BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Infectious diseases department

APPROVED

Vice-Rector of the Higher Education Institution of Bogomolets National Medical University for Research, Academic and Education Affairs
Doctor of Medical Sciences, Professor,
_____ Oleh VLASENKO
«__» _____ 2026 year

WORKING PROGRAMME OF THE ACADEMIC DISCIPLINE
EC 3.1. «Clinical parasitology »

Educational level:	Second (Master's) degree level
Field of knowledge:	22 Health care
Speciality:	222 Medicine
Educational program:	Educational and professional training program of the second (Master's) level of higher education, speciality 222 Medicine

2026/2027 academic year

Working programme on the subject «Clinical Parasitology» for the 3rd year students in the field of training of the specialists of the second «Master's» level of education, field of knowledge 22 «Health care», specialty 222 «Medicine».

Developers:
Head of the Department of Infectious Diseases, Professor, MD Golubovska O.A., Associate Professor, Ph.D. MD Bezrodna O.V., Associate Professor, Ph.D. MD Vinnytska O.V., Professor Assistant, PhD, MD Podolyuk O.O.

Working program was approved at a meeting of the Department of Infectious Diseases
Protocol №1, 26th of August, 2026

Head of the Department of Infectious Diseases,

professor _____ O.A. Golubovska
Signature

Working program was approved at a meeting of the cycle commission on therapeutic disciplines

Protocol №1, 27th of August, 2026
Chairman of the cycle commission on therapeutic disciplines,

professor _____ O.B. Iaremenko
Signature

1. Description of the discipline

Name of the discipline	Clinical Parasitology
Code of the discipline	EC 3.1.
Number of ECTS credits	3
The total number of hours	90
	Lecture – 6 hours Practical – 20 hours Individual work – 64 hours
Type of control	Dif. credit

2. The purpose, expected learning outcomes and criteria for assessing learning outcomes

The purpose of the course - to clarify the patterns of the modern pathological process in parasitosis based on the study of the prevalence of parasitic diseases in the world and Ukraine, etiological factors, mechanisms and factors of their transmission, the main links of pathogenesis, identifying relationships between clinical features and the immune system, complications that complicate their course, the principles of diagnosis and treatment of this category of patients in the field of evidence-based medicine.

List of competencies and program learning outcomes

Integral: The ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy

General competences (GC):

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 2. The ability to learn and master modern knowledge.

GC 3. Ability to apply knowledge in practical situations.

GC 4. Knowledge and understanding of the subject area and understanding of professional activity and responsibility for it.

GC 5. Ability to adapt and act in a new situation.

GC 6. Ability to make reasoned decisions.

GC 7. Ability to work in a team.

GC 8. Ability to interpersonal interaction.

GC 9. Ability to communicate in the state language both orally and in writing.

GC 10. Ability to communicate in a foreign language.

GC 11. Ability to search, process and analyse information from various sources.

GC 12. Determination and persistence regarding assigned tasks and assumed obligations.

GC 13. Awareness of equal opportunities and gender issues.

GC 14. The ability to realize one's rights and responsibilities as a member of society, to realize the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.

GC 15. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, use different types and forms motor activity for active recreation and leading a healthy lifestyle.

Special (professional, subject) competences (SC)

SC 1. Ability to collect medical information about the patient and analyze clinical data.

SC 2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.

SC 3. Ability to establish a preliminary and clinical diagnosis of the disease.

SC 4. The ability to determine the necessary regime of work and rest in the treatment and prevention of diseases.

SC 5. The ability to determine the nature of nutrition in the treatment and prevention of diseases.

SC 6. Ability to determine the principles and nature of treatment and prevention of diseases.

SC 7. Ability to diagnose emergency conditions.

SC 8. Ability to determine tactics and provide emergency medical assistance.

SC 10. Ability to perform medical manipulations.

SC 11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.

SC 16. Ability to maintain medical documentation, including electronic forms.

SC 21. One should clear express one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists particularly to people who study.

SC 23. Ability to develop and implement scientific and applied projects in the field of health care.

SC 24. Compliance with ethic principles when working with patients and laboratory animals.

SC 25. Compliance with professional and academic integrity, taking responsibility for the reliability of the obtained scientific results.

Program learning outcomes (PLO)

PLO 1. Have thorough knowledge of the structure of professional activity. Be able

to carry out professional activities that require updating and integration of knowledge To be responsible for professional development, ability to further professional training with a high level of autonomy.

PLO 3. Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.

PLO 4. Identify and identify leading clinical symptoms and syndromes; according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, to establish a preliminary clinical diagnosis of the disease.

PLO 5. Collect complaints, anamnesis of life and diseases, evaluate the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis, taking into account the age of the patient.

PLO 6. To establish a final clinical diagnosis by making a reasoned decision and analysing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the supervision of the head physician in the conditions of a health care institution.

PLO 7. Prescribe and analyse additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) of patients with diseases of organs and body systems for differential diagnosis of diseases.

PLO 8. To determine the main clinical syndrome or what causes the severity of the victim's/victim's condition by making a reasoned decision and assessing the person's condition under any circumstances (in the conditions of a health care facility, outside its boundaries), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.

PLO 9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases, taking into account the age of the patient, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution..

PLO 10. Determine the necessary mode of work, rest and nutrition on the basis of the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.

PLO 19. To plan and implement a system of anti-epidemic and preventive measures regarding the occurrence and spread of diseases among the population.

PLO 20. Analyze the epidemiological situation and carry out mass and individual, general and local prevention of infectious diseases.

PLO 24. To organize the necessary level of individual safety (own and the persons they care about) in case of typical dangerous situations in the individual field of activity.

Matrix of correspondence of program competencies to the component of the educational program EC 3.1. «Clinical parasitology»

General competences														
GC 1	GC 2	GC 3	GC 4	GC 5	GC 6	GC 7	GC 8	GC 9	GC 10	GC 11	GC 12	GC 13	GC 14	GC 15
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Special (professional, subject) competences

SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	SC11	SC12	SC13	SC14	SC15	SC16	SC17	SC18	SC19	SC20	SC21	SC22	SC23	SC24	SC25
+	+	+	+	+	+	+	+		+						+					+		+	+	+

Matrix of correspondence of program learning outcomes to the component of the educational program EC 3.1. «Clinical parasitology»

Program learning outcomes	PLO 1	+
	PLO 2	
	PLO 3	+
	PLO 4	+
	PLO 5	+
	PLO 6	+
	PLO 7	+
	PLO 8	+
	PLO 9	+
	PLO 10	+
	PLO 11	
	PLO 12	
	PLO 13	
	PLO 14	
	PLO 15	
	PLO 16	
	PLO 17	
	PLO 18	
	PLO 19	+

	PLO 20	+
	PLO 21	
	PLO 22	
	PLO 23	
	PLO 24	+
	PLO 25	
	PLO 26	
	PLO 27	
	PLO 28	
	PLO 29	

Evaluation criteria

The grade “excellent” is given when the higher education applicant knows the content of the lesson and the lecture material in full, illustrating the answers with various examples; gives exhaustively accurate and understandable answers without any leading questions; presents the material without errors and inaccuracies; freely solves tests, problems and performs practical tasks of varying degrees of complexity.

The grade “good” is given when the higher education applicant knows the content of the lesson and understands it well, presents the answers to the questions correctly, consistently and systematically, but they are not exhaustive, although the higher education applicant answers additional questions without errors: solves tests, problems and performs all practical tasks, experiencing difficulties only in the most difficult cases.

The grade “satisfactory” is given to the higher education applicant based on his knowledge of the entire content of the lesson and with a satisfactory level of its understanding. A higher education applicant solves modified (simplified) tasks using leading questions; solves tests, tasks and performs practical skills, experiencing

difficulties in simple cases; is unable to independently systematically state the answer, but answers straightforward questions correctly.

The grade “unsatisfactory” is given in cases where the knowledge and skills of a higher education applicant do not meet the requirements for the grade “satisfactory”.

3. The program of the discipline

Content module 1. Intestinal helminthic infestations caused by nematodes

Lecture № 1 General characteristics of helminth infections. Prevalence. Classification. Features of the clinical course. General principles of diagnosis and treatment of helminth infections.

Lecture №2 General characteristics of nematodoses.

Topic №1. Ascariasis, enterobiosis

Topic №2. Hookworm, strongyloidosis.

Content module 2. Extraintestinal helminthic infestations caused by nematodes.

Lecture № 5 General characteristics of extraintestinal helminthiasis

Topic №3 Trichinellosis. Toxocariasis.

Topic №4 Dirofilariasis, onchocerciasis.

Content module 3. Worm infestations caused by cestodes and trematodes.

Lecture № 3 General characteristics of cestodoses.

Lecture № 4 General characteristics of trematodoses.

Topic №5 Beef and pig tapeworm infection.

Topic №6 Echinococcosis.

Topic №7 Opisthorchiasis.

Content module 4. Protozoan infections

Lecture 58 General characteristics of protozoan invasions of the gastrointestinal tract. Concept of traveler's diarrhea. Amoebiasis. Giardiasis.

Topic №8. Amebiasis. Giardiasis.

Lecture №6 General characteristics of protozoan invasions with a transmissive route of transmission. Malaria.

Topic №9. Vivax malaria, four-day malaria, ovale malaria. Tropical malaria. Mixed malaria

Topic №10. Leishmaniasis

4. The structure of the discipline

№	Topic	Lectures	Pract.	Independent work
				SIW
Content module 1. Intestinal helminthic infestations caused by nematodes				
Lecture № 1 General characteristics of helminth infections. Prevalence. Classification. Features of the clinical course. General principles of diagnosis and treatment of helminth infections.		1	-	-
Lecture № 2 General characteristics of nematodoses		1	-	-
1	Ascariasis, enterobiosis. For independent study: Trichocephalosis	-	2,0	6,4
2	Hookworm infection, strongyloidosis For independent study: Nekatorosis, anisakidosis	-	2,0	6,4
Content module 2. Extraintestinal helminthic infestations caused by nematodes.				
3	Trichinellosis Toxocarosis For independent study:		2,0	6,4

	Dracunculosis, gnathostomosis			
4	Dirofilariasis, onchocerciasis. For independent study: Wuhereriosis, mansonellosis		2,0	6,4
Content module 3. Worm infestations caused by cestodes and trematodes.				
	Lecture № 3 General characteristics of cestodoses.	1		
	Lecture № 4 General characteristics of trematodoses.	1		
5	Beef and pig tapeworm infection. *For independent study:* *Diphyllobotriosis, hymenolepidosis*	-	2,0	6,4
6	Echinococcosis. For independent study: alveococcosis, paragonimosis	-	2,0	6,4
7	Opisthorchosis For independent study: Fasciolosis, schistosomiasis (urinary and intestinal)	-	2,0	6,4
Content module 4. Protozoan infections				
Lecture №5 General characteristics of protozoan invasions of the gastrointestinal tract. Concept of traveler's diarrhea. Amoebiasis. Giardiasis.		1	-	-
8	Amoebiasis Giardiasis For independent study Extraintestinal amoebiasis, Balantidiasis	-	2,0	6,4

Lecture №6 General characteristics of protozoan invasions with a transmissive transmission mechanism. Malaria.		1	-	-
9	Vivax malaria, four-day malaria, ovale malaria. Mixed malaria, Tropical malaria. Mixed malaria For independent study Trypanosomiasis. Babesiosis	-	2,0	6,4
10	Leishmaniasis For independent study Sarcocystosis	-	2,0	6,4
	Overall hours - 90.	6	20	64
	ECTS credits	**3**		

5. Topics of lectures

№ i/o	Topic	Academic hours
1	General characteristics of helminth infections. Prevalence. Classification. Features of the clinical course. General principles of diagnosis and treatment of helminth infections	1
2	General characteristics of nematodoses	1
3	General characteristics of cestodoses.	1
4	General characteristics of trematodoses	1
5	General characteristics of protozoan invasions of the gastrointestinal tract. Concept of traveler's diarrhea. Amoebiasis. Giardiasis.	1

6	General characteristics of protozoan invasions with a transmissive route of transmission. Malaria.	1
Total		6

6. Topics of seminars

№ i/o	Topic	Academic hours
1	-	-
Total		-

7. Topics of practical classes

№	Topic	Hours
Content module 1. Intestinal helminthic infestations caused by nematodes		
1	Ascariasis, enterobiosis.	2,0
2	Hookworm infection, strongyloidosis	2,0
Content module 2. Extraintestinal helminthic infestations caused by nematodes.		
3	Trichinellosis Toxocarosis	2,0
4	Dirofilariasis, onchocerciasis.	2,0
Content module 3. Worm infestations caused by cestodes and trematodes.		
5	Beef and pig tapeworm infection.	2,0
6	Echinococcosis.	2,0
7	Opisthorchosis	2,0
Content module 4. Protozoan infections		
8	Amoebiasis, Giardiasis	2,0

9	Vivax malaria, four-day malaria, ovale malaria. Mixed malaria Tropical malaria. Mixed malaria	2,0
10	Leishmaniasis	2,0
Overall		20

8. Topics of laboratory classes

№ i/o	Topic	Academic hours
1	-	-
Total		-

9. Self-depended work

№	Topic	Hours
1	Preparation for practical lesson №1 «Ascaridosis, enterobiosis». For independent study: trichocephalosis - Improvement of interpretation of hemogram data. - Improving the skills of interpreting the data of specific methods of laboratory research in intestinal helminthiasis	6,4
2	Preparation for practical lesson №2 «Ankylostomosis, strongyloidosis». For independent study: nekatorosis, anizakidosis - Improvement of interpretation of hemogram data. - Improving the skills of interpreting the data of specific methods of laboratory research in intestinal helminthiasis	6,4
3	- Preparation for practical lesson №3 «Trichinellosis Toxocariasis». For independent study: Dracunculosis, gnathostomosis Wuhereriosis, mansonellosis	6,4

	- Improving the skills of interpretation of the data of specific methods of laboratory research in extraintestinal helminthiasis.	
4	- Preparation for practical lesson №4 «Dirofilariasis, onchocerciasis» For independent study: Loaoz, brugillosis - Improving the skills of interpretation of the data of specific methods of laboratory research in extraintestinal helminthiasis.	6,4
5	Preparation for practical lesson №.6 «Taeniosis, taeniarhynchosis» For independent study: Diphyllobotriosis, hymenolepidosis - Improvement of data interpretation skills of specific diagnosis of infestations caused by cestodes and trematodes depending on the localization of helminths	6,4
6	Preparation for practical class № 7 «Echinococcosis». For independent study: alveococcosis, paragonimosis - Improvement of data interpretation skills of specific diagnosis of infestations caused by cestodes and trematodes depending on the localization of helminths	6,4
7	Preparation for practical lesson № 8 «Opisthorchosis». For independent study: Fasciolosis, schistosomiasis (urinary and intestinal) - Improvement of data interpretation skills of specific diagnosis of infestations caused by cestodes and trematodes depending on the localization of helminths	6,4
8	Preparation for practical lesson №. 9 Amebiasis Giardiasis For independent study: extraintestinal amoebiasis balantidiasis - Improvement of data interpretation skills of specific diagnostics of protozoan invasions of the gastrointestinal tract	6,4
9	- Preparation for practical lesson №11	6,4

	"Vivax malaria, four-day malaria, ovale malaria. Mixed malaria" Tropical malaria. Mixed malaria For independent study: trypanosomosis babesiosis - Improving the skills of interpretation of specific diagnostic data transmissible invasions	
10	- Preparation for practical lesson №13 Leishmaniasis For independent study: sarcocystosis - Improvement of data interpretation skills of specific diagnostics of transmissible invasions	6,4
Overall		64

10. Individual work is absent.

11. Teaching methods

• verbal (lecture, explanation, story, case methods, group work, problem-based learning);

• visual (observation, illustration, simulation, demonstration);

• practical (practice for developing skills and abilities);

• LIKAR_NMU platform;

• situational modeling technologies (role-playing, gaming, etc.) or algorithmization/standardization technologies;

• interactive methods: method of analyzing specific, problem situations; method of group discussion; method of competitive groups, etc.;

• independent work of students on understanding and mastering new material.

Practical classes according to the method of their organization are clinical and include:

1. Consideration of theoretical questions on the acquisition of practical skills according to the standard lists before each practical lesson and during the control.

2. Solving situational problems.

3. Standardized test control, oral and written questioning.

Independent work of students (IWS) includes work in the clinic in extracurricular time to master practical skills, drawing up schemes of differential diagnosis and algorithms for examination of patients, as well as traditional preparation for practical classes and control of mastering the list of topics for self-study.

12. Methods of control

The current educational activity of the student is evaluated on a 4-point (traditional) scale using the evaluation criteria adopted in the university and approved by the cyclic methodical commission on therapeutic disciplines for the discipline «Clinical parasitology». This takes into account all types of work provided by the methodological development for the planned topic**.**

Current control is carried out at each practical lesson in accordance with the specific objectives of the topic and includes standardized forms of control of theoretical training and control of professional skills. Current control provides for **100% survey** of students in a practical lesson with mandatory assessment of all components of the lesson - test control, oral examination, solving situational problems, etc. Each topic of the lesson also involves the control of practical skills.

Current control includes assessment of the initial level of knowledge (oral or written rapid survey, test control using test tasks of format A), assessment of the main stage of practical training (control of professional skills during the supervision of patients, solving typical situational problems), assessment of the final level of knowledge classes (test control using test tasks of format B, solving situational problems of III level, interpretation of the results of laboratory and instrumental methods of examination of the patient).

For each stage of the lesson the student receives a grade of "5-4-3-2", from which the teacher determines the arithmetic mean, which is translated into points according to the distribution, which was conducted by the department at the beginning of the discipline.

If during the determination of points for the lesson **the arithmetic mean is "2", it corresponds to 0 points.** The student has the right to improve their knowledge of the topic, if he received an overall grade of "2" during the next lesson, during the current control (**without receiving points**).

The student has the right to miss up to 25% of classes and lectures (by hours). Class absences are worked out by writing a synopsis on the topic of missed classes without assessment. The teacher keeps a register of liquidation of academic debt in the appropriate form. The department does not set a separate schedule indicating the hours for receiving abstracts of missed classes. Missed lectures are not practiced, knowledge is tested at control events.

If a student misses more than 25% of classes together with lectures (by hours), it requires re-study of the discipline.

The total score for the practical lesson, presented on the traditional scale, is converted into points at the department depending on the number of topics in the module as follows:

Distribution of points received by students

Traditional assessment	Conversation into points
«5»	20
«4»	16
«3»	12
«2»	0

The maximum number of points that a student can score while studying the module is 200.

The maximum number of points that a student can earn while studying an elective course is 200.

The final control. Differentiated credit is a form of final control, which consists in assessing the student's mastery of the educational material of the discipline based on the results of current training, the implementation of individual and control measures. When assigning a grade for the discipline, the number of points accumulated by the student for current training is taken into account (maximum number of points 200). A student receives a grade for an elective course, provided he attends at least 75% of classes, which is the sum of points for practical classes

The student is assigned a differentiated credit for the discipline in accordance with the total number of points accumulated by him, which must be no less than the minimum required, and corresponds to the minimum value of the grade E, and therefore is 111 points. When assigning a differentiated credit for the discipline, the student is given the right to retake unsatisfactory grades no later than three days (cycle system - one day) before the final control in order to accumulate the minimum number of points for admission to the discipline. The department does not conduct a differentiated credit in the form of a separate lesson.

A failed differentiated test is retaken as a final test – twice. During the retake, the student is offered test tasks that contain questions from all topics included in the discipline study program. If the test is passed, the student receives a grade of E with a minimum number of points, namely 111 points.

EVALUATION OF KNOWLEDGE FROM THE DISCIPLINE is carried out on the appropriate scale:

	EVALUATION FOR	ECTS SCALE

EVALUATION IN POINTS	NATIONAL SCALE	RATING	EXPLANATION
170-200	PERFECT	A	EXCELLENT (excellent performance with few errors)
155-169	FINE	B	VERY GOOD (above average with a few errors)
140-154		C	GOOD (generally correct execution with a certain number of significant errors)
125-139	SATISFACTORY	D	SATISFACTORY (not bad, but with a significant number of shortcomings)
111-124		E	ENOUGH (performance meets the minimum criteria)
60-110	UNSATISFACTORY	FX	Unsatisfactory (with the possibility of reassembly)
1-59		F	Unsatisfactory (with mandatory re-

			study of the discipline)

The calculation of points for practical classes and differentiated credit is carried out by the teacher of the group.

Procedure for liquidation of academic debt.

When receiving an unsatisfactory grade in a discipline within the range of 60-110 points (FX) the student has the right to retake it 2 times: once - by the cathedral commission with the participation of the head. department, and the last time - a commission with the participation of the head of the department and the dean.

Retaking subjects with unsatisfactory grades is carried out according to a schedule drawn up by the department and coordinated with the dean (the interval between attempts or subjects is at least 3 days). The subjects studied in the corresponding course must be completed before the beginning of the new academicyear. The presence of academic debt before the beginning of the new academic year is the basis for expelling a student from the university for failure to fulfill the requirements of the curriculum (or registration of an academic leave and a repeated course of study due to health).

When receiving an unsatisfactory grade in a discipline within the range of 1-59 points (F), the student is obliged to re-study it outside the classroom on a paid basis. Repeated receipt of an unsatisfactory grade by a student based on the result of repeated study taking into account two rescheduling of a discipline or unsatisfactory grades from 3 disciplines, as well as the presence of missed classroom training classes without valid reasons, the sum of which is 120 hours or more, determines his expulsion from the university for non-fulfillment of the curriculum.

The student's ability to pass the final examination (PC) in a discipline is not affected by the results of other disciplines.

13. Course Policy. Obligatory observance of academic integrity by students, namely:

- independent performance of all types of work, tasks, forms of control provided for by the work program of this elementary discipline;

- references to sources of information in case of using ideas, developments, statements, information;

- compliance with the norms of the legislation on copyright and related rights;

- provision of reliable information about the results of one's own educational (scientific, creative) activities, research methods used and sources of information;

- provide the result of anti-plagiarism check when writing theses and articles.

14. Methodical support

– working curriculum of the discipline;

– plans of practical classes, lectures and independent work of students;

– methodical recommendations and developments for the teacher;

– methodical instructions for practical classes for students;

– test and control tasks for practical classes;

– questions and tasks to control the mastering of the discipline;

– multimedia presentations of the lecture course of the department.

– didactic materials on the discipline;

– tasks for the current control of knowledge, skills and practical skills in the discipline;

– test tasks for current control;

– online course on the LIKAR_NMU distance learning platform.

15. Recommended reading

Basic

1. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases: 2-Volume Set 10th Edition

Additional:

1. Infectious diseases. Under the editorship of O.A. Golubovska - Kyiv, publishing house "Medicine". - 2018. - P.783.
2. Davidson’s Principles and Practice of Medicine 24th Edition

Information resources:

1. Centers for Disease Control and Prevention (CDC) - Access mode: http://www.cdc.gov/

2. Official website of the Ministry of Health of Ukraine //www. moz.gov.ua

3. MSD Manual for the Professional - Access Mode: https://www.msdmanuals.com/en-nz/professiona