APPROVED
at a meeting of the Academic Council of
NJSC «KazNU named after al-Farabi»
Protocol № 11 from 23. 05. 2025 y.

The program of the entrance exam for applicants to the PhD for the group of educational programs «D141 – Medicine»

I. General provisions

1. The program was drawn up in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 600 «On Approval of the Model Rules for Admission to Education in Educational Organizations Implementing Educational Programs of Higher and Postgraduate Education» (hereinafter referred to as the Model Rules).

2. The entrance exam for doctoral studies consists of writing an essay, an exam in the profile of a group of educational programs and an interview.

Блок	Баллы
3. Exam according to the profile of the group of the educational program	100
Total admission score	100/75

3.The duration of the entrance exam is 2 hours, during which the applicant answers the electronic examination ticket.

II. Procedure for the entrance examination

2. The electronic examination card consists of 3 questions

Topics for exam preparation according to the profile of the group of the educational program:

Block I (Public health and health care)

1. What do you mean by the term "Quality of life".
2. Describe the determinants of public health, levels of health.
3. Expand the Concept of forming a healthy lifestyle.
4. What is the guaranteed volume of free medical care.
5. Expand the concept of the quality of medical care.
6. Describe the main characteristics of a medical institution as an organization.

7. Explain the reasons for the increase in patient complaints and lawsuits for medical care. Justify the ways and mechanisms of their settlement.

8. Determine the main indicators reflecting the clinical effectiveness of treatment

9. Using the example of arterial hypertension, create a model for the analysis of the "cost of illness"

10. Name the main prerequisites and factors for the implementation of the compulsory social health insurance system in the Republic of Kazakhstan.

11. Globalization and its impact on health.

12. Subject, purpose and objectives of public health and health care.

13. Mechanical movement of the population and the modern characteristics of its components.

14. Traumatism as a medical and social problem.

15. HIV infection as a medical and social problem.

16. Features of the health of the population of the Republic of Kazakhstan at the present stage (morbidity, disability, fertility, mortality, average life expectancy).

17. Social health insurance, its principles.

18. The social significance of diseases of the circulatory system, the organization of specialized medical care.

19. Basic principles of organizing medical and preventive care for the population.

20. Medical and social aspects of fertility, level and current trends.

21. Conditions and factors that determine the health of the population.

22. Modern problems of medical deontology and medical ethics (dehumanization, iatrogenism, euthanasia, problems of transplantation).

23. Theoretical foundations and organizational principles of national health care

24. Diabetes mellitus as a medical and social problem.

25. Infectious diseases as socially significant diseases. Organization of medical care.

26. Medical and social aspects and causes of general mortality. The procedure for filling out a medical death certificate.

27. Alcoholism as a medical and social problem.

28. Physical development as a criterion for assessing the health of the population, the organization of medical control over physical development.

29. Drug addiction and substance abuse - as medical and social problems

30. Mental and behavioral disorders as socially dangerous diseases, the organization of specialized medical care in Kazakhstan.

2 block. (Basics of Evidence-Based Medicine, Biostatistics)

1. Describe the determinants of public health, levels of health.

2. What demographic indicators do you know. What is the essence of standardization in healthcare.

3. Sampling method. Representativeness of the sampling.

4. How the statistical hypothesis is formulated. Types of hypotheses.

5. Give an analysis of the concept of a statistical criterion.

6. Expand the essence of the basic principle of testing statistical hypotheses.

7. Expand the essence of the concept of "medicine based on evidence" (DM).

8. What are the principles of the PICO tool.

9. What is an applied question, basic question, definitions, differences.

10. The method of standardization, its meaning and application.

11. Describe clinical epidemiology as a methodological basis for evidence-based medicine.

12. Methods of qualitative and quantitative research in evidence-based medicine.

13. Population health statistics.

14. Randomized controlled trials.

15. What are the principles of clinical epidemiology.

16. What does optimization of management decisions in health care mean?

17. Describe the sequential stages of the process of developing, making and implementing decisions

18. What factors influence personality formation? How does the socialization process affect?

19. Describe the concepts of "general population" and "sample".

20. Describe the “Variational series. Statistical distribution of the sample ”.

21. Describe evidence-based medical electronic databases.

22. How linear correlation is carried out. Selected Pearson correlation coefficient, its properties. Spearman's rank correlation coefficient.

23. What are the current requirements for clinical trials.

24. The use of computer technology in the processing of statistical material.

25. Tabular and graphic materials. Advantages and disadvantages.

26. Clinical trials, concept, classification, design of clinical trials.

27. Assess the Placebo effect. Aims of placebo use in clinical trials.

28. Describe meta-analysis: concept, advantages and disadvantages.

29. What are the principles of evidence-based medicine in the creation of clinical practice guidelines.

30. What are the requirements for the development of clinical practice guidelines.

3 block. (Fundamentals of methodology scientific research)

1. Logic and methodology of experimental research work. Concept, essence, types of scientific research.

2. Forms and methods of research in medicine. The essence of fundamental and applied research.

3. New research strategies. Interdisciplinarity and principles of synergetics.

4. Organization of research activities: structure, features, criteria.

5. Stages of research work - planning, organization and implementation. Methods for conducting empirical research.

6. Searching for a problem and formulating a hypothesis. Literary research.

7. Search systems and databases of scientific and technical information. The choice of the topic of research work.

8. Drawing up a research program, methodological and procedural sections of the research. Planning and execution of an experimental (empirical) study.

9. Methods of statistical data processing.

10. Expand the schedule of any project, illustrate it using a Gantt chart.

11. Describe the types of research and their classification. State the goals of medical research.

12. Expand international legislation in the field of science. Describe existing international organizations and international acts in the field of ethical and legal regulation of biomedical research.

13. Expand the national legislation in the field of science. Regulatory legal, programmatic and strategic documents in the field of medical science.

14. Formulate the concept of "scientific project", describe the characteristics of the project and its properties. Give a short summary.

15. Expand the methodology and design of the research project. Describe typical health research designs.

16. Expand the main types of research errors and characterize them.

17. Publications in peer-reviewed journals, reveal the general rules for writing articles. What you need to think about before writing an article for a magazine.

18. Demonstrate the main functions of a project manager and describe the main tasks of project planning.

19. Define good practice and explain how quality assurance of the research process is conducted. Describe the prerequisites and requirements.

20. Justify the determination of the size and selection of the sample. Types of samples. Planning statistical processing methods.

21. Expand interpersonal skills to describe a group of execution processes during project implementation.

22. Using elements of corporate culture and style, describe the interaction of the project manager with the project customers.

23. List and describe the main social functions of science.

24. Search for sources of funding for research projects.

25. International scientific foundations, main goals and objectives of foundations, basic principles of functioning, priority areas of activity.

26. Indicate the role and importance of science in the life of a modern person and society.

27. Protection of intellectual property. International patenting. Discoveries, inventions.

28. Protection of intellectual property. Rationalization proposals.

29. Protection of intellectual property. Copyright certificates. License.

30. Ethics of scientific research. Plagiarism. Responsibility for non-compliance with ethical principles.

III List of references

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