

**MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY**

Department of Phthisiopulmonology

«APPROVED»



Deputy rector for scientific and pedagogical work

Eduard BURIACHKIVSKYI

September 1, 2023

**WORKING PROGRAM OF ELECTIVE EDUCATIONAL DISCIPLINE
"EXTRA-PULMONARY TUBERCULOSIS"**

Higher education level: second (master's)

Area of expertise: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

2023

The work program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in specialty 222 "Medicine" field of knowledge 22 "Health care" approved by the Scientific Council of ONMedU (Minutes No. 8 dated June 29, 2023).

Developers:

Professor of the department, doctor of medicine, prof. Matsegora N. A.
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The work program was approved at the meeting of the Department of Phthisiopulmonology
Minutes No. 1 dated August 30, 2023

Head of the department



Nina MATSEGORA

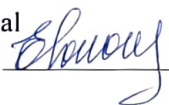
Agreed with the guarantor of EPP



Valery MARICHEREDA

Approved by the subject cycle methodical commission for therapeutic disciplines
Minutes No. 1 dated August 31, 2023

The head of the subject cycle methodical
Committee on Therapeutic Disciplines



Olena VOLOSHYNA

Reviewed and approved at the department meeting *Department of occupational diseases and functional diagnostics and phthisiopulmonology*

Minutes No. 1 dated "04" 09 2023

Head of Department



(signature)

Oleksandr Ignatiev

(First Name SURNAME)

Reviewed and approved at the department meeting _____

Minutes No. ___ dated "___" _____ 20__

Head of Department _____

(signature)

(First Name SURNAME)

1. Description of the academic discipline

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits: 3.0 Hours: 90 Content modules: none	Branch of knowledge 22 "Health care"	<i>Full-time education</i>
		<i>Elective discipline</i>
	Specialty 222 "Medicine"	<i>Year of training: 5</i>
		<i>Semesters VII - VIII</i>
	Level of higher education second (master's)	<i>Lectures (0 hours)</i>
		<i>Seminar /Practical (30 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (60 hours)</i>
		<i>including individual tasks (0 hours)</i>
	<i>Final control form- credit</i>	

2. The purpose and tasks of the educational discipline, competences, program learning outcomes

Goal: mastering a complex of knowledge, skills, skills of timely diagnosis, differential diagnosis, treatment and prevention of extrapulmonary forms of tuberculosis, peculiarities of the course of tuberculosis in HIV-infected patients, which should improve the quality of treatment and/or prevent the formation of complications.

Task: acquisition of knowledge and professional skills in phthisiopulmonology in the following areas:

- 1) state and prospects of phthisiopulmonology at the current stage;
- 2) extrapulmonary forms of tuberculosis - modern issues of pathogenesis, clinic, diagnosis, treatment and prevention of tuberculosis of the nervous system, intestines, peritoneum, mesenteric lymph nodes (mesadenitis), bones and joints, urinary and genital organs, skin and subcutaneous tissue, oral cavity, peripheral lymph nodes , eye, other organs;
- 3) modern approaches to diagnosis and treatment of tuberculosis with tuberculosis/HIV co-infection;
- 4) the main groups of drugs used in the treatment of tuberculosis, including drug-resistant tuberculosis;
- 5) participation of the family doctor in the timely diagnosis and treatment of tuberculosis patients and control of the regimen of taking anti-tuberculosis chemotherapy drugs, which contributes to increasing the effectiveness of the treatment of this category of patients.

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

General (GC):

- GC 1. Ability to abstract thinking, analysis and synthesis
- GC 2. 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

GC 5. Ability to adapt

Special (SC):

SC1 – Ability to collect medical information about the patient and analyze clinical data.

SC2 -Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

SC3 – Ability to establish a preliminary and clinical diagnosis of the disease.

SC6. Ability to determine the principles and nature of treatment and prevention of diseases

SC27. The ability to diagnose and determine the management tactics of patients with extrapulmonary and widespread forms of tuberculosis, including co-infection of TB/HIV with a chemoresistant course

Program learning outcomes (PLO):

PLO 1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.

PLO 2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.

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 list 1); 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, establish a preliminary clinical diagnosis of the disease (according to list 2).

PLO 5. Collect complaints, anamnesis of life and diseases, evaluate the psychomotor and physical development of the patient, the state of the organs and systems of the body, based on the results of laboratory and instrumental studies to evaluate information regarding the diagnosis (according to list 4), taking into account the age of the patient.

PLO 7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).

PLO 32. The ability to diagnose and determine the management tactics of patients with extrapulmonary and common forms of tuberculosis, including co-infection of TB/HIV with a chemoresistant course.

As a result of studying the academic discipline, the applicant must:

Know:

- International standards for tuberculosis control.
- General principles of tuberculosis treatment. Antimycobacterial drugs. Standard treatment regimens for patients with tuberculosis.
- Classification and mechanisms of development of extrapulmonary forms of tuberculosis.
- Clinic, diagnosis, treatment and prevention of tuberculosis of the nervous system, intestines, peritoneum, mesenteric lymph nodes (mesadenitis), bones and joints, urinary and genital organs, skin and subcutaneous tissue, oral cavity, peripheral lymph nodes, eye, other organs.
- Features of diagnosis, course, treatment of uncomplicated CRTB/HIV.
- Diagnosis of multiple organ failure in CRTB/HIV, patient management.
- Methods of evaluating the effectiveness and safety of pharmacotherapy.
- Adverse reactions to antimycobacterial drugs. Causes of adverse reactions to anti-tuberculosis drugs.
- Clinical-laboratory and instrumental monitoring of the quality of treatment.
- Preventive measures at the inpatient and outpatient stages of TB treatment.

Be able:

- master the ability to diagnose various clinical forms of tuberculosis;
- improve skills and abilities for diagnosis and differential diagnosis of extrapulmonary tuberculosis;
- acquire knowledge on the treatment and prevention of extrapulmonary tuberculosis;
- evaluate the peculiarities of pathogenesis, clinic, diagnosis, treatment and prevention of tuberculosis of the nervous system, intestines, peritoneum, mesenteric lymph nodes (mesadenitis), bones and joints, urinary and genital organs, skin and subcutaneous tissue, oral cavity, peripheral lymph nodes, eye, other bodies
- interpret risk factors and predict the occurrence of treatment complications;
- interpret the results of laboratory and instrumental research;
- learn the skills of diagnosing possible adverse reactions (ADRs) of anti-tuberculosis antibacterial drugs and the algorithm of actions of doctors in organizing assistance to patients in cases of ADRs during TB treatment;
- learn the main preventive measures in the occurrence of complications of the course of pulmonary and extrapulmonary tuberculosis;
- acquire skills and abilities to record the results of treatment in the relevant medical documentation;
- demonstrate the formation of moral and ethical and deontological qualities during professional communication with the patient, as well as the principles of professional subordination in phthisiology.

3. Content of the academic discipline

Topic 1. Organization of medical care for tuberculosis patients: detection, diagnosis, treatment, prevention, dispensary supervision. International standards for

tuberculosis control. Modern approaches to the detection and diagnosis of tuberculosis. Standardization of clinical care.

Topic 2. General principles of tuberculosis treatment. Antimycobacterial drugs. General principles of antimycobacterial therapy: complexity, combination, controllability, duration and continuity, stage sequence, individual approach. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body.

Topic 3. Standard treatment regimens for tuberculosis patients. Criteria for treatment of tuberculosis patients. The concept of chemoresistance. Categories of treatment of patients with tuberculosis. Observation of the condition of tuberculosis patients during treatment.

Topic 4. Extrapulmonary forms of tuberculosis. Classification and mechanisms of development.

Topic 5. Tuberculosis of intestines, peritoneum, mesenteric lymph nodes (mesadenitis): clinic, diagnosis, treatment and prevention.

Topic 6. Tuberculosis of bones and joints: clinic, diagnosis, treatment and prevention.

Topic 7. Tuberculosis of urinary and genital organs: clinic, diagnosis, treatment and prevention.

Topic 8. Tuberculosis of the nervous system: clinic, diagnosis, treatment and prevention.

Topic 9. Tuberculosis of the skin and subcutaneous tissue, oral cavity: clinic, diagnosis, treatment and prevention.

Topic 10. Tuberculosis of peripheral lymph nodes: treatment and prevention.

Topic 11. Tuberculosis of the eye: clinic, diagnosis, treatment and prevention.

Topic 12. Complications of BCG vaccination: otitis, lymphadenitis, etc. Mechanisms of development, epidemiology, clinic, diagnosis, treatment and prevention.

Topic 13. TB/HIV: epidemiology, pathogenesis, clinic, complications, features of diagnosis of multiple organ failure, treatment, prevention.

Topic 14. Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Classification of adverse reactions to antituberculosis drugs. Causes and risk factors for the development of adverse reactions to antituberculosis drugs.

Topic 15. Clinical-laboratory and instrumental monitoring of the quality of treatment. Preventive measures at the inpatient and outpatient stages of TB treatment.

4. The structure of the academic discipline

Topic	Practice	SRS	In general
Topic 1. Organization of medical care for tuberculosis patients.	2	4	6
Topic 2. General principles of tuberculosis treatment. Antimycobacterial drugs.	4	6	10
Topic 3. Standard treatment regimens for tuberculosis patients. Criteria for treatment of tuberculosis patients. The concept of chemoresistance.	2	10	12
Topic 4. Extrapulmonary forms of tuberculosis. Classification and mechanisms of development.	-	2	2
Topic 5. Tuberculosis of the nervous system.	2	2	4
Topic 6. Tuberculosis of bones and joints.	2	2	4
Topic 7. Tuberculosis of urinary and genital organs.	2	4	6
Topic 8. Tuberculosis of intestines, peritoneum, mesenteric lymph nodes (mesadenitis).	2	2	4
Topic 9. Tuberculosis of the skin and subcutaneous tissue, oral cavity.	2	2	4
Topic 10. Tuberculosis of peripheral lymph nodes.	2	2	4
Topic 11. Tuberculosis of the eye.	2	2	4
Topic 12. BCG vaccination: contraindications, rules of conduct, complications, treatment and prevention	2	6	8
Topic 13. TB / HIV: epidemiology, pathogenesis, clinic, complications, features of diagnosis of multiple organ failure, treatment, prevention.	4	6	10
Topic 14. Control, monitoring and management of adverse reactions to anti-tuberculosis drugs.	1	6	7
Topic 15. Clinical-laboratory and instrumental monitoring of the quality of treatment.	1	4	5
Total	30	60	90

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

Topic	How many hours
Topic 1. Organization of medical care for tuberculosis patients. International standards for tuberculosis control. Modern approaches to the detection and diagnosis of tuberculosis. Standardization of clinical care.	2

Topic 2. General principles of tuberculosis treatment. Antimycobacterial drugs. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body.	4
Topic 3. Standard treatment regimens for tuberculosis patients. Criteria for treatment of tuberculosis patients. The concept of chemoresistance.	2
Topic 4. Extrapulmonary forms of tuberculosis. Classification and mechanisms of development.	-
Topic 5. Tuberculosis of the nervous system.	2
Topic 6. Tuberculosis of bones and joints.	2
Topic 7. Tuberculosis of urinary and genital organs.	2
Topic 8. Tuberculosis of intestines, peritoneum, mesenteric lymph nodes (mesadenitis).	2
Topic 9. Tuberculosis of the skin and subcutaneous tissue, oral cavity.	2
Topic 10. Tuberculosis of peripheral lymph nodes.	2
Topic 11. Tuberculosis of the eye.	2
Topic 12. BCG vaccination: contraindications, rules of conduct, complications, treatment and prevention	2
Topic 13. TB/HIV: epidemiology, pathogenesis, clinic, complications, features of diagnosis of multiple organ failure, treatment, prevention.	4
Topic 14. Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Classification of adverse reactions to antituberculosis drugs. Causes and risk factors for the development of adverse reactions to antituberculosis drugs.	1
Topic 15. Clinical-laboratory and instrumental monitoring of the quality of treatment. Preventive measures at the inpatient and outpatient stages of TB treatment.	1
Total	30

5.4. Topic of laboratory classes

Laboratory classes are not provided.

6. Independent work of students of higher education

No	TOPIC	How many hours
1	Organization of medical care for tuberculosis patients. International standards for tuberculosis control. Modern approaches to the detection and diagnosis of tuberculosis. Standardization of clinical care.	4
2	General principles of tuberculosis treatment. Antimycobacterial drugs. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body.	6
3	Standard treatment regimens for patients with tuberculosis. Criteria for treatment of tuberculosis patients. The concept of chemoresistance.	10
4	Extrapulmonary forms of tuberculosis. Classification and mechanisms of development.	2
5	Tuberculosis of the nervous system.	2
6	Tuberculosis of bones and joints.	2
7	Tuberculosis of the urinary and genital organs.	2
8	Tuberculosis of intestines, peritoneum, mesenteric lymph nodes (mesadenitis).	4

9	Tuberculosis of the skin and subcutaneous tissue, oral cavity.	2
10	Tuberculosis of peripheral lymph nodes.	2
11	Tuberculosis of the eye.	2
12	BCG vaccination: contraindications, rules of conduct, complications, treatment and prevention	6
13	TB/HIV: epidemiology, pathogenesis, clinic, complications, features of diagnosis of multiple organ failure, treatment, prevention.	6
14	Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Classification of adverse reactions to antituberculosis drugs. Causes and risk factors for the development of adverse reactions to antituberculosis drugs.	6
15	Clinical-laboratory and instrumental monitoring of the quality of treatment. Preventive measures at the inpatient and outpatient stages of TB treatment.	4
	Total	60

7. Teaching methods

Practical training.

Teaching a selective academic discipline in practical classes, it is provided with methodical developments for each class, visual teaching aids for each class (presentations, video lectures), the information resource of the department, structured algorithms of skill control.

Independent work.

Independent work in the study of a selective academic discipline is ensured by methodical developments for independent work, visual teaching aids (video lectures, presentations), information resource of the department, topics of independent work, structured algorithms of skill control.

8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

Current control: entrance and final knowledge level control tests on the subject of practical training; oral answer to questions based on the material of the current topic; solving typical and atypical clinical situational problems; control of practical skills.

Final control: balance

Evaluation of the current educational activity in a practical session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
methods: survey, solving a situational clinical problem;
2. Evaluation of work with a patient on the subject of the lesson:
methods: evaluation of: a) communication skills of communication with the patient, b) the correctness of prescribing and evaluating laboratory and instrumental studies, c) compliance with the differential diagnosis algorithm, d) justification of the clinical diagnosis, e) drawing up a treatment plan

Current evaluation criteria in practical training

Rating	Evaluation criteria
Perfectly	The applicant must be fluent in the material, take an active part in

"5"	discussing the topic and solving the situational clinical problem, confidently demonstrate practical skills during the examination of the patient, express his opinion on the subject of the lesson, demonstrate clinical thinking.
Fine "4"	The applicant must have a good command of the material, participate in the discussion of the material and the solution of the situational clinical problem, demonstrate practical skills during the examination of a patient with some errors, express his opinion on the topic of the lesson, demonstrate clinical thinking.
Satisfactorily "3"	The applicant must answer questions on the topic, not having sufficient knowledge of the material, not being confident in taking part in the discussion and solving the situational clinical problem, demonstrating practical skills during the examination of a patient with significant errors.
Unsatisfactorily "2"	The acquirer does not possess the material, does not take part in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of the patient.

Credit is given to the applicant who has completed all the tasks of the work program of the academic discipline, actively participated in practical classes and has an average current grade of at least 3.0 and has no academic debt.

Test is carried out: at the last lesson before the beginning of the examination session - with the tape system of learning, at the last lesson - with the cyclical system of learning. The credit score is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded using the statistical method with two decimal places after the decimal point.

9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale

National score for the discipline	The sum of scores for the discipline
Excellent («5»)	185 – 200
Good («4»)	151 – 184
Satisfactory («3»)	120 – 150
Unsatisfactory («2»)	Less than 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking

according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

ECTS' s mark	Statistical indicator
«A»	the best 10% of students
«B»	the next 25% of students
«C»	the next 30% of students
«D»	the next 25% of students
«E»	the next 10% of students

10. Methodological support

- Working program of the academic discipline
- Syllabus
- Methodical developments for practical classes
- Multimedia presentations
- Situational clinical tasks

11. Questions for preparing for the final inspection

1. Tuberculosis of the nervous system and meninges: pathogenesis, clinic, diagnosis, differential diagnosis, treatment, consequences.
2. Tuberculosis of peripheral lymph nodes: pathogenesis, clinic, diagnosis, consequences.
3. Tuberculosis of bones and joints: pathogenesis, main localization of lesions, course.
4. Tuberculosis of the skin, subcutaneous tissue: pathogenesis, clinic, diagnosis, consequences.
5. Tuberculosis of the oral cavity: pathogenesis, clinic, diagnosis, consequences.
6. Tuberculosis of the kidneys. Pathogenesis, clinic, diagnosis, consequences.
7. Name the stages of kidney TB.
8. Who is at risk of bone tuberculosis?
9. What stages of pathogenesis are determined in the development of bone tuberculosis?
10. Will you list the clinical signs and data of an objective examination in the diagnosis of tuberculosis of the spine?
11. What is the reason for examination for tuberculosis of bones and joints?
12. Research plan and diagnostic methods for diagnosis of tuberculosis of bones and joints.
13. Tuberculosis of genital organs: clinic, diagnosis, treatment and prevention.
14. Diagnosis and differential diagnosis of eye tuberculosis.
15. Diagnosis and differential diagnosis of tuberculosis of intestines, peritoneum, mesenteric lymph nodes (mesadenitis).
16. What is the mechanism of development of post-vaccination BCG ostitis?
14. With what diseases is the differential diagnosis of tuberculosis of the abdominal cavity carried out?
15. TB of genital organs: epidemiology, pathogenesis, diagnosis, consequences.
16. CRTB/HIV: epidemiology, pathogenesis, clinic of uncomplicated course.
17. Name the complications, features of diagnosis of multiple organ failure.
18. Classification of adverse reactions to antituberculosis drugs. Causes and risk factors for the development of adverse reactions to antituberculosis drugs. treatment, prevention.
19. The procedure for clinical laboratory and instrumental monitoring of the quality of treatment of tuberculosis patients.
20. Preventive measures at the inpatient and outpatient stages of TB treatment.

12. Recommended literature

Main:

1. Phthysiatry: a textbook / V. I. Petrenko, L. D. Todoriko, L. A. Hryshchuk [and others]; under the editorship V. I. Petrenko. Kyiv: Medicine, 2015. 471 p.
2. Order of the Ministry of Health of Ukraine on the approval of the standards of "Tuberculosis" medical care dated January 19, 2023 No. 102
3. Order of the Ministry of Health of Ukraine dated February 1, 2019 No. 287 "Infection control standard for health care institutions that provide care to tuberculosis patients."
4. WHO consolidated guidelines for the treatment of drug-resistant tuberculosis, 2018.
5. Order of the Ministry of Health of Ukraine dated June 5, 2019 No. 1292 "On the approval of a new Clinical Protocol for the use of antiretroviral drugs for the treatment and prevention of HIV infection."
6. "Extrapulmonary tuberculosis" edited by Professor N. A. Matsegora, November, 2022 - 448 p. (co-authors: Prof. Matsegora N.A., Prof. Marichereda V.G., Prof. Antonenko P.B., Assoc. Shpota O.E., Assoc. Smolska I.M., Assoc. Kaprosh A.V. , Assistant L.P. Omelyan, Assistant A.S. Zaitsev)
7. Extrapulmonary and miliary tuberculosis in patients with TB/HIV co-infection / V. I. Petrenko, M. G. Dolynska, O. M. Raznatovska. K. 2015: DCS Center. 112 p. URL: http://tb.ucdc.gov.ua/uploads/files/usaidd_170x240_fp_new.pdf
8. Duzhiy I. D. Bone tuberculosis is the cause of other forms of tuberculosis/ Duzhiy I. D., Bondarenko L. A., Oleshchenko V. O. // Tuberculosis. Pulmonary diseases. HIV infection - 2016 - No. 4. - P. 65 - 67.
9. Management of adverse reactions during the treatment of patients with tuberculosis and co-infection (tuberculosis/HIV infection/AIDS) (methodical guide for doctors) "National Institute of Phthysiology and Pulmonology named after F.G. YANOVSKY NAMN of Ukraine". - Kyiv, 2016. - p.80.

Additional:

1. Prevention of tuberculosis. Study guide for students and interns of VNMZ IV accreditation level and doctors / V. I. Petrenko, M. G. Dolynska, A. V. Aleksandrin, V. V. Petrenko. Kyiv: 2 Print, 2017. 88 p. URL:<http://tb.ucdc.gov.ua/uploads/files/prophilaktica.pdf>.
2. Emergencies in the practice of a phthysiopulmonologist: teaching. manual / N. A. Matsegora, O. Ya. Lekan, O. A. Baburina, M. Yu. Golubenko. Odesa: "Astroprint", 2016. 64 p.
3. Yu.I. Feshchenko , Ilnytskyi I.H. Tuberculosis of extrapulmonary localization. Kyiv, 2016 -378 p.
4. Tuberculosis in Ukraine: analytical and statistical guide for the year 2022/CGZ. -K.2022.-197p.

13. Electronic information resources

1. Website of the Public Health Center of the Ministry of Health of Ukraine. <http://phc.org.ua/>
2. Tuberculosis issues on the WHO website. <http://www.who.int/tb/en/>
3. National Tuberculosis Resource Center. <http://tb.ucdc.gov.ua/>
4. Stages of HIV-AIDS. www.ifp.kiev.ua › doc › people › vil-pop › vil-pop5
5. TB/HIV site. <https://aph.org.ua/uk/nasha-robota/ukraine/gf/>