MINISTRY OF EDUCATION AND SCIENCE OF THE KYRGYZ REPUBLIC

Government-run Educational-Institution of Higher Professional Education
Kyrgyz-Russia Slavic University
School of Medicine

ENDORSED BY
Vice-Rector, Professor
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_____2023 y.

Fundamentals of Critical Thinking: Evidence Based Medicine
Course Outline (Module)

Assigned to the department of	**Physics, Medical Informatics and Biology**
Academic Curriculum	560001_21_1LDi.pli.xml 560001 – KR General Medicine (for foreign student)
Qualification	**medical doctor**
Mode of Study	**intramural**
total credit value	**2 credit points**

The Course outline developed by: Sorokin AA, Bogdanov E.R.

Course Hours Scheduling (per semester)

Semester Academic Year	11(6.1)		Total	
Weeks	19			
Type of Training	AC	CO	AC	CO
lectures	18	18	18	18
Practical session	36	36	36	36
Contact work during the period of theoretical training	0.3	0.3	0.3	0.3
including interactive	4	4	4	4
Total in class session	54	54	54	54
contact work	54.3	54.3	54.3	54.3
individual work	17.7	17.7	17.7	17.7
Total	72	72	72	72

1. COURSE OUTLINE OBJECTIVES	
1.1	Development of students' common vision of the structure, concepts, methods and techniques of evidence-based medicine.
1.2	The development of the thesaurus and operational capabilities to a level where their interaction will allow quite simply to formalize the tasks that arise in the process of practical work and solve them.
1.3	To show the simplicity and consistency of the main statistical criteria involved in evidence-based medicine in order to remove the often emerging potential barrier of fundamental unknowability for a particular individual, statistical means of solving medical problems.
1.4	Teaching student's knowledge, skills and practical skills in EBM, with the help of which it is possible to independently master the technology for assessing the quality of medical information and its applicability in clinical practice.
1.5	Development of the ability to draw up a solution plan and implement it using the selected methods.
1.6	Development of the ability to analyze and practically interpret the results obtained.
1.7	Developing the ability to use various kinds of reference materials and manuals necessary for solving practical problems.
2. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE GENERAL EDUCATION PROGRAM	
Cycle (section) GEP:B1.O	
2.1	Requirements for the preliminary preparation of the student:
2.1.1	Medical Informatics
2.1.2	microbiology, virology
2.1.3	normal physiology
2.1.4	Pathophysiology, clinical pathophysiology
2.1.5	Traumatology, orthopedics
2.1.6	Ophthalmology
2.1.7	Pediatrics
2.1.8	Otorhinolaryngology
2.2	Disciplines and practices for which the development of this discipline (module) is necessary as previous:
2.2.1	Residence training
2.2.2	Internship training
2.2.3	Conducting clinical trials
2.2.4	Conducting clinical activities

3. STUDENT COMPETENCES FORMED AS A RESULT OF MASTERING THE DISCIPLINE (MODULE)	
OK-1 - able and ready to analyze socially significant problems and processes, use the methods of natural sciences, mathematics and the humanities in various types of professional and social activities	
know:	
Level 1	- methods of statistical data processing; - methods and approaches used in evidence-based medicine;
Level 2	- indicators of sensitivity, specificity, predictive value, likelihood ratio of diagnostic methods - methods of systematic and critical analysis; - methods of developing an action strategy for identifying and solving a problem situation;
Level 3	- epidemiological indicators of speed, ratio, proportion (mortality, lethality, incidence, prevalence, etc.) - characterization and design of clinical trials depending on the purpose of the study and the subject of study.
Ability:	
Level 1	- formulate a clinical question (PICO)

	- apply methods of searching, collecting and processing information;
Level 2	- calculate epidemiological indicators of speed, ratio, proportion (mortality, survival, lethality, incidence, prevalence, survival, incidence, etc.) - calculate sensitivity, specificity, predictive value, likelihood ratio of diagnostic methods - carry out critical analysis and synthesis of information obtained from different sources; - apply the methods of a systematic approach and critical analysis of problem situations;
Level 3	- calculate the odds ratio and relative risk of the studied phenomena; - develop a strategy of action, make specific decisions for its implementation - evaluate the quality of scientific publications using the IMRAD framework; - assess the quality of clinical leadership using AGREE tools
Skills:	
Level 1	- critical analysis and synthesis of information; - methodology of systematic and critical analysis of problem situations;
Level 2	- skills of presenting an independent point of view, analysis and logical thinking, public speech, moral and ethical argumentation, discussions and round tables; - methods of setting a goal, determining ways to achieve it, developing action strategies;
Level 3	- skills of predicting undesirable effects, based on data from the analysis of clinical and laboratory-instrumental activities; - plan epidemiological studies with the ability to choose the most effective design to obtain reliable results
OK-3 - is able and ready to collect, process and interpret, using modern information technologies, the data necessary to form judgments on relevant social, scientific and ethical problems	
know:	
Level 1	- methods for searching for evidence in existing databases (PubMed, Embase, Cochrane etc.);
Level 2	- accessible databases of evidence; - operators and criteria used in international databases; - differences and practical relevance of using original research, systematic reviews and literature reviews
Level 3	- primary and secondary sources of evidence;
Ability:	
Level 1	- use the structure of a well-formulated clinical question to search for evidence-based information
Level 2	- search international databases - form conclusions based on systematic reviews of the literature
Level 3	- evaluate the reliability of the results of the study; - interpret the results of scientific research - formulate the goals and objectives of an epidemiological study
Skills:	
Level 1	- planning an epidemiological study;
Level 2	- use of operators (OR, NOT, AND) in international databases;
Level 3	- searching for evidence-based information in existing databases (PubMed, Embase, Cochrane etc.);
SLK-1 - able and ready to implement ethical, deontological and bioethical principles in professional activities	
know:	
Level 1	- on informed consent, ethical and legal norms of clinical trials;
Level 2	- basic principles of Good Clinical Practice (GCP)
Level 3	- copyright rules and citation requirements for scientific publications
Ability:	
Level 1	- formulate and evaluate the main principles of Good Clinical Practice (GCP)
Level 2	- Determine the design of medical research, choose the most appropriate research method in relation to the chosen topic, put research safety first
Level 3	- evaluate scientific publications for compliance with the scientific publication structure (IMRAD)
Skills:	
Level 1	- put into practice the basic principles of Good Clinical Practice (GCP)
Level 2	- analyze the results of clinical and epidemiological studies
Level 3	- critically evaluate the quality of a scientific publication
PC-26 - able and ready to use the regulatory documentation adopted in healthcare, as well as used in international practical medicine	
know:	
Level 1	- requirements for the development of clinical guidelines; - basic principles of Good Clinical Practice (GCP)

Level 2	- scientific publication structure (IMRAD)
Level 3	- criteria for evaluating clinical guidelines
Ability:	
Level 1	- assess the quality of clinical guidance
Level 2	- use search criteria used in international databases
Level 3	- classify international databases according to the degree of evidence
Skills:	
Level 1	- use of international sites containing evidence-based information
Level 2	- use of international data
Level 3	- assessment of the quality of normative and directive documents

As a result of mastering the discipline, the student must

3.1	**Know:**
3.1.1	**definition and basic concepts of evidence-based medicine**
3.1.2	**types of designs**
3.1.3	**hierarchy of evidence**
3.1.4	**basic statistical methods in evidence-based medicine;**
3.1.5	**the formulation of the clinical question**
3.1.6	**technology for assessing the quality of clinical guidelines**
3.1.7	**highlights of the analysis of scientific medical data and conclusions from studies**
3.2	**Ability:**
3.2.1	**present research results in the SPSS application**
3.2.2	**set the necessary medical tasks, according to the received medical data**
3.2.3	**analyze and substantiate conclusions based on the obtained medical data**
3.2.4	**use modern computers to process medical information**
3.2.5	**use various methods of analysis when working with scientific medical data**
3.2.6	**analyze new scientific and educational literature, the results of experiments**
3.3	**Skills:**
3.3.1	**methods of creating a scientific base in the SPSS application program**
3.3.2	**methods of setting the necessary medical tasks**
3.3.3	**theoretical and practical methods of analysis and obtaining reasonable conclusions on the received medical data**
3.3.4	**methods of practical use of modern computers for processing medical information**
3.3.5	**skills in using various methods of analysis when working with scientific medical data**
3.3.6	**methods of analysis of new scientific and educational literature, experimental results**