization's drug form.	Skills: 1. To select medicines in the pharmaceutical form in accordance with the profile of the medical organization. Knowledge: 1. Principles of functioning of the formulary system of the Republic of Kazakhstan. 2. NPA of the Republic of Kazakhstan regulating the issues of prescribing and rational use of medicines in a medical organization. 3. Principles of medical technology assessment.
Labor function 3: Participation in the implementation of measures for the rational and safe use of medicines in a medical organization.	Skill 1: Conducting clinical and pharmacological examination of prescriptions for medicines.	Skills: 1. To assess the compliance of drug therapy according to approved clinical protocols (standards) for diagnosis and treatment (depending on the level of medical care), prescribing basic (formulary) medicines. 2. Evaluate the choice of medicines based on the underlying disease and taking into account the concomitant pathology and the physiological condition of the patient (age, pregnancy, etc.). 3. Evaluate the dosage regimen and the choice of routes of administration of medicines. 4. Evaluate drug interactions, the risk of developing or having NLR), and cases of polypragmasia. 5. Evaluate the clinical effectiveness (achieving the goal of drug therapy) and monitor drug therapy based on the necessary complex of clinical, laboratory and instrumental studies. 6. Identify medical errors. Knowledge:

		1. 1. Clinical protocols of diagnosis and treatment of the Republic of Kazakhstan. 2. The main etiological and pathogenetic mechanisms of development
Labor function 4: Cooperation with other specialists and health services on issues of diagnosis, treatment, and rehabilitation.	Skill 1: Interaction with other healthcare professionals and services on RLS issues.	Skills: 1. Work in teams with other healthcare professionals and services to provide a full range of medical care to patients. 2. Share information with other healthcare professionals and services to ensure continuity of medical care and timely intervention if necessary. 3. Participate in multidisciplinary groups, consultations, and clinical rounds. 4. Cooperate with public organizations and health services to prevent the spread of infections, vaccinate and respond to emergencies. Knowledge: 1. The role and functions of other specialists and services in matters of diagnosis, treatment, and rehabilitation. 2. Technologies and standards of medical practice. 3. Principles of effective communication with healthcare professionals and services.
Additional work function 1: Receiving and advising patients and their legal representatives on the rational use of medicines.	Skill 1: Interaction with patients and their legal representatives on RLS issues.	Skills: 1. To advise patients on the rational use of the drug (dosage regimen, drug interaction, connection with food intake, features of the course of the disease, allergic history). 2. Involve the patient or his legal representative in the decision-making process, taking into account their preferences, values and level of awareness. 3. Explain procedures and technologies, ensuring that information is understandable and accessible so that the patient or his legal representative can make an informed decision. 4. Show empathy and support to patients in order to increase the effectiveness of treatment and cooperation between the patient and the doctor. Knowledge: 1. Principles of communication with the patient, his relatives or legal representatives. 2. Ethical, cultural, religious, and legal aspects related to informing the patient about the choice of treatment methods and medical devices. 3. Psychosocial aspects of the patient's health. 4. Principles of interaction in conflict situations

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Additional labor function 2: Continuous professional development.	Skill 1: Striving for professional improvement.	Skills: 1. Participate in professional training events: conferences, seminars, webinars, advanced training courses. 2. Participate in academic and scientific activities. 2. Participate in the work of professional associations, committees, and working groups to discuss health issues and share experiences with colleagues. Knowledge: 1. Rules of additional and non-formal education of healthcare professionals. 2. Rules for confirming the results of continuous professional development of healthcare workers. 3. Opportunities for networking and communication with colleagues from their professional field. 4. Current trends, research and development in a specialized field.
Personal competence requirements:	Communication skills Empathy, emotional intelligence Adaptability and flexibility Collaboration and teamwork Stress resistance Reflection and introspection Compliance with professional ethics Systems and analytical thinking The Ethical standard Striving for professional development	

Justification of compliance with learning outcomes

Learning outcomes	Labor functions
LO1 Able to provide advice to doctors and patients on the rational choice and use of medicines; to identify, register and prevent adverse reactions of medicines.	Labor functions 1: Providing advice to medical professionals on the rational use of medicines in medical organizations.
LO2 He is able to organize a formulary system in medical organizations and effectively interact with healthcare professionals.	Labor functions 2: Participation in the functioning and maintenance of the formulary system in a medical organization.
LO3 Able to monitor the effectiveness and safety of the use of medicines; to conduct pharmacotherapy based on the choice of medicines, taking into account the pathological and physiological profile of the patient using international guidelines and clinical protocols.	Labor functions 3: Participation in the implementation of measures for the rational and safe use of medicines in a medical organization.
LO4 Able to act according to the principles of organizational and methodological work of a clinical pharmacologist in healthcare organizations on the rational use of medicines and drug provision, work as part of interprofessional teams to implement the policy of strengthening the health of the nation.	Additional labor functions 1: Receiving and advising patients and their legal representatives on the rational use of medicines.
LO5 He is able to formulate adequate research questions, critically evaluate the professional literature on clinical pharmacology, conduct pharmacoepidemiological and pharmaco-economic research in healthcare organizations based on evidence-based practice using an international database and digital tools.	Labor functions 4: Cooperation with other specialists and health services on issues of diagnosis, treatment, rehabilitation.
LO6 Able to study independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development in the field of clinical pharmacology.	Additional labor functions 2: Continuous professional development.

Head of the educational and methodological center



Doltaeva B.Z.