MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

V.N. KARAZIN KHARKIV NATIONAL UNIVERSITY

SCHOOL OF MEDICINE

Department of general and clinical immunology and allergology

"APPROVED"
Vice-President for Research and Education
_____A.V. Panteleimonov
"___" _____2020 year

WORKING PROGRAM
Discipline: «Epidemiology»

Educational qualification: "Specialist"
Branch of learning 22 "Health care"
Training direction 222 "Medicine"
Professional qualification: "Doctor"
obligatory discipline

2020/2021 year of studies

Working program of the discipline «Epidemiology» is recommended for approval by the Academic Council of the School of medicine

«13»_____05_____2020year, protocol № 9

Working program of the discipline «Epidemiology» for applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine», V.N. Karazin Kharkiv National University, School of medicine, «13»___05____2020year. - 22 p.

Working program of the discipline «Epidemiology» for applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine» on the school of medicine of V.N. Karazin Kharkiv National University is prepared on the basis of the typical (examplary) program of the discipline, composed by Government institution «Central methodics department for higher medical education of the Ministry of Healthcare of Ukraine» authorized with the Head of the Government institution «Central methodics department for higher medical education of the Ministry of Healthcare of Ukraine» I. Melnik on the 28th of april 2017, authorized with the Acting Head of the Education and Science department of the Ministry of Healthcare of Ukraine N .Oleksina on the 3rd of may 2017 and approved by the Vice-minister of the Ministry of Healthcare of Ukraine O. Linchevskiy on the3rd of may 2017.

Authors of the working program of the discipline «Epidemiology»:

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Working program was reviewed and approved at a meeting of the Department of general and clinical immunology and allergology of the school of medicine of V.N. Karazin Kharkiv National University, protocol № 10 «04» 05 2020year.

Head of Department _____Doctor of Sciences (Medicine), T.I .Liadova
"04" __05____2020year

The program is agreed with the guarantor of the educational (professional / scientific) program (project team leader)

222 „Medicine"
the name of the educational program

Guarantor of educational (professional / scientific) program
(project team leader) MD, full prof Nikolenko Ye.Ya

(Signature) Nikolenko Ye.Ya.
(last name and first name

Working program was reviewed and approved at a meeting of the Methodical committee of the school of medicine of V.N. Karazin Kharkiv National University, protocol № 9 «06» 05 2020 year.

Head of the Methodical committee_____Candidate of Medicine, Associate Professor,

"06" 05 2020 year

O.L. Govalenkova

EXPLANATORY NOTE

Working program of the discipline «Epidemiology» for applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine» on the school of medicine of V.N. Karazin Kharkiv National University is prepared on the basis of the typical (examplary) program of the discipline, composed by Government institution «Central methodics department for higher medical education of the Ministry of Healthcare of Ukraine» authorized with the Head of the Government institution «Central methodics department for higher medical education of the Ministry of Healthcare of Ukraine» I. Melnik on the 28th of april 2017, authorized with the Acting Head of the Education and Science department of the Ministry of Healthcare of Ukraine N.Oleksina on the 3rd of may 2017 and approved by the Vice-minister of the Ministry of Healthcare of Ukraine O.Linchevskiy on the 3rd of may 2017.

Working program of the discipline «Epidemiology» is prepared according to the Project of a Standard of the higher medical education of Ukraine of the second (master's) program branch of learning 22 «Health care» specialty 222 «Medicine» for applicants for educational qualification «Specialist», professional qualification «Doctor», discussed at the XIII All-Ukrainian research and practical conference with an international participation «Topical issues of quality of medical education» (12-13 of may 2016 year, Ternopil, Ukraine), and an approximate educational planfor applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine», approved by the Acting Minister of Healthcare of Ukraine V. Shafranskiy on the 26th of july 2016, taking into account conditions of the Protocol for grading the learning activity of applicantss in conditions of an introduction to the the European Credit Transfer System (ECTS)of the organization of the educational process, approved by the Ministry of Healthcare of Ukraine on the 15th of april 2014 year; Act of Ukraine «On higher education» № 2443-VIII from the 22nd o may 2018; Statute of the organization of the educational process in V.N. Karazin Kharkiv National University, approved on the meeting of the Academic Board of the University (protocol of the meeting №5 from the 27th of march 2017), and put into action by the order of the President of the University (order № 0202-1/155 from the 21st of april 2017) in the revised version from the 5th of September 2018; educational plan of training for applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine» on the School of medicine, approved by the Academic Board and put into action by the order of the President of V.N. Karazin Kharkiv National University, Educational and professional program of the higher education training for applicants for educational qualification «Specialist» professional qualification «Doctor» branch of learning 22 «Health care» specialty 222 «Medicine» on the medical faculty, approved by the Academic Board of V.N. Karazin Kharkiv National University (protocol № 13 from 31st of October 2016); the Statute of V.N. Karazin Kharkiv National University, approved by the order of the Ministry of Education and Science of Ukraine (order №644 from 13th of june 2018); The codex of values of V.N. Karazin Kharkiv National University and other regulatory acts.

The duration of studies of the discipline «Epidemiology» is 1 semesters (IX) during the 5th academic year, total amount of academic hours is 45 hours (1,5 credits ECTS), whichof them 10 hours - lectures, 20 hours – practical classes, 15 hours – independent work (IW). Structure of hours for studies of the discipline «Epidemiology» is in the table below (table 1.).

Academic hours for studies of the discipline «Epidemiology»

Table 1

Stucture of the discipline	Hours				Credits ECTS	Year and semester of studies	Type of control
	Lectures	Practical classes	IW	total			
Module 1 (3 content modules)	10	20	15	45	1,5	5 course, IX semester	Differentiated credit
TOTAL	**10**	**20**	**15**	**45**	**1,5**		

Note: 1 credit ECTS – 30 academic hours; teaching load – 67%; IW– 33%, average weekly load- 2,3 hours per week (including IW); average weekly teaching load – 1 hour per week

I. EDUCATIONAL DISCIPLINE DESCRIPTION

The discipline «Epidemiology»:

a) is based on the study of applicantss of biology, microbiology, immunology, infectious diseases, biostatistics, social medicine and integrates with these disciplines;
b) lays the foundations for applicantss to develop skills that are determined by the ultimate goals of studying epidemiology as an independent discipline and can be used by applicants in their further learning and professional activities.

Organization of the educational process in studying the discipline «Epidemiology» is provided with European Credit Transfer System (ECTS) according to the demands of the Bologna process. The main types of educational work in studying the discipline «Epidemiology» are lectures and practical classes, self-study work, consulting according to the schedule, which is approved at the beginning of each academic year at the meeting of the department of General and clinical immunology and allergology (in addition on demands consulting with Internet-sourses, technologies of distance learning, webinars, conferences, research works etc. can be used). The topics of the lectures of the discipline «Epidemiology» reveal the problematic issues of the relevant sections of the discipline and allow applicantss to provide information on the most pressing issues of the discipline. Classes in the course of «Epidemiology» according to the method of their organization are practical classes,where videos, movies submitted in computer programs and other educational technologies can be used; solving of situational problems (laboratory diagnostics of infectious diseases, estimation of indicators of immunity, statistics, analytical methods) having experimental, clinical diagnostic or sanitary-hygienic direction. In practical classes, applicantss are advised of the need to briefly record the research protocols, where the purpose of the study, research results and conclusions should be stated.

The general amount of teaching load is described in credits ECTS, which are scored to applicantss in case of successful learning the exact module (final credit). The European Credit Transfer System encourages to study systematically along the year of studies when learning the discipline.

The Academic Council of the School of medicine on the demand of the department of General and clinical immunology and allergology can change the amount of hours on the discipline «Epidemiology», but not more than 10% of its amount. The department of General and clinical immunology and allergology has a right to make some changes in the working program according to its organizational and technical possibilities, the line of research works, ecological peculiarities of the region, but general demands of the discipline and educational plans must be considered. Current program totally satisfy requirements of demands mentioned above.

Current educational activity of applicantss is controlled on the practical classes according to specific goals. To estimate the level of knowledge of applicantss it is recommended to use such

methods, as tests, written or oral answers on control questions, solving situational test, providing laboratory examinations, analyzing results, controlling the mastering practical skills by applicantss. The final module control is carried out at the end of the study of modules. Assessment of applicants knowledge from discipline is rated by the multiscale as the average score of mastering the relevant modules and is defined according to the ECTS system and the traditional scale accepted in Ukraine. More details about the method of estimating current educational activity and the results of final module are described in the specific chapter of current working program (see below).

1.1. THE PURPOSE OF STUDIES OF THE EDUCATIONAL DISCIPLINE

The purpose of the study of epidemiology - the **ultimate goals** are created on the basis of EPP training of a doctor in the specialty in accordance with the block of its content module (professional and practical training) and is the basis for building the content of the discipline. The description of goals is formulated through skills in the form of target tasks (actions). On the basis of the ultimate goals for the module or content module, **specific goals** are formulated in the form of certain skills (actions), target tasks that ensure the achievement of the ultimate goal of studying the discipline.

1.2. THE MAIN TASKS OF STUDYING OF THE EDUCATIONAL DISCIPLINE

ACCORDING TO THE REQUIREMENTS OF EDUCATIONAL AND PROFESSIONAL PROGRAMS APPLICANTS FOR HIGHER MEDICAL EDUCATION MUST:

know:

- Organization and implementation of anti-epidemic measures in the centers of infectious diseases.
- Criteria for the need for deratization, disinsection and disinfection in a particular center of an infectious disease and methods of its implementation.
- Epidemiological, social and economic significance of certain nosological forms.
- Techniques of epidemiological research method (descriptive, analytical, experimental, prognostic).
- Analyze the structure and level of morbidity of the population by nosological forms.
- To analyze the long-term and annual dynamics of morbidity, to determine the trend, cyclical and seasonal fluctuations in the level of morbidity, to make a prognosis of morbidity.
- To determine the epidemiological manifestations of the incidence of infections belonging to different groups (respiratory, intestinal, transmissible and infections of the outer coverings).
- Formulate working hypotheses about the risk factors for morbidity in the territories, among different groups of the population and in groups regarding specific infectious diseases.

be able:

- Identify groups, teams, territories, time and risk factors for the disease.
- Investigate outbreaks of infectious diseases and organize measures to eliminate them.
- Be able to interpret the results of epidemiological cohort studies and case-control studies.
- Interpret the manifestations of the epidemic process of specific nosological forms belonging to different groups of infections: respiratory, intestinal, transmissible and infections of the outer coverings.
- Organize preventive and anti-epidemic measures in the centers of specific nosological forms belonging to different groups of infections: typhoid fever,

shigellosis, viral hepatitis A, cholera, diphtheria, measles, salmonellosis, botulism, polio, leptospirosis, infection and meningococcal disease. Bryla, malaria, GV and HS, HIV infection, tularemia, tick-borne encephalitis, hemorrhagic fevers Lassa, Ebola, Marburg, plague, cholera.

- Use the normative and instructive documentation of the Ministry of Health of Ukraine to eliminate foci of specific nosological forms belonging to different groups of infections: respiratory, intestinal, transmissible and infections of the outer coverings.
- fill in the documentation on registration and accounting of infectious patients.
- Organize immunoprophylaxis. Be able to make a plan for vaccinations.
- Carry out legal justification of scheduled and unscheduled vaccinations.
- Prepare documentation (accounting and reporting) on vaccination.
- Identify priority problems of prevention of infectious diseases by groups and nosological forms.

Competences and learning outcomes, the formation of which is facilitated by the discipline (relationship with the normative content of training of higher education, formulated in terms of learning outcomes in the Standard).

In accordance with the requirements of the standard, the discipline provides the acquisition of higher education competencies:

- *integral:*

- Ability to solve typical and complex specialized problems and practical problems in a professional health care activity, or in a learning process that involves research and / or innovation and is characterized by the complexity and uncertainty of conditions and requirements.

- *general:*

- Ability to apply knowledge in practical situations.
- Ability to exercise self-regulation, lead a healthy lifestyle, ability to adapt and act in a new situation.
- Ability to choose a communication strategy; ability to work in a team; interpersonal skills.
- Skills in the use of information and communication technologies.
- Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained.
- Definiteness and perseverance in terms of tasks and responsibilities.
- Ability to act socially responsible and public consciousness.
- The desire to preserve the environment.
- - special (professional, subject):
- Ability to carry out medical and evacuation measures.
- Ability to carry out sanitary and hygienic and preventive measures.
- Ability to plan preventive and anti-epidemic measures for infectious diseases.
- Ability to carry out preventive and anti-epidemic measures against infectious diseases.
- Ability to process state, social, economic and medical information.
- Ability to conduct epidemiological and medical-statistical studies of public health.
- Ability to assess the impact of the environment on the health of the population (individual, family, population).
- Ability to assess the impact of socio-economic and biological determinants on the health of the individual, family, population.

1.3. NUMBER OF CREDITS

The discipline program is structured into 1 ECTS module, which consists of 3 content modules with a total volume of 1.5 credits (45 hours). The volume of academic load for the

applicant for higher medical education is described in ECTS credits - score credits, which are given to the applicants for higher medical education upon successful completion of the module.

The educational process is organized according to the credit-module system in accordance with the implementation of the provisions of the Bologna Declaration in the higher medical education system.

1.4. TOTAL AMOUNT OF HOURS

Table 2

1.5. Characteristics of the discipline	
Obligatory	
Full-time education	
Year of training	
5-th	
semester	
IX	
lectures	
10 hours	
Practical, seminar classes	
20 hours	
Laboratory classes	
–	
Independent work	
15 hours	

Distribution of Academic hours for studying the discipline «Epidemioilogy»

Table 3

Stucture of the discipline	Hours				Credits ECTS	Year and semester of studies	Type of control
	Lectures	Practical classes	IW	total			
Module 1 (3 content modules)	10	20	15	45	1,5	5 year, IX semester	Differentiated credit
TOTAL	**10**	**20**	**15**	**45**	**1,5**		

Note: 1 credit ECTS – 30 academic hours; teaching load – 67%; IW – 33%, average weekly load- 2,3 hours per week (including IW); average weekly teaching load – 1 hours per week

1.6. PLANNED LEARNING RESULTS

The final goals of the discipline

- Interpret the causes and patterns of the epidemic process, the main regulations in the field of epidemiology.
- Conduct an epidemiological survey of the source of infectious disease and epidemic outbreak and develop measures to eliminate them.
- Analyze the epidemic situation of the territory and population in the emergency zone, plan appropriate measures and organize their implementation.
- Demonstrate awareness of infectious diseases as weapons of mass destruction.

II. THEMATIC PLAN OF EDUCATIONAL DISCIPLINE

The amount of applicant workload is described in ECTS credits, which are credited to applicants upon successful completion of the relevant module (credit).

The credit-module system of organization of the educational process encourages applicants to study systematically during the academic year.

Types of educational activities of applicants according to the curriculum are: a) lectures, b) practical classes, c) independent work of applicants (IW), in the organization of which teachers' consultations have a significant role. Thematic plans of lectures, practical classes, IWS ensure the implementation in the educational process of all topics that are part of the content modules.

Lectures. Preference is given to problem, review and conceptual-analytical lectures, ie those that do not fully duplicate the material of textbooks and manuals.

The lecture becomes a process during which applicants form knowledge, provide a motivational component and a general-oriented stage of mastering scientific knowledge. The role of lectures in the quality management of applicants' independent work is growing.

Practical classes are aimed at controlling the assimilation of theoretical material and the formation of practical skills, as well as the ability to analyze and apply the acquired knowledge in the next activity. Practical classes on the methods of their organization include:

1) control of assimilation of theoretical material;
2) acquaintance with information and instructional documents;
3) solving situational problems.

It is offered to applicants as preparation for practical employment and on practical employment to conduct protocols where to specify the name of a theme, the purpose of employment, materials on preparation of the applicant for employment and on employment (instructive and operating legislative materials).

Applicant's independent work (IW) is one of the organizational forms of learning, which is regulated by the working curriculum and is performed by the applicant independently outside the classroom. Possible types of independent work of applicants: preparation for practical classes and study of topics considered only in terms of independent applicant work, search and study of additional literature, creation of algorithms, structural and logical schemes.

The final control of mastering the module is carried out upon its completion at the final modular control lesson.

Assessment of applicant performance in the discipline is a rating and is set on a multi-point scale.

Departments with a course in epidemiology have the right to make changes to the curriculum (not more than 10%) depending on organizational and technical capabilities, areas of research, environmental characteristics of the region, but must meet the overall requirements of the discipline in accordance with the ultimate goals of OKH and EPP direction of training and curriculum.

The current learning activities of applicants are monitored in practical classes in accordance with specific objectives.

It is recommended to use the following tools to diagnose the level of preparation of applicants: surveys, solving situational problems, test tasks and more.

Final control is carried out upon completion of the discipline.

The assessment of a applicant's success in the discipline is a rating and is set on a multi-point scale as the **arithmetic mean of the mastery of the relevant modules and is determined by the ECTS system and the traditional scale adopted in Ukraine.**

2.1 . CONTENT OF THE PROGRAM

Content module 1.General epidemiology

Specific goals:

- *Organization and carrying out of anti-epidemic measures in the centers of infectious diseases.*

- *To determine the need for deratization, disinsection and disinfection in a specific cell of infectious disease and the method of its implementation.*
- *Be able to complete documentation on registration and accounting of infectious patients.*
- *Organize immunoprophylaxis. Be able to draw up a vaccination plan.*
- *Legal justification for scheduled and unplanned vaccinations.*
- *To fill in the documentation (accounting and reporting) of the vaccination.*
- *Identify priority problems for the prevention of infectious diseases by groups and nosological forms.*
- *To interpret the epidemiological, social and economic significance of individual nosological forms.*
- *Apply methods of epidemiological method of research (descriptive, analytical, experimental, prognostic).*
- *To analyze the structure and the level of morbidity of the population by nosological forms.*
- *To analyze the long-term and annual dynamics of morbidity, to determine the tendency, cyclical and seasonal variations in the level of morbidity, to make a forecast of morbidity.*
- *Be able to investigate infectious disease outbreaks and organize measures to eliminate them.*
- *Identify groups, teams, territories, time and risk factors for morbidity.*
- *Be able to interpret the results of epidemiological cohort and case-control studies.*

Content module 1. General epidemiology

Specific goals:

- *Organization and carrying out of anti-epidemic measures in the centers of infectious diseases.*
- *To determine the need for deratization, disinsection and disinfection in a specific cell of infectious disease and the method of its implementation.*
- *Be able to complete documentation on registration and accounting of infectious patients.*
- *Organize immunoprophylaxis. Be able to draw up a vaccination plan.*
- *Legal justification for scheduled and unplanned vaccinations.*
- *To fill in the documentation (accounting and reporting) of the vaccination.*
- *Identify priority problems for the prevention of infectious diseases by groups and nosological forms.*
- *To interpret the epidemiological, social and economic significance of individual nosological forms.*
- *Apply methods of epidemiological method of research (descriptive, analytical, experimental, prognostic).*
- *To analyze the structure and the level of morbidity of the population by nosological forms.*
- *To analyze the long-term and annual dynamics of morbidity, to determine the tendency, cyclical and seasonal variations in the level of morbidity, to make a forecast of morbidity.*
- *Be able to investigate infectious disease outbreaks and organize measures to eliminate them.*
- *Identify groups, teams, territories, time and risk factors for morbidity.*
- *Be able to interpret the results of epidemiological cohort and case-control studies.*

Topic 1. The doctrine of the epidemic process. Anti-epidemic measures in the foci of infectious diseases. Anti-epidemic work of district and and infectious disease physicians.

The focus of infectious disease. Examination of infectious disease focus. Filling in the relevant documentation. Measures for localization and elimination of the focus - measures for the patient and the carrier, the disinfection of the environment and the persons who have communicated with the source of the infectious disease. Anti-epidemic measures in the focus - measures aimed at the components of the epidemic process. An ordered list of anti-epidemic measures.

Responsibilities of the district (family) doctor and the infectious disease doctor on issues of anti-epidemic work.

Topic 2. Deratization. Disinsection. Disinfection and sterilization .

The concept of deratization. Types and methods of deratization. The concept of disinfection. Types and methods of disinfection. The concept of disinfection (incect control). Types and methods of disinfection. Classification of disinfectants. Disinfection chambers, principles of their design and purpose. Quality control of disinfection. The concept of sterilization. Steps of sterilization. Quality control of pre-sterilization processing.

Topic 3. Immunoprophylaxis of infectious diseases. Preventive vaccination calendar. Legal aspects of vaccination. Organization and carrying out of vaccinations. Evaluation is effective with those immunoprophylaxis. Urgent immunoprophylaxis.

Types of immunity and their characteristics. The value of the population's immunity level in the development of infectious diseases. Calendar of preventive vaccinations of Ukraine, its sections. Requirements for immunobiological medicaments. Methods of conducting immunobiological preparations into the body. List of medical contraindications to preventive vaccinations. Post-vaccination reactions and complications. Preparations for routine immunoprophylaxis (release form, route of administration, dose, reaction to administration).

Topic 4 . Epidemiological research method and its structure. Epidemiological diagnosis. Planning of anti-epidemic and preventive measures.

Assessment of prevention problems based on the analysis of the structure and level of morbidity by groups and nosological forms of infections. Epidemiological diagnosis. Operational epidemiological analysis. Retrospective epidemiological analysis. The study of the manifestations of annual and long-term dynamics of the incidence. Prediction of the manifestations of the epidemic process. Analysis of incidence according to groups, teams, territories. Planning anti-epidemic measures. Analytical and experimental epidemiological studies.

Topic 5. Analytical and experimental methods in epidemiological studies.

Purpose and tasks of analytical epidemiological methods of research. The essence and methodology of conducting a case-control study and a cohort analytical study. Immediate and relative risks of the disease. Epidemiological experiment. Screening of the population. Methods of mathematical modeling in epidemiology.

Content module 2. Special epidemiology

Specific goals:

- To determine the epidemiological manifestations of illness in the infection, which should belong to various groups (airborne droplets, and infectious diseases).
- assume hypotheses that are more important in terms of seizure by territory, the middle group of the population is in collectives that are very specific for infectious seizure.
- to determine the manifestation of the epidemic process of specific nosological forms, which should belong to the maximum group of infections: dichyonic, intestinal, transmissive and infectious diseases.

Topic 6. Anti-epidemic measures in the foci of infections with the aerogenic mechanism of transmission. Anti-epidemic measures in foci of infections with fecal-oral transmission mechanism.

Mechanisms, factors and ways of transmission of specific nosological forms. Manifestations of epidemic process (level of morbidity, manifestations of morbidity in time, by territory, among different population groups and by groups). Preventive and anty-epidemic events in the foci. Epidemiological characteristics of the group of intestinal infections. Factors and ways of transmission of specific nosological forms. Manifestations of the epidemic process (incidence rate, incidence rate over time, by territory, among different population groups and by

teams). Preventive and anti-epidemic measures in the foci. Investigation of outbreaks of intestinal infections.

Topic 7. Anti-epidemic measures in the foci of infections with the vector-borne and the contact mechanisms of transmission.

Epidemiological characteristics of the group of vector-borne infections and infections of he skin. Factors and ways of transmission of specific nosological forms. Manifestations of the epidemic process (incidence rate, manifestations of the incidence in time, across the territory, among different population groups and collectives). Preventive and anti-epidemic measures in the foci.

Topic 8. Nosocomial infections. Infection control system.

Epidemiological definition of nosocomial infections. Establishing cause and effect relationships in the spread of infectious disease.

Content module 3. Military epidemiology

Specific goals:

- *To organize preventive and anti-epidemic measures in the centers of specific nosological forms belonging to different groups of infections: typhoid fever, shigellosis, viral hepatitis A, cholera, diphtheria, measles, salmonellosis, botulism, polio, leptospirosis, leptospirosis*
- *meningococcal infection, typhoid fever and Bryl's disease, malaria, HS and HS, HIV infection, tularemia, tick-borne encephalitis, haemorrhagic fever Lassa, Ebola, Marburg, plague, cholera.*
- *Investigation of infectious disease outbreaks.*
- *To use the regulatory-instructive instructions of the Ministry of Health of Ukraine to eliminate the cells of specific nosological forms belonging to different groups of infections: respiratory, intestinal, transmissible and skin infections.*

Topic 9. Features of anti-epidemic measures in cases of emergencies in peacetime in conditions of infection of international importance (plague, cholera).

Factors affecting the spread of infectious diseases in emergency zones. Features of the epidemic process in an emergency zones. The basic principles of planning anti-epidemic and preventive measures in emergency zones. Protection of the population in emergency situations. Regime-restrictive measures during observation and quarantine. Collective and individual means of protecting the population.

***Topic 10.* Anti-epidemic protection of military force, bacteriological intelligence service in case of registration of epidemic foci.**

Anti-epidemic measures among the personnel of the troops. Criteria for assessing the sanitary-epidemiological condition of the troops and the area of their deployment in the conditions of registration of intestinal infections. The definition and objectives of bacteriological intelligence. Rules for the selection of materials for the indication of biological weapons. Indication of bacteriological weapons (specific and non-specific). Indication of bacteriological weapons in reduced and expanded volumes..

Topic 11. Final module control

Control of theoretical and practical training.

III. STRUCTURE OF THE DISCIPLINE «EPIDEMIOLOGY»

Table 4

Names of modules and topics	Number of hours

	total	including		
		lectures	pract.	IW
Module 1				
Content module 1. General epidemiology				
1. The epidemic process. Areas of fight against infectious diseases.	4	1	2	1
2. Immunoprophylaxis of infectious diseases.	3	-	2	1
3. Epidemiological method of research.	6	1	4	1
Total for Content Module 1	**13**	**2**	**8**	**3**
Content module 2. Special epidemiology				
4. Epidemiological characteristics of different groups of infections. Anti-epidemic measures in the foci of infectious diseases.	16	4	5	7
5. Infections associated with the provision of medical care. Infection control system.	2	2	-	-
6. Nosocomial infections. Infection control system.	3	-	1	2
Total for content module 2	**21**	**6**	**6**	**9**
Content module 3 Military epidemiology				
7. Especially dangerous infections. Sanitary protection of borders. Anti-epidemic and emergency measures	5	2	2	1
8. Anti-epidemic protection of military force, bacteriological intelligence service in case of registration of epidemic foci.	3	-	2	1
Total for content module 3	**8**	**2**	**4**	**2**
Final modular control	**3**	**-**	**2**	**1**
Total hours	**45**	**10**	**20**	**15**

Table 5

IV. Topics of lectures in the discipline «Epidemiology»

No	TOPIC	Number of hours
1.	*The subject of epidemiology. The doctrine of the epidemic process. Directions of the fight against infectious diseases. Epidemiological research method, its structure and content. Epidemiological diagnosis. Epidemiological surveillance system*	2
2.	*Epidemiological characteristics of the group of respiratory tract infections. Epidemiological characteristics of the group of intestinal infections*	2
3.	*Epidemiological characteristics of blood contact infections. Ways to overcome stigma and discrimination in health facilities for people living with HIV / AIDS.*	2
4.	*Infections associated with the provision of medical care. Infection control system.*	2
5.	*Sanitary protection of the territory. Especially dangerous infections. Anti-epidemic measures in the foci of especially dangerous infections*	2
	TOTAL	***10***

Table 6

Thematic plan of practical classes in the discipline «Epidemiology»

No	TOPIC	Number of hours
	Content module 1. General epidemiology	
1.	*The doctrine of the epidemic process. Anti-epidemic measures in the foci of infectious diseases. Anti-epidemic work of district (family) and infectious disease physicians.*	2
2.	*Deratization. Disinsection. Disinfection and sterilization.*	2
3.	*Immunoprophylaxis of infectious diseases. Preventive vaccination calendar. Legal aspects of vaccination.*	2
4.	*Epidemiological research method and its structure. Planning and epidemic prevention Mat at IRS*	2
5.	*The analytical and experimental methods in Epidemiologists including their studies.*	2
	Content module 2. Special epidemiology	
6.	*Disease measures in the cells of infections with aerohe n his transfer mechanism. Disease measures in the cells of infections with fecal-oral mechanism of transmission.*	2
7.	*Anti-epidemic measures in the centers of vector-born and infections with contact mechanisms of transmission.*	1
8.	*Nosocomial infections. Infection control system.*	1
	Content module 3. Military epidemiology	
9	*Features of anti-epidemic measures in cases of emergencies in peacetime in the conditions of infections of international importance.*	2
10.	*Anti-epidemic protection of troops, bacteriological intelligence*	2
11.	***Final modular control:***	***2***
	practical training	***1***
	theoretical training	***1***
	TOTAL	**20**

Table 7

V.THEMATIC PLAN OF INDEPENDENT WORK OF THE APPLICANT OF THE HIGHER MEDICAL EDUCATION ON DISCIPLINE «EPIDEMIOLOGY»

No	**TOPIC**	**Number of hours**
1.	*Preparation for practical training: Epidemic process. Anti-epidemic measures in foci of infectious diseases*	2
2.	*Preparation for practical training: Immunoprophylaxis of infectious diseases*	3
3.	*Preparation for practical training: Epidemiological research method*	2
4.	*Preparation for practical training: Nosocomial infections. Infection control system.*	2
5.	*Preparation for practical training: Particularly dangerous infections. Sanitary protection of borders. Anti-epidemic measures in emergency situations.*	2
6.	*Preparation for practical training: Anti-epidemic measures in the centers of infectious diseases.*	4
	TOTAL	***15***

VI . TEACHING METHODS

Among the teaching methods in the study of the discipline «Epidemiology», depending on the stage of learning, use the method of preparation for the study of new material and study of new material, its fixation in the form of questions for self-control, as well as a method of explaining the teacher in the direct guidance of the latter, where they can be used explanatory, illustrative, reproductive, partially exploratory, research methods, and self-directed work where teacher guidance is indirect.

VII . CONTROL METHODS

Among the basic methods of control in practical classes after self-study of new material for its consolidation are used tasks in the form of control exercises with their assessment (entrance (previous), current, borderline), which in the form of conducting can be: oral questioning (both individual and frontal), or written, or programmable, or test, or practical control. Contemporary technologies may include situational modeling (role-playing, gaming, etc.) or algorithmic/standardization technologies. Among the interactive methods are: the method of analysis of specific, problematic situations; method of group discussion; method of competing groups and the like.

At the department, the assessment of the applicant for higher medical education for work in the classroom is complex, according to the "four-point" system and includes theoretical knowledge, work at the bedside, practical skills.

Excellent - the applicant for higher medical education has deeply and steadily mastered the program material; exhaustively, consistently, competently and logically teaches it. Answers closely relate theory to practice; freely reads results of analyzes and instrumental research and solves situational problems of increased complexity; well acquainted with the basic literature and methods of research of the patient in the volume necessary for practical activity of the doctor; demonstrates the ability to relate theoretical aspects of the subject to practical health care.

Good - the applicant for higher medical education knows firmly the program material, is competent and essentially teaches it; does not allow significant inaccuracies in the answers to the questions; correctly applies theoretical provisions in solving practical questions and problems; has the necessary skills and techniques for their implementation; is able to solve light and medium difficulty situational problems; possesses laboratory and clinical research methods in excess of the required minimum; capable on the basis of the specific content of the answer is sufficient to show sufficiently logical thinking.

Satisfactory - the applicant for higher medical education knows only the basic material, but has not mastered it in detail, admits inaccuracies, insufficiently correct wording, violation of the sequence in the coverage of program material. Higher education educators are only able to solve the most difficult tasks, have only a mandatory minimum of research methods; insufficient knowledge of methodology, poor knowledge of basic principles of deontology.

Unsatisfactory - the applicant for higher medical education does not know much of the program material, makes significant mistakes, is not sure, performs practical work with great difficulty.

Having completed the full course of the envisaged program (all classes completed and a protected academic medical history, etc.), the applicant for higher medical education cannot be admitted to the final module control without appropriate knowledge and skills. The future physician should be erudite and cultured, have high moral qualities, be compassionate, compassionate, constantly abide by the rules of medical ethics and deontology.

Independent work of applicants, which is provided in the subject along with the classroom, is evaluated during the ongoing control of the topic in the relevant lesson. The assimilation of topics that are presented only for independent work is controlled during the exam.

A higher medical education applicant can work out the missed topics or translate them into a positive evaluation by the teacher during his consultations (individual work with the applicants) no more than 3 times during the study of the discipline, thereby scoring at least a minimum to be admitted to the total modular control.

VIII. POINTS CALCULATION SCHEME

Mark in the discipline «Epidemiology», presented by one module, is a rating and is defined as the sum of the assessments of current educational activity (in points), which is exposed at each practical lesson on the relevant topic, a point assessment for the performance of individual work by a applicant and the assessment of the final module control (in points), which is exhibited when evaluating theoretical knowledge and practical skills in accordance with the lists defined by the discipline program.

The current educational activity of applicants for higher medical education is evaluated on a 4-point (traditional) scale, using the criteria of assessment for the discipline «Epidemiology», approved by the cycle methodical committee on therapeutic disciplines. This takes into account all types of work provided by methodical development for the planned topic.

Current control is carried out at each practical training according to the specific objectives of the topic and includes standardized forms of control of theoretical training and control of professional skills. Current control includes assessment of the initial level of knowledge (oral or written express survey, test control using test tasks of format A), assessment of the main stage of the practical training (control of professional skills during curation of patients, solving typical situational tasks), assessment of the final level of knowledge lessons (solving level III situational tasks, interpretation of laboratory and other methods of patient examination).

Evaluation of current educational activities.

During the assessment of mastering of each topic for the current educational activity, the applicant s are given grades on a 4-point (traditional) scale, taking into account the approved evaluation criteria for the respective discipline. This takes into account all types of work provided by the curriculum. Higher education providers should receive a grade on each topic. Forms of assessment of current learning activities should be standardized and include control of theoretical and practical training. Traded scores are converted into points. The maximum number of points that an applicant can earn for his / her current educational activity in the study of discipline is 200 points. The minimum number of points that an applicant must earn for his / her current educational activities to enroll in the discipline is 120 points.

Assessment of success in the discipline is given only to applicants who have enrolled all the lessons in the discipline. The mark obtained by the higher medical education applicant from the discipline is defined as the arithmetic mean of all the lessons of the discipline (by the formula given). The objectivity of evaluating the learning activities of applicants must be verified by statistical methods (the correlation coefficient between current performance and the results of final control). The maximum number of points that a higher medical education applicant can earn in the current semester for admission to final control is 120 points. The minimum number of points that an applicant must earn for the current academic activity per semester is 72 points.

The calculation of the number of points is made on the basis of the scores obtained by the applicant on the traditional scale during the study of the discipline, by calculating the arithmetic mean (CA), rounded to two decimal places. The resulting value is converted to scores on a multicolor scale as follows:

$$\frac{x = \text{CA} \times 120}{5}$$

For convenience, the table is calculated on a 200-point scale:

Recalculation of the average score for current activity into a multi-scale scale for disciplines ending in differential credit.

Table 8

4 - point scale	200 - point scale								
5	120	4.54	109	4.08	98	3.62	87	3.2	77
4.95	119	4.5	108	4.04	97	3.58	86	3.16	76
4.91	118	4.45	107	3.99	96	3.54	85	3.15	
4.87	117	4.41	106	3.95	95	3.49	84	3.12	75
4.83	116	4.37	105	3.91	94	3.45	83	3.1	
4.8	115	4.33	104	3.87	93	3.41	82	3.08	74
4.75	114	4.29	103	3.83	92	3.37	81	3.04	73
4.7	113	4.25	102	3.79	91	3.33	80	3	72
4.66	112	4.2	101	3.74	90	3.29	79	Less 3	not enough
4.62	111	4.16	100	3.7	89	3.25	78		
4.58	**110**	**4.12**	**99**	**3.66**	**88**	**3.22**			

Independent work of applicants, which is provided in the subject along with the classroom, is evaluated during the ongoing control of the topic in the relevant lesson.

The maximum number of points that an applicant can earn while studying the module is 200, including for the current educational activity - from 72 to 120 points, according to the results of the final module control - from 48 to 80 points.

The minimum number of points that an applicant must earn for his / her current learning activities when studying a module is 72 points and is determined by multiplying the number of topics of the module by the equivalent score for a "satisfactory" rating by the formula given.

The applicants for higher medical education must work on missing topics or pass an unsatisfactory grade on a positive evaluation by the teacher during his consultations (individual work with the applicants) no more than 3 times during the module study, thereby scoring at least a minimum to be allowed to the final modular control.

CRITERIA FOR EVALUATION OF LEARNING ACHIEVEMENTS

The grade from the discipline that completes the differential test is defined as the sum of points for current educational activity (not less than 72) and points for differential credit (not less than 48). The points from the course are independently converted to both ECTS and 4-point scales. ECTS points are not converted to the 4-point scale and vice versa.

Discipline points for applicants who have successfully completed the program are converted to the traditional 4-point scale by the absolute criteria given in the table below:

Table 9

Scores on discipline	Score on a four-point scale
from180 to200 points	«5» (excellent)
from 150 to 179 poionts	«4» (good)
from 120 to 149 points	«3» (satisfactory)
lower than the minimum number of points that the applicants for higher medical education must get in a discipline	«2» (unsatisfactory)

COMPLIANCE WITH THE CODE OF ACADEMIC INTEGRITY

During the study of the discipline, applicants of the second educational and scientific level in medicine must adhere to the Code of Academic Integrity of Kharkiv National University named

after V.N. Karazina. For this purpose of performance of independent work, control works, work on offset has to be carried out individually. When doing independent work, applicants can consult with teachers and other applicants, but must do the task themselves, guided by their own knowledge, skills and abilities. References to all resources and resources used by the applicant in the performance of tasks must be clearly defined and designed in accordance with existing rules and standards. In the case of joint work with other applicants on the tasks, the applicant must indicate the degree of his involvement in the work.

IX. LIST OF CONTROL QUESTIONS AND PRACTICAL SKILLS FOR OUTDOOR AND SUMMARY MODULAR CONTROLS OF KNOWLEDGE AND APPLICANTS' ABILITIES

Checklist of questions

Content module 1: General epidemiology

1. Subject and tasks of epidemiology.
2. The main stages of the development of epidemiology.
3. The epidemic process and its components.
4. Sections of the doctrine of the epidemic process.
5. The driving force behind the epidemic process.
6. Features of epidemic process in anthroponoses and zoonoses. The concept of sapronoses .
7. Quantitative and qualitative manifestations of the epidemic process.
8. Anti-epidemic measures in the centers of infectious diseases.
9. The center of infectious disease. Directions for conducting an epidemiological survey of the cell?
10. What determines the boundaries of the infectious disease cell? Give etc. and treasures.
11. The purpose and objectives of the epidemiological survey of the cell.
12. How are infectious patients identified and reported?
13. Goat and its functions.
14. Source and reservoir of infectious disease agents.
15. Sick person and carrier and their epidemiological significance.
16. Categories of carriers of infectious disease agents.
17. Measures to disinfect patients and carriers as sources of infectious diseases.
18. Epidemiological significance of animals (rodents, domestic animals, etc.).
19. The concept of deratization, types and methods.
20. The theory of mechanism of transmission of infectious diseases agents L. Gromashevsky. Definition of the mechanism of transmission, its links. Factors and ways of transmission of infectious diseases.
21. The laws of conformity of the mechanism of transmission of the primary (epidemiological) localization of the pathogen in the human body.
22. Types of mechanisms of transmission of pathogens of infectious human diseases.
23. The epidemiological significance of arthropods (mosquitoes, flies, ticks, lice, fleas, etc.) as vectors for infectious diseases. Types and methods of disinfestation .
24. Definition of disinfection, its types and methods. Quality control of disinfection.
25. Disinfection cameras are the principles of their arrangement and purpose.
26. Sterilization and its stages, quality control.
27. Calendar of preventive vaccinations of Ukraine. Legal aspects of vaccination.
28. Drawing up a plan for preventive vaccinations.
29. Filling in the vaccination accounting records.
30. The main normative documents in the field of epidemiology.

31. Epidemiological method of research, its structure.
32. Descriptive evaluation of the epidemiological method.
33. Epidemiological, social and economic significance of infectious disease.
34. Levels of Evidence in Medicine.
35. Epidemiological diagnosis as a basis for preventive and anti-epidemic work.
36. Operational epidemiological analysis.
37. Methods of retrospective epidemiological analysis.
38. Analysis of long-term and annual dynamics of morbidity.
39. Manifestations of the epidemic process in the long-term dynamics of the incidence and the reasons that cause them.
40. Analysis of the territorial distribution of morbidity.
41. Manifestations of the epidemic process in the annual dynamics of morbidity and the reasons that cause them.
42. Structure and level of morbidity of the population by groups, groups and nosological forms.
43. The concept of territory, groups, time and risk factors.
44. The importance of the social factor in the development of the epidemic process.
45. The importance of the natural factor in the development of the epidemic process.
46. Analytical and experimental methods of the epidemiological method of research.
47. The essence of the analytical case-control study.
48. The essence of cohort analytical research.
49. Determination of epidemiological experiment.
50. The content and purpose of the controlled epidemiological experiment.
51. The content and purpose of the uncontrolled epidemiological experiment.
52. The content and purpose of the natural epidemiological experiment.
53. Prediction of manifestations of the epidemic process.
54. Purpose and features of the organization of screening of the population.
55. Methods of mathematical modeling in epidemiology and their significance.
56. Planning of prot and epidemic and preventive measures

Content module 2: Special epidemiology

1. Epidemiological classification of infectious diseases.
2. Epidemiological features of the group of intestinal infections.
3. Epidemiological features of the group of respiratory tract infections.
4. Epidemiological features of a group of blood infections.
5. Epidemiological features of the group of outer coverings.
6. HIV epidemiology and prevention.
7. Organization of sanitary protection of the territory of Ukraine against skidding and spread of quarantine infections.
8. Preventive and anti-epidemic measures for the most common diseases.
9. Quarantine measures for particularly dangerous infectious diseases.
10. Typhoid. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
11. Hepatitis A. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process). preventive and anti-epidemic measures.
12. Shigellosis . Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
13. Cholera. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.

14. Poliomyelitis. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
15. Flu and other GR3. Etiological structure, epidemiological features, source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
16. Diphtheria. Epidemiological features, the source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
17. Measles. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
18. Salmonellosis. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
19. Botulism. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
20. Meningococcal infection and purulent bacterial meningitis. Etiological structure of purulent bacterial meningitis, epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
21. Tularemia. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
22. Hepatitis V. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
23. HIV infection. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
24. Malaria. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures
25. Typhoid fever and Bryl's disease. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
26. Plague. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
27. Tick-borne encephalitis. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
28. Hemorrhagic fever Ebola and Marburg. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
29. Lassa hemorrhagic fever. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
30. Lyme borreliosis. Epidemiological features (source of pathogens, factors and ways of transmission, manifestations of the epidemic process), preventive and anti-epidemic measures.
31. Criteria for the evaluation of the sanitary-epidemic status of troops and their location under conditions of disease infections.
32. Indication of biological weapons (specific and non-specific).

Content module 3. Military epidemiology

1. Peculiarities of conducting anti-epidemic measures in cases of emergencies in peacetime in case of infections of international importance.
2. Sanitary and epidemiological assessment of troops and their location.
3. Contemporary ideas about the organization and conduct of sanitary and epidemiological intelligence.
4. Influence on the organization and conduct of bacteriological exploration of the features of the striking action of biological weapons.
5. Methods of specific indication of BR and prospects for their development.

Indicative list of practical tasks
for the final modular control

Module: "Epidemiology"

1. Determination of the prognosis of the incidence rate for the next year according to the trend of long-term dynamics of the incidence.
2. Determination of the population infection rate according to the sample laboratory tests and its epidemiological evaluation.
3. Completing the annual "Report on selected infectious and parasitic diseases" (form # 2).
4. Filling in the journal of accounting for infectious diseases (form # 60).
5. Filling in an emergency notification of a first-identified infectious or parasitic disease (form No. 58).
6. Completion of the preventive vaccination card (form No. 63) and the individual child development card (form 112).
7. Determination of the coefficient of epidemiological effectiveness of vaccinations and its evaluation.
8. Substantiation of the list of anti-epidemic measures in the centers of infectious diseases.
9. Creation of bar charts for visual expression of epidemiological data and identification of groups and risk factors for morbidity.
10. Selection of material for bacteriological examination for diphtheria infection.
11. Determination of the coefficient of seasonality of annual dynamics of morbidity on the chart of distribution of morbidity by months of the year and its estimation.
12. Evaluation of the quality of disinfection and sterilization in viral hepatitis A and B.
13. Carrying out anti-epidemic measures in the centers of intestinal, respiratory and blood infections.

X. RECOMMENDED LEARNING SOURCES

MAIN

1. General epidemiology : study guide / N.O. Vynograd. — 2nd ed., corrected. — Kyiv : AUS Medicine Publishing, 2016. — 128 p.
2. Infectious diseases: classification, diagnostic, schemes and treatment: study aid / M. Chemych, M. Andreychyn, N. Il'yina, V. Zakhlebayeva, I. Trotska. – Sumy State University, 2011. – 270 p.
3. HIV-infection: a tutorial for medical applicants for higher medical education / O.A. Golubovska, O.Gudzenko, I/ Shestakova Medicine Publishing: 2011. –288p.

ADDITIONAL

1. Holland WW, Olsen J, Florey CDV. The Development of Modern Epidemiology. Oxford University Press, Oxford, 2007.
2. J. Olsen et al., An Introduction to Epidemiology for Health Professionals, Springer Series on

Epidemiology and Health, 2010. - 161 p.
3. Lekhan VN et al., Ukraine: Health System Review. Health Systems in Transition, 2015; 17(2) 1-153.
4. Manufer T. Gafarova Epidemiology of infectious Deseases / Manufer T. Gafarova – Simferopol, 2010. – 225 p.
5. World Health Organization. World Health Statistics 2012. Geneva, World Health Organization, 2012.

Information resources

1. Textbooks and Tutorials.
2. Educational and methodical materials of the department.
3. Visual materials for practical classes (tables, diagrams, algorithms, stands, albums, etc.).
4. Educational portal of higher educationhttp://www.osvita.org.ua/.
5. AIDS Clinical Society**:** https://www.eacsociety.org/
6. Epidemiology for the uninitiated: http://www.bmj.com/collections/epidem/epid.shtml
7. 8. Centers for Disease Control and Prevention (CDC) – Режим доступу: http://www.cdc.gov/foodborneoutbreaks/info_healthprofessional.htm
8. https://www.cdc.gov/genomics/resources/books/genpractice.htm
9. Open educational platforms:
   - https://www.coursera.org/learn/bacterial-infections/
   - https://www.coursera.org/learn/aids-fear-hope/
   - https://www.coursera.org/learn/ebola-essentials-for-health-professionals/
   - https://www.khanacademy.org/science/health-and-medicine/infectious-diseases
   - https://www.edx.org/course/lessons-ebola-preventing-next-pandemic-harvardx-ph557x
   - https://www.khanacademy.org/science/health-and-medicine/infectious-diseases
   - linical Epidemiology Database Resources, ClinEpiDB: http://ClinEpiDB.org
   - https://www.coursera.org/course/parasitology
10. Official site of the Ministry of Health of Ukraine: http://www.moz.gov.ua
11. WHO official site: http://www.who.int
12. Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/
13. http://www.freebooks4doctors.com/