

Catalog of elective disciplines

1. Department: infectious diseases

2. Level of training: doctoral studies

3. Specialty: Medicina

4. Course: 1

5. Name of elective course: Problems of childhood infections

6. Number of credits: 3

7. Course Objective:

To develop advanced systemic knowledge among doctoral students regarding the contemporary clinical, epidemiological, immunopathogenetic, and organizational aspects of pediatric infectious diseases, as well as to enhance their ability to conduct scientific analysis, risk stratification, optimize management strategies, and design preventive models in the context of a changing infectious environment and demographic challenges.

8. Tasks:

Development of knowledge:

- Contemporary epidemiological trends of pediatric infections in the context of urbanization, migration, vaccination, and antimicrobial resistance.
- Age-related characteristics of immune response and pathogenesis in neonates, infants, and adolescents.
- Clinical phenotypes of severe and atypical pediatric infections, including multisystem involvement and post-infectious complications.
- Principles of evidence-based pharmacotherapy considering age-related pharmacokinetics and pharmacodynamics.
- Modern approaches to immunoprophylaxis, post-vaccination immunity monitoring, and management of vaccine-resistant clusters.

Development of skills:

- Conduct clinical and epidemiological analysis of infectious morbidity in pediatric populations.
- Perform differential diagnosis considering age-specific and immunological characteristics.
- Develop individualized therapeutic and preventive strategies based on clinical protocols and scientific evidence.
- Assess the risks of complications and long-term consequences of pediatric infectious diseases.

Development of analytical competencies:

- Critically evaluate scientific publications and clinical guidelines on pediatric infections.
- Analyze the effectiveness of vaccination programs and epidemiological surveillance.
- Develop scientifically grounded proposals to improve healthcare delivery for children with infectious diseases.

9. Rationale for the choice of discipline

Pediatric infectious diseases continue to impose a significant medical and social burden, characterized by age-specific immune responses, risk of severe complications, and potential long-term consequences. Contemporary challenges — declining herd immunity, antimicrobial resistance, migration processes, and the increasing number of immunocompromised children — require advanced scientific analysis and optimization of clinical and preventive strategies.

The inclusion of this discipline in the doctoral curriculum aims to prepare specialists capable of developing evidence-based models for the management and prevention of pediatric infectious diseases.

10. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills & perks (psychomotor sphere)	Personal and professional competences (relations)
Know: - Specific features of organizing medical care for children with infectious diseases;	Can: - Analyze scientific information and apply evidence-based medicine principles in diagnosing and	General Cultural Competencies (GC): ability for abstract thinking, analysis, and synthesis (GC-1); General Professional Competencies (GPC): ability to

Application of specialized knowledge for critical analysis and synthesis of differential diagnosis algorithms, classification, treatment tactics, rehabilitation, and prevention of pediatric infections; Intensive care principles for emergencies according to WHO recommendations; Research methods used during quarantine measures in pediatric institutions; Regulatory and legal frameworks in epidemiology and prevention of pediatric infections; Principles of organizing infectious disease care for children; Etiology, epidemiology, pathogenesis, clinical presentation, and classification of pediatric infections; Clinical features of typical complications and emergencies in pediatric infections; Modern methods of specific and non-specific diagnosis; Fundamental principles of treatment (etiologic, pathogenetic, symptomatic therapy); Principles of prevention and anti-epidemic measures in infectious foci.	differentially diagnosing pediatric infectious diseases; Evaluate innovative approaches to selecting treatment methods and tactics; Examine pediatric infectious patients according to established standards; Assess the diagnostic significance of symptoms and syndromes characteristic of pediatric infections; Develop plans for laboratory and instrumental investigations and collect pathological specimens; Own skills: - Implementing early and differential diagnostic algorithms for pediatric infections; - Interpreting serological, molecular-biological, bacteriological, and immunological test results; - Providing emergency care and treatment for pediatric infectious diseases; - Organizing sanitary, anti-epidemic, and preventive measures related to pediatric infections.	assess morphofunctional, physiological states, and pathological processes in the human body to solve professional tasks (GPC-9); Professional Competencies (PC): readiness to collect and analyze patient complaints, medical history, examination results, laboratory, instrumental, pathological-anatomical, and other investigations for disease recognition; ability to determine management tactics for various nosological forms.
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11. Literature:

Core Literature:

1. *Feigin and Cherry's Textbook of Pediatric Infectious Diseases*. 8th ed. Elsevier; 2024.
2. *WHO. Immunization Agenda 2030*. Geneva; 2023.
3. Uchaikin V.F., Briko N.I. (eds.) *Pediatric Infectious Diseases*. Moscow: GEOTAR-Media; 2021.
4. Timchenko V.N. (ed.) *Infectious Diseases in Children*. Saint Petersburg: SpetsLit; 2018.
5. Baranov A.A. (ed.) *Pediatrics*. Moscow: GEOTAR-Media; 2022.

6. Kuttykozhanova G.G. *Pediatric Infectious Diseases*. Almaty; 2003.
7. Clinical Protocols for Diagnosis and Treatment of Pediatric Infectious Diseases, Ministry of Health of the Republic of Kazakhstan.

Additional Literature:

1. Straus S.E. et al. *Evidence-Based Medicine*. GEOTAR-Media; 2010.

1. Department: infectious diseases

2. Level of training: doctoral studies

3. Specialty: Medicina, Public health

4. Course: 1

5. Name of elective course: Zoonotic infections of humans

6. Number of credits: 4

7. Course Objective:

To develop advanced scientific and methodological competencies in doctoral students in the field of human zoonotic infections, enabling interdisciplinary research, risk assessment, and the design of prevention and control strategies within the One Health framework.

8. Tasks:

Development of knowledge:

- contemporary concepts of epidemiology and pathogenesis of zoonotic infections;
- principles of natural foci functioning and mechanisms of interspecies transmission;
- the role of the One Health concept in ensuring biosafety.

Development of skills:

- analysis of epidemiological data and risk assessment;
- application of modern laboratory and molecular diagnostic methods;
- development of evidence-based prevention and control measures.

Development of analytical competencies:

- critical appraisal of scientific literature and evidence;
- interpretation of clinical, epidemiological, and statistical data;
- modeling of epidemiological processes and risk forecasting.

9. Rationale for the choice of discipline

Zoonotic infections constitute a substantial proportion of emerging and re-emerging infectious diseases and represent persistent epidemiological threats to public health. Globalization, climate change, urbanization, and transformations in the agricultural sector enhance pathogen circulation at the human–animal–environment interface. This course equips doctoral students with competencies in interdisciplinary research, epidemiological surveillance, molecular diagnostics, risk assessment, and the development of preventive strategies within the One Health framework. Such training is strategically important for strengthening biosafety and ensuring the sustainable development of healthcare systems.

10. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills & perks (psychomotor sphere)	Personal and professional competences (relations)
Know: - normative, legal and legislative documents in the field of epidemiology and prevention of human zoonotic infections - Principles of organization pomodori infectious zoonotic infections of man.	Can: -Examine infectious patient with zoonotic infection of man. according to the rules. - To evaluate the differential diagnostic significance of symptoms and syndromes typical for human zoonotic infections. - Make a plan for the necessary laboratory and	General cultural GC): ability to abstract thinking, analysis, synthesis- (GC-1); General professional competence(GPC): -ability to assess morphological and functional, physiological States and pathological processes in the human body to solve professional problems (GPC-9); professional competence (PC):

-Etiology, epidemiology, pathogenesis, clinical picture and classification of human zoonotic infections. -Clinic of characteristic complications and urgent conditions in human zoonotic infections. -Modern methods of specific and non-specific diagnosis of human zoonotic infection. - Basic principles of treatment of human zoonotic infections. (etiotropic, PA-togenic, symptomatic therapy) -Principles of prevention and anti-epidemic measures in the focus of human zoonotic infections	instrumental examination, to carry out the collection of pathological materials from the patient. Own skills: - algorithms for early and differential diagnosis of human zoonotic infections. - evaluation of the results of serological, molecular biological, bacteriological, immunological studies; - emergency medical care and treatment of human zoonotic infections. - Organization of sanitary and anti-epidemic, preventive measures against human zoonotic infections	-readiness to collect and analyze the patient's complaints, his / her medical history, examination results, laboratory, instrumental, pathological, anatomical and other studies in order to recognize the condition or establish the presence or absence of the disease; - ability to determine the tactics of management of patients with different nosological forms.
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11. Literature:

1. **Palmer S.R., Soulsby L., Torgerson P.R., Brown D.W.G. (eds).** *Oxford Textbook of Zoonoses: Biology, Clinical Practice and Public Health Control*. 2nd ed. Oxford University Press, 2011.
2. **Heymann D.L. (ed).** *Control of Communicable Diseases Manual (CCDM)*. 21st ed. American Public Health Association, (страница издания).
3. **Farrar J., Hotez P., Junghanss T., Kang G., Lalloo D., White N. (eds).** *Manson's Tropical Diseases*. 24th ed. Elsevier, (страница издания).
4. **Mertz G.J.** Review of *Zoonoses: Infectious Diseases Transmissible from Animals to Humans* (4th ed.) — рецензия в *Clinical Infectious Diseases* (PMC).
5. **WHO.** *Rabies vaccines: WHO position paper – April 2018* (Weekly Epidemiological Record).
6. **WHO.** *Human leptospirosis: Guidance for diagnosis, surveillance and control*. 2003.
7. **CDC.** *Leptospirosis* (CDC Yellow Book; travel-associated infections). 2025.
8. **WHO.** *Brucellosis* (Fact sheet).
9. **CDC.** *About Brucellosis*. 2024.
10. Абуова Г.Н. Жұқпалы аурулардан дәрістер жинағы : оқу құралы -Шымкент, 2017.-300экз.
11. Абуова Г.Н. Жұқпалы аурулардың синдромдық дифференциялық диагнозы : оқулық - Шымкент , 2017.-500 экз.
12. Санитарные правила, санитарные правила и нормы МЗ РК.

1. **Department:** Infectious Diseases
2. **Level of Training:** Doctoral (PhD) Program
3. **Specialty:** “Medicine”, “Public Health”
4. **Year of Study:** 3
5. **Title of Elective Course:** “Emergencies in the Practice of Infectious Diseases”
6. **Credits:** 5
7. **Objective:**

To develop systemic knowledge and advanced clinical reasoning in doctoral students aimed at the early recognition, pathogenetically grounded severity assessment, and timely therapeutic and tactical decision-making in infectious disease–related emergencies in accordance with current clinical protocols and the principles of evidence-based medicine.

8.Tasks:

Development of knowledge:

- In-depth understanding of the pathophysiological mechanisms underlying infectious emergencies (sepsis, septic shock, ARDS, acute liver failure, infectious-toxic shock, etc.).
- Contemporary diagnostic criteria, severity stratification, and prognostic assessment based on international and national clinical guidelines.
- Principles of intensive care management, antimicrobial strategy, and pathogenetically justified treatment.

Development of skills:

- Early clinical recognition of life-threatening conditions.
- Differential diagnosis and interpretation of laboratory and instrumental findings.
- Justified selection of therapeutic tactics considering comorbidities, complication risks, and antimicrobial stewardship principles.

Development of analytical competencies:

- Clinical reasoning under time constraints and diagnostic uncertainty.
- Critical appraisal of clinical guidelines and scientific publications.
- Evaluation of treatment efficacy and safety based on evidence-based data.

9. Rationale for the choice of discipline

The increasing incidence of infectious diseases accompanied by severe and life-threatening complications necessitates advanced training of specialists in managing infectious emergencies. Conditions such as sepsis, septic shock, acute respiratory and hepatic dysfunction, and infectious-toxic reactions are associated with high mortality and require early diagnosis, timely risk stratification, and pathogenetically grounded therapy.

Modern challenges — globalization, migration processes, antimicrobial resistance, and the emergence of new and re-emerging infections — significantly increase the likelihood of severe disease courses and complications. Under these circumstances, the infectious disease specialist must be proficient in intensive care algorithms, antimicrobial stewardship principles, and interdisciplinary collaboration.

The inclusion of this discipline in the doctoral curriculum aims to develop clinical-analytical competence in accordance with international training standards and ensures preparedness for decision-making in critical situations, which directly contributes to reducing mortality and improving the quality of medical care.

10. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills & perks (psychomotor sphere)	Personal and professional competences (relations)
Know: Modern classification, etiology, pathogenesis, clinical and laboratory characteristics of major infectious diseases capable of causing emergencies (infectious-toxic shock, hypovolemic shock, anaphylactic shock, acute respiratory failure, acute hepatic failure, acute renal failure, DIC syndrome, cerebral edema/swelling, etc.); Fundamental principles of emergency care for infectious patients;	Can: Adhere to deontological norms and ethical principles; Collect medical and epidemiological history of infectious patients, conduct clinical and laboratory examinations, substantiate the diagnosis, develop a treatment plan, and perform differential diagnosis (infectious-toxic shock, hypovolemic shock, anaphylactic shock, acute respiratory failure, acute hepatic failure, acute renal failure, DIC, cerebral edema, etc.);	General cultural GC): General Cultural Competencies (GC): Ability for abstract thinking, analysis, and synthesis; General Professional Competencies (GPC): Ability to assess morphofunctional, physiological states, and pathological processes in the human body for solving professional tasks; Professional Competencies (PC): Readiness to collect and analyze patient complaints, medical history data, examination results, laboratory, instrumental, pathological-anatomical, and other investigations for the purpose of recognizing a condition or

Essential drug dosages required for emergency care, considering age-related aspects; Systems of preventive and anti-epidemic measures in families, communities, and healthcare institutions aimed at preventing the introduction and spread of infectious diseases; Basics of immunoprophylaxis, procedures and timing of preventive vaccinations, and the course of the post-vaccination period.	Provide emergency care to infectious patients at the pre-hospital and hospital stages; Prescribe infusion therapy depending on the type of dehydration, acid-base balance, patient age, disease severity, and presence of complications; Assess transportation risks; Prepare patients for transportation to a healthcare facility while maintaining anti-epidemic measures.	establishing the presence or absence of disease; Ability to determine patient management tactics across various nosological forms.
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11. Literature:

1. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, 10th ed. (Elsevier, 2025).
2. *Levinson's Review of Medical Microbiology & Immunology: A Guide to Clinical Infectious Diseases*, 18th ed. (McGraw Hill Medical, 2024).
3. Abuova G.N. *Syndromic Differential Diagnosis of Infectious Diseases*. Shymkent, 2017.
4. Abuova G.N. *Lectures on Infectious Diseases*. Shymkent, 2017.
5. Valishin D.A. et al. *Therapy of Emergencies in Infectious Diseases*. Ufa, 2016.
6. Ratnikova L.I. (ed.) *Emergencies and Differential Diagnosis in Infectious Disease Practice*. Chelyabinsk, 2009.
7. Zubik T.M. et al. *Intensive Care of Infectious Patients*. Saint Petersburg, 2010.
8. Petrushina A.D. et al. *Emergencies in Children*. Moscow, 2010.
9. Yushchuk N.D., Vengerov Yu.Ya. (eds.) *Infectious Diseases: National Guidelines*. Moscow, 2009.
10. Current Clinical Protocols for Diagnosis and Treatment of Infectious Diseases, Ministry of Health of the Republic of Kazakhstan. 11–14. Electronic medical library systems and legal reference systems.
11. *Travel and Tropical Medicine Manual*, Jong E.C., Sanford C. (eds.), Elsevier.
12. Current sanitary rules and regulations of the Republic of Kazakhstan.

1. Department: "Department of History of Kazakhstan and Social and Social disciplines»

2. Level of training: Doctorate

3. Bilim bagdarlamalary: D141 - "Medicine"

4. Course: 1

5. Name of elective discipline: Educational technologies in universities

6. Number of credits : 4 credits

7. Objective: To acquaint doctoral students with the educational technologies of the university and master the competencies of their application in the educational process. The ability of doctoral students to combine pedagogical knowledge with general theoretical and practical knowledge, skills in pedagogy, knowledge gained in teaching general medical disciplines, the formation of new pedagogical thinking, competencies of pedagogical activity.

8. Tasks: To reveal the role and place of educational technologies in higher education in increasing the efficiency of the educational process;

- Analysis of the essence and integration of learning technologies into vocational education;

- Analysis of the features of the use of modern educational technologies in the medical education system;
- analysis of effective methods and techniques of teaching and their application in the educational process;
- to propose the main ways to improve educational technology and its practical application.

9. Content of the discipline: Goals and objectives of studying the subject "Educational technologies in higher education", its role and importance in teacher training. The importance and significance of innovative technologies in vocational education. The history of the emergence of educational technologies and the future development of educational technologies. The concept of individualization and differentiation of education. Personalization of training. Fundamentals based on personalized learning technologies. General characteristics of differentiated learning. Three-dimensional methodical training system. Essence and methodological aspects of three-dimensional pedagogical teaching technology. Individual - the concept of adaptive learning (education). Technology of profile education. Technology of critical thinking. Ideas and principles of pedagogical cooperation. Modular learning technology. Description of information technologies of instruction.

Concept, goals, objectives of distance learning, didactic functions and properties of computer technologies based on distance learning. Development of teaching technology. The main functions and features of problem learning.

10. Justification of the choice of discipline: This program is designed to provide doctoral students with the necessary knowledge, skills and abilities in the discipline, to achieve learning outcomes.

11. Learning outcomes:

- 1) demonstrates leadership, innovation and individuality in solving complex problems of the educational process and professional activity;
- 2) critically perceives the pedagogical concepts of educational technologies in higher education in connection with the world-historical development of mankind;
- 3) formulates the essence of educational technologies from the point of view of critical thinking;
- 4) analyzes the use of educational technologies in the educational process and ways to improve it and offers his opinion to the scientific community and society;
- 5) the ability to apply the features of the use of educational technologies in the educational process in the practice of higher and postgraduate education.

11. Prerequisites: Higher education pedagogy

12. Post-requirements: Research and teaching practice.

13. Literature:

in English:

Main:

1. Pedagogy [Текст] : textbook / K. K. Zhampeisova [and etc.]. - Almaty : Association of higher educational institutions of Kazakhstan, 2016. - 390 p.

Additional information:

1. Educational management [Текст] : textbook / A. N. Kosherbayeva [and etc.]. - Almaty : [s. n.], 2016.

Electronic source databases:

- 1 ОҚМА Репозиторий <http://lib.ukma.kz/repository/>
- 2 Республикалық жоғары оқу орындары аралық электрондық кітапхана <http://rmebrk.kz/>
- 3 «Ақнұрпресс» сандық кітапхана <https://aknurpress.kz/login>
- 4 «Заң» нормативтік-құқықтық актілер базасы <https://zan.kz/ru>
- 5 «Параграф Медицина» ақпараттық жүйесі <https://online.zakon.kz/Medicine/>
- 7 Научная электронная библиотека <https://elibrary.ru/>
- 8 Ашық кітапхана [https:// kitap.kz/](https://kitap.kz/)
- 9 Thomson Reuters www.webofknowledge.com
- 10 ScienceDirect <http://www.sciencedirect.com/>
- 11 Scopus <https://www.scopus.com/>

1. Department: "Social health insurance and public health"

2. Level of training: Doctoral studies

1. Specialty: "Medicine"

2. Course: 2nd year, Semester-2

3. Name of elective discipline: Biostatistics (advanced course)

4. Number of credits – 5

Purpose: Generation and development of knowledge among undergraduates about information technologies in general and in public health. Expand skills and competence in the application of modern information technologies and systems in the field of healthcare.

Tasks:

- Applies the regulatory framework and the Law of the Republic of Kazakhstan "On Information" in its professional activity, uses information and educational technologies;
- Applies the capabilities of modern information technologies to solve professional tasks;
- Freely uses various personal computer programs;
- Proves the possibilities of information and educational technologies, demonstrates to the audience the possibilities of modern information technologies for solving professional tasks.

Justification of the choice of discipline: Problems of the introduction of ICT in medicine. Security of medical information. Formation of a database of medical data using MS Access. User interface. The concept of creating a unified health information system. The concept of information security of the Republic of Kazakhstan. The main directions and mechanisms of implementation of the State program

for the formation of "electronic government". Information technologies - concept, tasks, structure. Regulatory and legal framework. The Law of the Republic of Kazakhstan "On Information".

Learning outcomes (competencies):

1) Knowledge and understanding

Freely uses various personal computer programs;

- Proves the possibilities of information and educational technology, demonstrates to the audience the possibilities of modern information technologies for solving professional tasks;
- Proves to the audience the possibilities of modern information technologies for solving professional tasks

Demonstrates its high level of knowledge about the state of information security of the Republic of Kazakhstan;

- Shows organizational technique skills;
- Discusses and evaluates the concept of information security of the Republic of Kazakhstan, the concept of creating a unified health information system;
- Expounds and explains to undergraduates, teachers, examiners their own and additional knowledge about information technologies in the field of healthcare, is able to discuss and evaluate modern information and communication technologies in the field of public health development;
- Possesses and shows skills in organizational techniques.

The results of the training of the OP, with which the RO disciplines are associated

2) Application of knowledge and understanding - Applies the regulatory framework and the Law of the Republic of Kazakhstan "On Information" in its professional activity, uses information and educational technologies;

- Applies the regulatory framework and the Law of the Republic of Kazakhstan "On Information" in its professional activity, uses information and educational technologies;
- Applies the capabilities of modern information technologies to solve professional tasks;
- Applies the capabilities of modern information technologies to solve professional tasks;

10. Prerequisites: Information technologies in public health.

11. Post-requirements: Statistical analysis in public health.

12. Literature:

Main:

1.Әлеуметтік зерттеу әдістері: Оқулық. 1-том. / ҚР Білім және ғылым министрлігі, ҚР жоғару оқу орындарының қауымдастығы. - Алматы: Полиграфкомбинат, 2014. -584 б.

Брайман А.

2. Әлеуметтік зерттеу әдістері: Оқулық.2-том. / Ағыл. тіл. ауд. И.А. Баймұратова; ҚР Білім және ғылым министрлігі, ҚР жоғару оқу орындарының қауымдастығы. - 4-басылым -

Алматы: ЖШС РПБК "Дәуір", 2016. – 456 б. Брайман А.

3. Әлеуметтік медицина және денсаулық сақтауды басқару:- Алматы: Кітап, 2011. –320 б.
Д. А. Даулетбаев, А. Ш. Әлназарова, Б. А. Әлсейітов.