

## *Summary of the working program of the academic discipline*

### « Evidence-based medicine »

General Educational Program of higher education (specialist's degree programs)

(31.05.01 General Medicine)

Department of Epidemiology, Microbiology and Evidence-Based Medicine

**1. The purpose of mastering the discipline** (*participation in the formation of relevant competencies – specify the codes*): UC -1; UC - 3; UC -4; UC - 6; PC - 16; PC - 19; PC - 21

**2. Position of the academic discipline in the structure of the General Educational Program (GEP).**

**2.1.** The discipline "Evidence-Based Medicine" refers to the part formed by the participants in the educational relations of the mandatory block 1. - B1.UOO.12 "Disciplines (modules)".

The discipline is taught in 11 semester/ 6 year of study.

**3. Deliverables of mastering the academic discipline and metrics of competence acquisition**

Mastering the discipline aims at acquiring the following universal (UC) or/and general professional (GPC) or/and professional (PC) competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	UC-1.	Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	1.1 Knows: methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis 1.2 Able to: gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on action, experiment and experience 1.3 Has practical experience: researching the problem of professional activity using analysis, synthesis and other methods of intellectual activity; developing an action strategy to solve professional problems	-methods of formal logic -methods for assessing the incidence of the population	- apply the methods of formal logic to analyze the problem situation - calculate incidence rates and interpret socially significant sociological information on their basis	- methods for assessing the incidence of the population to develop measures to optimize the organization of medical care for the population and - a technique for interpreting socially significant sociological information based on incidence rates, the use of sociological knowledge in professional and social activities aimed at protecting and protecting the health of the population - the technique of putting forward a version of the solution to the problem, formulating a

						hypothesis, guessing the final result
2.	UC -3.	Able to organize and manage the work of the team, developing a team strategy to achieve the goal	<p>3.1 Knows: the problems of selecting an effective team; basic conditions for effective teamwork; the basics of strategic human resource management, regulatory legal acts concerning the organization and implementation of professional activities; organizational behavior models, factors of formation of organizational relationships; strategies and principles of teamwork, the main characteristics of the organizational climate and interaction of people in the organization</p> <p>3.2 Able to: determine the management style for the effective team work; develop a team strategy; apply the principles and methods of organizing team activities</p> <p>3.3 Has practical experience in: participation in the development of a team work strategy; participation in teamwork, role distribution in the team interaction</p>	<ul style="list-style-type: none"> <li>- anti-epidemic system</li> <li>- basics of population morbidity management</li> <li>- organization of epidemiological studies;</li> <li>- organization of preventive and anti-epidemic measures</li> <li>- planning activities for anti-epidemic provision of the population</li> </ul>	<ul style="list-style-type: none"> <li>- organize epidemiological studies</li> <li>- organize the application of preventive and anti-epidemic measures</li> <li>- plan activities for anti-epidemic provision of the population</li> </ul>	<ul style="list-style-type: none"> <li>- population morbidity management technologies</li> <li>- an algorithm for organizing epidemiological studies with the choice and justification of the goal, in coordination with the team with the manifestation of personal initiative</li> <li>- an algorithm for the organization and implementation of preventive and anti-epidemic measures</li> <li>- skills of effective interaction with other people, organization of professional cooperation</li> <li>- the skills of formulating a common solution and resolving conflicts based on the coordination of positions and taking into account interests</li> <li>- skills in planning activities for anti-epidemic provision of the population</li> </ul>
3.	UC -4.	Able to apply modern communication technologies, including the use of a foreign language(s), for academic and professional interaction	<p>4.1 Knows: the basics of oral and written communication in Russian and foreign languages, functional styles of the native language, requirements to business communication, modern means of information and communication technologies</p> <p>4.2 Can: express thoughts in Russian and a foreign language in</p>	<ul style="list-style-type: none"> <li>- anti-epidemic system</li> <li>- basics of population morbidity management</li> <li>- organization of epidemiological studies;</li> <li>- organization of preventive and anti-epidemic measures</li> <li>- planning activities for</li> </ul>	<ul style="list-style-type: none"> <li>- organize epidemiological studies</li> <li>- organize the application of preventive and anti-epidemic measures</li> <li>- plan activities for anti-epidemic provision of the population</li> </ul>	<ul style="list-style-type: none"> <li>- population morbidity management technologies</li> <li>- an algorithm for organizing epidemiological studies with the choice and justification of the goal, in coordination with the team with the manifestation of personal initiative</li> <li>- an algorithm</li> </ul>

			<p>business communication</p> <p>4.3 Has practical experience in: writing texts in Russian and foreign languages related to the professional activity; experience in translating medical texts from a foreign language into Russian; experience in speaking Russian and foreign languages.</p>	<p>anti-epidemic provision of the population</p>		<p>for the organization and implementation of preventive and anti-epidemic measures</p> <ul style="list-style-type: none"> <li>- skills of effective interaction with other people, organization of professional cooperation</li> <li>- the skills of formulating a common solution and resolving conflicts based on the coordination of positions and taking into account interests</li> <li>- skills in planning activities for anti-epidemic provision of the population</li> </ul>
4.	UC -6.	<p>Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment and lifelong learning</p>	<p>6.1 Knows: the importance of planning long-term goals of activity taking into account conditions, means, personal opportunities, stages of career growth, time perspective of development of activity and requirements of the labor market; technology and methodology of self-assessment; basic principles of self-education</p> <p>6.2 Able to: determine the priorities of professional activity and ways to improve it on the basis of self-assessment; control and evaluate the components of professional activity; plan independent activities in solving professional problems</p> <p>6.3 Has practical experience in: planning their own professional activities and self-development, studying additional educational programs</p>	<ul style="list-style-type: none"> <li>- anti-epidemic system</li> <li>- basics of population morbidity management</li> <li>- organization of epidemiological studies;</li> <li>- organization of preventive and anti-epidemic measures</li> <li>- planning activities for anti-epidemic provision of the population</li> </ul>	<ul style="list-style-type: none"> <li>- organize epidemiological studies</li> <li>- organize the application of preventive and anti-epidemic measures</li> <li>- plan activities for anti-epidemic provision of the population</li> </ul>	<ul style="list-style-type: none"> <li>- population morbidity management technologies</li> <li>- an algorithm for organizing epidemiological studies with the choice and justification of the goal, in coordination with the team with the manifestation of personal initiative</li> <li>- an algorithm for the organization and implementation of preventive and anti-epidemic measures</li> <li>- skills of effective interaction with other people, organization of professional cooperation</li> <li>- the skills of formulating a common solution and resolving conflicts based on the</li> </ul>

						coordination of positions and taking into account interests - skills in planning activities for anti-epidemic provision of the population
5.	PC - 16	Able to: organize and monitor the immunoprophylaxis of infectious diseases in the adult population, prescribe preventive measures to patients taking into account risk factors in accordance with the current <b>procedures</b> for providing medical care, <b>clinical recommendations</b> (treatment protocols) on the provision of medical care taking into account the <b>standards</b> of medical care and monitor compliance with preventive measures	<p>16.1 Knows: principles of application of specific and non-specific prevention of infectious diseases, the national calendar of preventive vaccinations and the calendar of preventive vaccinations for epidemic indications; legislation of the Russian Federation in the field of health protection, sanitary rules and regulations; preventive measures taking into account the diagnosis in accordance with the current procedures for medical care, clinical recommendations (treatment protocols) about medical care delivery taking into account the standards of medical care</p> <p>16.2 Able to: organize and carry out immunoprophylaxis of infectious diseases in the adult population in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on the provision of medical care taking into account standards of medical care; prescribe preventive measures to patients taking into account risk factors for the prevention and early detection of diseases, including socially significant diseases</p>	- principles for the use of specific and non-specific prevention of infectious diseases, - the national calendar of preventive vaccinations and the calendar of preventive vaccinations according to epidemic indications; - Legislation of the Russian Federation in the field of health protection, sanitary rules and regulations; - preventive measures, taking into account the diagnosis in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols)	- organize and conduct immunoprophylaxis of infectious diseases in the adult population in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; - prescribe preventive measures to patients, taking into account risk factors for the prevention and early detection of diseases, including socially significant diseases	The algorithm for conducting and monitoring the effectiveness of measures for the prevention and promotion of a healthy lifestyle and sanitary and hygienic education

6.	PC - 19	Able to: form healthy lifestyle programs, including programs to reduce alcohol and tobacco consumption, prevent and combat non-medical use of narcotic drugs and psychotropic substances, and evaluate the effectiveness of preventive work with patients	<p>19.1 Knows: forms and methods of sanitary and educational work on the formation of elements of the healthy lifestyle, including programs to reduce alcohol and tobacco consumption, prevention and control of non-medical use of narcotic drugs and psychotropic substances</p> <p>19.2 Able to: develop and implement programs for the formation of the healthy lifestyle, including programs to reduce alcohol and tobacco consumption, prevention and control of non-medical use of narcotic drugs and psychotropic substances</p>	- forms and methods of sanitary and educational work on the formation of elements of a healthy lifestyle, including programs to reduce alcohol and tobacco consumption, prevent and combat non-medical consumption of narcotic drugs and psychotropic substances	- develop and implement healthy lifestyle programs, including programs to reduce alcohol and tobacco consumption, prevent and combat non-medical	The algorithm for conducting and monitoring the effectiveness of measures for the prevention and promotion of a healthy lifestyle and sanitary and hygienic education
7.	PC- 21	Able to: analyze morbidity, disability and mortality indicators to characterize the health of the assigned population of medical care and aimed at creating conditions for protecting the health of citizens	<p>21.1 Knows: medical and statistical indicators of morbidity, disability and mortality characterizing health of the assigned population, the order of their calculation and evaluation</p> <p>21.2 Able to: analyze official statistical reporting data, including forms of federal and sectoral statistical observation; analyze medical and statistical indicators of morbidity, disability and mortality to assess the health of the assigned population</p>	- medical and statistical indicators of morbidity, disability and mortality, characterizing the health of the attached population, the procedure for their calculation and evaluation	- analyze data from official statistical reporting, including forms of federal and sectoral statistical observation; analyze medical and statistical indicators of morbidity, disability and mortality to assess the health of the attached population	Maintaining medical records and organizing the activities of nursing staff at the disposal

#### 4. Volume of the academic discipline and types of academic work

Total labor intensity of the discipline is 1 CU (36 AH)

Type of educational work	Labor intensity		Labor intensity (AH) in semesters
	volume in credit units (CU)	volume in academic hours (AH)	
			11
Classroom work, including		<b>0,6</b>	<b>22</b>
Lectures (L)		-	4
Laboratory practicum (LP)*		-	-
Practicals (P)		-	18
Seminars (S)		-	-
Student's individual work (SIW)		<b>0,4</b>	<b>14</b>
Mid-term assessment			
credit/exam ( <i>specify the type</i> )		c	c
<b>TOTAL LABOR INTENSITY</b>	<b>1</b>	<b>36</b>	<b>36</b>

#### 5. Sections of the academic discipline and competencies that are formed

№	Competence code	Section name of the discipline	The content of the section in teaching units
1	UC -1 UC – 3 UC – 4 UC – 6 PC -16 PC – 19 PC - 21	Fundamentals of evidence-based medicine and clinical epidemiology	<p>Epidemiological approach in the study of human pathology. Fundamentals of evidence-based medicine Epidemiology in the system of medical education, the relationship of epidemiology with other medical sciences. Wide application of the epidemiological approach in the study of mass non-communicable diseases. Formation of the directions of clinical epidemiology and evidence-based medicine. Principles of evidence in the search for causal relationships. Epidemiology as the main preventive discipline.</p> <p>Clinical epidemiology. Definition of the concept, history of formation, purpose and objectives of clinical epidemiology. Clinical epidemiology as a branch of epidemiology, which includes a methodology for obtaining evidence-based evidence-based information in epidemiological studies about the patterns of clinical manifestations of a disease, methods of diagnosis, treatment and prevention, in order to make an optimal clinical decision in relation to a particular patient.</p> <p>Epidemiological research Epidemiological research as the basis of epidemiology. Types (options, characteristic features) of epidemiological studies. Continuous and selective, descriptive and analytical, observational and experimental, routine and special, one-stage (transverse) and longitudinal (long-term) retrospective, dynamic and mixed, field and clinical, indicative (trial), "case-control" and "cohort". Schematic diagram of the organization, the main stages of the study.</p> <p>Database. Search for evidence-based information Sources of evidence-based information. The general structure of scientific</p>

			<p>communication. Abstract. Introduction (history of the issue; rationale for the study). Research methods (study design; study sample; intervention; distribution of interventions; list of complications; statistical analysis of data). Research results. Discussion. Conclusions. Literature. Requirements for the compilation of these sections. Algorithm for evaluating a scientific publication.</p> <p>Information systems in medicine (IS). Models of information systems. medical servers. Examples of information systems in epidemiology (WHOSIS (WHOStatisticalInformationSystem), HealthMetricsNetwork, VAERS etc.) Databases (DB) definition, classification. Two types of databases: relational and postrelational (document-oriented). Information Technology. Data exchange. information flows. Information flow management. Electronic sources of evidence. Carriers. Networks. Access. Subscription. Update. Search for information. Search engines (OVID, SilverPlatter). Rubricators (MeSH). Strategies for generating a search query in various search engines and databases, depending on the type of clinical question. Strategies for finding randomized clinical trials, systematic reviews, diagnostic tests, etiological factors, disease prognosis, treatment outcomes, clinical guidelines, evidence-based prevention programs developed by evidence-based medicine centers in the UK, Canada, the USA and other countries. Content and characteristics of databases containing information on evidence-based medicine. Principles of the Cochrane Collaboration. Cochrane Library.</p> <p>Optimization of the process of diagnosis, treatment and prevention in relation to a particular patient based on the results of an assessment of the treatment and diagnostic process using data from epidemiological studies. The role of clinical epidemiology in developing the scientific foundations of medical practice - a set of rules for making clinical decisions. The main postulate of clinical epidemiology is "every clinical decision should be based on rigorously proven scientific facts."</p> <p>Development of epidemiologically substantiated clinical recommendations and diagnostic standards, development of the prognosis of the course of the disease, methods of treatment and prevention. Data obtained in clinical epidemiological studies necessary for the epidemiological substantiation of preventive programs in relation to the prevention of noncommunicable diseases</p>
2	UC -1 UC - 3 UC - 4 UC - 6 PC -16 PC - 19 PC - 21	Medical Intervention Research	<p>Evaluation of the potential effectiveness and safety of preventive measures and measures. Randomized and non-randomized studies, the possibility of use, advantages and disadvantages. Randomized controlled clinical and field trials (investigation of the effect of interventions) are a reliable "gold" standard of experimental studies to assess the potential effectiveness of proposed drugs, methods, treatment regimens and diagnostics. Purpose of clinical trials. Internal and external validity of RCTs. Sample formation. Randomization as a way to avoid errors in the formation of experimental and control groups, methods of</p>

			<p>randomization. Organization of controls - blind and double-blind experience (method). Features of observation. Test phases (KI). Features of conducting clinical trials of drugs, vaccines and other immunobiological preparations (sera, interferons, immunoglobulins). Randomized field controlled trials and their purpose.</p> <p>Evaluation of the potential effectiveness of diagnostic and screening tests. Definition of the concepts of diagnostic and screening test. The purpose of diagnostic (diagnosis and choice of therapy) and screening tests (early detection of cases and secondary prevention). The use of experimental studies for the evaluation of diagnostic and screening tests. Features of the organization of the study for the evaluation of diagnostic tests. The main scheme for testing a diagnostic test. The "gold standard" is the most accurate diagnostic test. Scheme for testing the effectiveness and safety of a screening program. Evaluation of the effectiveness and safety of screening programs. Sensitivity, specificity and validity of diagnostic criteria and their impact on the completeness of detection of patients with infectious and non-infectious diseases.</p> <p>Possible errors of analytical studies and their sources.</p> <p>Ethics of epidemiological research, its international principles.</p>
3	<p>UC -1  UC – 3  UC – 4  UC – 6  PC -16  PC – 19  PC - 21</p>	<p>Systematic review and meta-analysis</p>	<p>Systematic reviews. Meta-analysis. Systematic reviews. Definition. Purpose of compilation. Requirements for the preparation of systematic reviews. Use of data from systematic reviews in practical work. Meta-analysis. Definition. Purpose of the event. Requirements for conducting a meta-analysis.</p>