

Federal State Autonomous Educational Institution of Higher Education
«Peoples' Friendship University of Russia»

Medical Institute

Recommended MCSD

SYLLABUS
(STUDY GUIDE)

Subject

Epidemiology

Recommended for the direction of training (specialty)

31.05.01 General Medicine

Program (profile, specialization)

General Medicine

1. Goals and objectives of the discipline:

To increase the knowledge of infectious diseases: A general practitioner should be able to identify or suspect an infectious disease, make a preliminary diagnosis, conduct a complex of diagnostic, medical and preventive measures at the pre-hospital stage, carry out follow-up and rehabilitation, and monitor contagious individuals.

Discipline objectives:

- formation of the ability to use descriptive, analytical and experimental epidemiological studies to identify risk factors for the occurrence of infectious diseases with an assessment of the effectiveness of preventive and therapeutic measures in the framework of randomized clinical trials;
- the formation of ideas about the principles of organizing preventive work among various contingents of the population at the individual, group and population levels (primary, secondary and tertiary levels of prevention);
- the formation of ideas about the principles of organizing preventive work among various contingents of the population at the individual, group and population levels in emergency situations;
- mastering the methods of organizing and carrying out measures for the prevention of nosocomial infections in medical institutions;
- mastering the skills of using normative and legal acts regulating preventive and anti-epidemic measures and sanitary and anti-epidemic regime in medical institutions.
- analysis of scientific literature and official statistical reviews;
- preparation of abstracts on modern scientific problems;
- compliance with the basic requirements of information security for the development of new methods and technologies in the field of healthcare;
- participation in statistical analysis and preparation of a report on the research performed.

2. Epidemiology discipline in the accordance with the Educational Program (EP) for Higher Education (HE):

This discipline belongs to the first division of the curriculum. Table 1 shows the previous and subsequent disciplines aimed at forming the competencies of the discipline in accordance with the competency matrix of the EP for HE.

Table № 1. Prior and subsequent disciplines aimed at building competences

№	Code and name of competence	Previous discipline	Subsequent discipline (group of discipline)
General competencies			
	G C G	B P a	Internal medicine, Clinical pharmacology, Public health
General professional competencies			
	G P C 6 (GPC-6.1., GPC-	General surgery, Emergency cases and critical care	Anesthesiology, Intensive care, Emergency and Resuscitation Medicine
Professional competencies			
	P C P C P	Histology, embryology, cytology, Microbiology, Virology, Pathological anatomy, clinical pathological anatomy	Infectious diseases Hospital therapy

Necessary requirements: the student must have knowledge, skills and competencies obtained in the study of biology, immunology, pathophysiology, hygiene, histology, embryology, cytology, microbiology, virology, pathological anatomy, clinical pathological anatomy

3. Requirements for the results of the discipline:

The process of studying the discipline is aimed at the formation of the following competencies:

Tab № 2

Developed competencies

Competencies	Name of competencies	Competence achievement indicators
UC-1.	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	UC-1.1. Analysing scientific and technical literature and regulatory documents of medical institutions. UC-1.2. Assessing in a critical way the reliability of information sources, working with contradictory information from different sources.
GPC-6	Being able to organize patient care, provide primary health care, arrange work and make professional decisions in emergency conditions at the prehospital stage, in emergency situations, epidemics and in foci of mass destruction	GPC-6.1. Mastering the algorithm for providing first aid in emergency conditions, including in extreme conditions and foci of mass destruction. GPC-6.2. Being able to identify the conditions which require emergency medical care, including clinical signs of sudden cessation of blood circulation and respiration. GPC-6.3. Being able to provide emergency medical care to patients in conditions that pose a threat to the life of a patient, including clinical death (cessation of the vital bodily functions (blood circulation and (or) breathing).
PC-5	Being able to carry out preventive measures and measures to promote a healthy lifestyle and sanitary and hygiene education among population and monitor their effectiveness	PC-5.2. Being able to organize and monitor the immunization of the adult population against infectious diseases in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-5.6. Being able to monitor observing preventive measures. PC-5.7. Being able to determine medical indications to introduce restrictive measures (quarantine) and indications for referral to a medical specialist in the event of infectious (parasitic) diseases. PC-5.8. Being able to issue and send an emergency notification to the territorial body of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing. PC-5.9. Being able to carry out anti-epidemic measures in the event of the occurrence of a focus of infection, including quarantine measures when especially dangerous (quarantine) infectious diseases are detected. PC-5.11. Being able to assess the effectiveness of preventive patient care.

After completing the discipline, the student must enquire the following knowledge and skills

- the structure, principles and organization of medical care involved with infectious diseases. This includes isolation wards in hospitals;
- principles of interaction of macro-and microorganism and factors contributing to the emergence of an infectious disease;
- etiology, pathogenesis and pathomorphology of infectious diseases;
- manifestations and complications in infectious diseases that occur in a typical form in different age groups;
- the main methods of laboratory and instrumental diagnostics, rules of isolates collection;
- criteria for diagnosis in infectious diseases;
- modern classification of infectious diseases, rules for the formulation of diagnosis;
- indications for outpatient treatment and hospitalization of patients;
- rules for the transporting a patient to the hospital, isolation rules for the hospitalization of patients;
- basic principles of treatment of infectious diseases, rational choice of medicines in the treatment of patients;
- rules for dispensary observation and rehabilitation of patients with infectious diseases;
- specific and non-specific prophylaxis of infectious diseases;
- need to observe and report cases to institutions specialized in infectious diseases;
- organization of HIV and AIDS care;
- organization of outpatient care;
- the basics of medical and medical ethics and deontology.
- suspect infectious disease in a patient;
- history clerking, epidemiological present and past history);
- physical examination;
- laboratory and instrumental examination;
- interpret the results of laboratory and instrumental examination;
- identify the leading clinical and clinical-laboratory syndromes;
- evaluate the differential diagnostic significance of the existing symptoms and syndromes;
- make a differential diagnosis between diseases with similar clinical symptoms;
- assess the severity of an infectious disease;
- predict the course and outcome of an infectious disease;
- diagnose emergency cases, provide first medical assistance, as well as determine further medical approach in emergency cases;
- determine the indications for outpatient treatment and hospitalization of a patient;
- determine the indications for the consultation of other specialists;
- conduct a complex of medical and preventive measures at the prehospital stage and in the treatment of patients at home;
- to carry out dispensary observation of convalescent and rehabilitation, taking into account the severity of the disease and associated pathological conditions;
- to formulate a diagnosis in accordance with the standard of ICD-10.
- Methods of general clinical examination for the diagnosis and differential diagnosis of the main clinical syndromes in infectious diseases;
- algorithm of laboratory and instrumental examination in case of suspected infectious pathology;
- interpretation of the results of laboratory and instrumental diagnostic methods;
- an algorithm for setting a preliminary diagnosis in a patient with suspected infectious diseases;
- an algorithm for setting a detailed clinical diagnosis;
- proper management of medical records;
- handling of and working with medical history cards;

- the skills of diagnosing emergency conditions in infectious patients and providing emergency and first medical assistance in emergency and life-threatening conditions.

4. Content of the discipline and types of study

The total complexity of the discipline _____ 3 credits.

Type of Lessons	Total hours	Semesters			
		7			
Lesson activities (total)					
В том числе:				-	-
<i>Lectures</i>					
<i>Practical lessons (PL)</i>					
<i>Seminars (S)</i>					
<i>Laboratory work (LW)</i>					
Self study (total)					
Total	hrs credits				

5. Content of the discipline

5.1. Content of discipline parts

Parts (topics) of discipline	Summary of parts (topics) of discipline:
1. General epidemiology. Epidemiological method and	Short history of the epidemiology development. Epidemiological method (analysis). Establishing an epidemiological diagnosis. The kinds of epidemiological research.
2. Epidemic process. Epidemiological surveillance.	L.V. Gromashevsky's role in the study about the epidemic process – three interconnecting elements: a source of infection, a mechanism of transmission and a susceptible organism. Indicators of the epidemic process. Antiepidemic measures. The basis of preventive measures organization. Levels of prevention. The epidemiological surveillance as a subsystem of the social-hygienic monitoring (SHM).
3. The study about natural niduses. Sapronotic infections.	The definitions: “natural nidus”, “anthropogenic nidus”. The role of wild, semisynanthropic and synanthropic mammals (rodents, insectivores, ungulates, predators), birds in the formation of natural and anthropogenic nidi. The main principles of epizootological-epidemiological surveillance.
4. Disinfection, sterilization.	The definition of disinfection. Types of disinfection: prophylactic and nidal (current and final). Disinfection specificities for respiratory infections, enteric infections and extremely dangerous infections. Presterilization cleaning of medical, including stomatological, things. Control of presterilization cleaning. Sterilization. Control of sterilization quality.

5. Immunoprophylaxis of infectious diseases.	Definition of immunoprophylaxis. Theoretical basis of immunoprevention. The schedules of immunoprophylaxis in the world. Active and passive immunoprophylaxis. Post-exposure immunoprophylaxis.
6. Infectious disease epidemiology. Epidemiology of socially significant infections.	The content of this section is defined by the actual epidemic situation and calendar plan of study course of infectious diseases. Epidemiological characteristics of socially significant infections. Organization of antiepidemic and preventive measures in niduses of infection diseases.
7. Epidemiology and prophylaxis of nosocomial infections.	Definition of nosocomial infections. Epidemiological, economic and social significance of hospital infections. Contributors of hospital infection emergence and distribution. Antiepidemic regime in medical institutions. Prevention of nosocomial diseases in medical staff. Post-exposure prevention of HIV, hepatitis viruses (B, C, D).
8. Epidemiology of emergency situations.	Definition of the “emergency situation”. Classification of catastrophes. Basic principles of medical aid and epidemic control organization in the area affected by an emergency.

5.2. Division of discipline and type of lesson

№	Name of the course of the discipline	Lectures	Practical Clinical studies		Self study work	Total hours
			PS/S	# of them in IF		
1.	General epidemiology. Epidemiological method with basis of the evidence-based medicine. Epidemiological researches.	2	4		4	10
2.	Epidemiological process. Epidemiological control.		8		3	11
3.	Doctrine of natural focality. Sapronoses.		8		3	11
4.	Disinfection. Sterilisation.		10		5	15
5.	Immunization of infectious diseases.		10		5	15
6.	Private epidemiology. Epidemiology of socially important infectious diseases.		16		12	28
7.	Epidemiology and prevention of nosocomial infections.		6		2	8

8.	Sanitary and anti-epidemic provision of the population in emergencies		8		2	10
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6. Laboratory works (if available) is not provided

7. Clinical practice

№ b/o	№ of the unit of the discipline	Name of subjects of practical studies of general part of the discipline according to FSES and forms of control	Value by semesters
1.	General epidemiology. Epidemiological method with basis of the evidence-based medicine. Epidemiological researches.	Infection. Infectious disease. Infectious condition. Parasitism. Doctrine of the epidemic process.	4
2.	Epidemiological process. Epidemiological control.	Epidemiological analysis. Epidemiological diagnostics. Epidemiological surveillance and control. Anti-epidemic and preventive measures.	8
3.	Doctrine of natural focality. Sapronoses.	Wide spread sapronotic infections: epidemiology and antiepidemic measures.	8
4.	Disinfection and sterilization	Disinfection. Sterilization. Desinsection. Deratisation.	10
5.	Immunoprophylaxis of infectious diseases.	National calendar of immunization. Immunity. Preventive vaccinations.	10

6.	Private epidemiology. Epidemiology of social-ly important infectious diseases.	Epidemiology and prevention of respiratory infections.	2
7.		Epidemiology and prevention of enteric infections.	2
8.		Epidemiology and prevention of infections with the contact transmission mode (of HIV infection).	4
9.		Epidemiology and prevention of infections with the contact transmission mode (viral hepatitis B, C and D)	2
10.		Epidemiology of vector-borne infections on an example of malaria and typhus.	2
11.	Healthcare Associated Infections	Epidemiology of nosocomial infections	3
		Safety of working places in hospitals: practice the algorithm of doctor actions in case of emergency (post exposure prevention of viral hepatitis and HIV infection)	3
12.	Sanitary and anti-epidemic provision of the population in emergencies	Epidemiology of the extremely dangerous infections and anti-epidemic measures.	8

8. Material and technical support of the discipline:

Clinical bases:

Infectious Clinical Hospital No. 1 - 500 beds

Infectious Clinical Hospital No. 2 - 900 beds

Use of wards, laboratories, class rooms, computers, multimedia systems, laboratory and instrumentation equipment. Sets of slides, tables, multimedia visual materials. Video films.

Situational tasks, test tasks on given topics.

9. Software:

At the department of infectious diseases with a course epidemiology, for lectures and practical (clinical) training software has Microsoft office 2003 with applications Word, Excel and Power Point.

Databases, information and search engines:

1. - www.medlit.ru
2. - [MedExplorer](#),
3. - [MedHunt](#).
4. The educational portal of the PFUR is <http://web-local.rudn.ru/> Educational and Scientific Information Library Center - <http://lib.rudn.ru>

10. Educational-methodological and information support for discipline:

a) Basic sources:

1. Essentials of Infectious Disease Epidemiology (Essential Public Health) Paperback – 21 Aug. 2007 by Magnus (Author)
2. Infectious Disease Epidemiology, Third Edition Paperback – 26 April 2013 by Nelson (Author)
3. 4TH EDITION SHERRIS MEDICAL MICROBIOLOGY AN INTRODUCTION TO INFECTIOUS DISEASE. EDITORS: KENNETH J. RYAN, MD C. GEORGE RAY, MD
4. Harrison's infectious diseases 3rd edition by Dennis kasper

b) Additional literature:

1. Epidemiology Lecture Notes (PDF 86P); This note covers the following topics:
Introduction to Epidemiology, Disease Causation, Levels of prevention, Concepts in the infectious diseases, Descriptive Epidemiology, Measurements of Morbidity and Mortality, Epidemic Investigation and Management, Epidemiological Surveillance
Author(s): Yigzaw Kebede, University of Gonda

Pdfhttps://www.cartercenter.org/resources/pdfs/health/ephti/library/lecture_notes/env_occupational_health_students/Epidemiology.pdf

2. Epidemiology of Infectious Diseases; This book introduces the basic methods for infectious disease epidemiology and case studies of important disease syndromes and entities. Methods include definitions and nomenclature, outbreak investigations, disease surveillance, case control studies, cohort studies, laboratory diagnosis, molecular epidemiology. Author(s): Johns Hopkins University
3. Epidemiology and Public Health; This note explains the following topics: History of Epidemiology and Public Health, Disease Transmission, Measures of Morbidity, Measures of Mortality, Mortality in Different Populations, Transmissible Spongiform Encephalopathy, Arteriosclerosis and Coronary Heart Disease, Influenza. Author(s): David M. Rollins
4. Epidemiology and public health; a text and reference book for physicians, medical students and health workers; This note explains the following topics: Respiratory infections, Nutritional disorders, alimentary infections and percutaneous infections. Author(s): Victor Clarence Vaughn
5. Basic Epidemiology (PDF 226P); This note covers the following topics: What is epidemiology, Measuring health and disease, Basic biostatistics: concepts and tools, Causation in epidemiology, Epidemiology and prevention: chronic noncommunicable diseases, Types of studies, Communicable diseases: epidemiology surveillance and response, Clinical epidemiology, Environmental and occupational epidemiology, Epidemiology, health policy and planning, First steps in practical epidemiology. Author(s): R Bonita, R Beaglehole and T Kjellstrom-
http://apps.who.int/iris/bitstream/handle/10665/43541/9241547073_eng.pdf;jsessionid=81A07B357E56EFD3C7B080EFD32DEC38?sequence=1

11. Guidelines for the organization of study of discipline:

In accordance with the FSES HPE (Federal State Educational Standards of Higher Professional Education) teaching discipline "Epidemiology" provides competence approach in the learning process, which is based on psycho-pedagogical innovative technologies directed

at improving the efficiency and quality of formation of professional skills of students. The main forms of learning are: lectures, practical clinical studies (conducted in the classroom and in the chambers of patients with infectious disease), as well as self-study work of the student.

A list of the classes defines socio-economic and epidemiological significance of certain infectious and non-infectious diseases, the prevention of which is within the competence of the physician in hospitals of dental profile.

The program uses proactive and interactive forms of training: discussion, analysis of epidemiological situations, collecting epidemiological history at the bedside of the patient.

For the successful development of the discipline of "epidemiology" each student is provided with teaching materials (thematic plans of lectures and practical clinical training, training-methodical literature, typical test tasks, situational tasks).

Various types of training, including the self-study work of students are mastering the culture of thinking, ability in oral and written language logically to apply the basic provisions of the didactic units of discipline, that is, a systematic approach to the analysis of medical information, perception of innovation that contributes to self-development, self-realization, personal and meaningful reflection.

Subjects of lectures and practical clinical training program consistent with the contents of the discipline.

Lectures are given on the most important parts of the program. They have problematic characteristic and form for students' system view on the studied subject sections, provide the basic understanding of the principles and provisions of "epidemiology" discipline, as well as the readiness to accept the scientific and technological innovations and technologies.

Practical clinical trainings provide acquisition and consolidation of skills and abilities, form the professional competences, willingness to separate and individual work, take responsible decisions in the framework of professional activity in medical institutions of dental profile.

At the practical part of the class, the teacher draws attention to the ability of the student to the logical thinking and self-support, uses in its pedagogical activities innovative personality-oriented learning.

A list of the practical clinical trainings defines socio-economic and epidemiological significance of certain infectious diseases in medical institutions of dental profile (currently HIV infection, parenteral hepatitis, tuberculosis and others), as well as the necessity to develop by students' skills of epidemiological researches.

A priority direction in practical clinical training is an overview (system) principle, which reflects the common approaches to complex preventive and anti-epidemic actions, in similar manifestations on epidemiological diseases.

Practical clinical studies conducted with the purpose to provide students with the basic theoretical, methodological and organizational sections of the program, as well as developing and retaining abilities and practical skills in the use of anti-epidemic supplies and organization of the preventive measures in the institutions of dental profile and in emergency situations.

For practical clinical courses in epidemiology with the students is mandatory required to identify the source (basic) level of knowledge with subsequent correction. Result of the class - self-control of mastering of the material using thematic test tasks. Control of the self-study themes is consisting of the practical training with open and closed types of tests.

Selected themes of sections of discipline in accordance with Table 5.3, students are working on their own. The content of self-study work: reading primary and recommended

additional literature, situational tasks solution that contributes to the development of cognitive activity and creative thinking of students, develops skills of independent information retrieval, as well as, forms ability and readiness of self-improvement, self-realization and creative adaptation. Self-study with primary and additional literature forms ability to analyze medical and social problems, skill to use on practice natural scientific, biomedical and clinical sciences in various kinds of professional and social activities.

Self-study work of students is conducted in extra auditorial hours and makes about 1/2 of the total labour input of the discipline.

Evaluation of theoretical and practical knowledge of the students' discipline "Epidemiology" is performed using a test control solutions and situational problems. At the end of the semester test (set off) is conducted, including the final test check and interview.

12. Foundation of program evaluation for intermediate certification of students in this discipline (module)

Materials for assessing the level of adapting the educational material of the discipline "Epidemiology" (evaluation materials), including a list of competencies with an indication of the stages of their formation, a description of indicators and criteria for evaluating competencies at various stages of their formation, a description of the assessment scales, typical assessment tasks or other materials, necessary for assessing the knowledge, abilities, skills and (or) experience of activities that characterize the stages of the formation of competencies in the process of adapting the educational program, methodological materials that determine the procedures for assessing knowledge, skills and (or) experience of activities that characterize the stages of formation of competencies in full and available to students on the course page TUIS RUDN - <https://esystem.rudn.ru/course/view.php?id=7179>

This program is compiled in accordance with the requirements of the FSES HE.

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