

**MINISTRY OF HEALTH OF UKRAINE
BUKOVINIAN STATE MEDICAL UNIVERSITY**

«APPROVE»

Vice-Rector of higher educational establishment
on Scientific and Pedagogical Work

Volodymyr KHODOROVSKYY

« _____ » _____ 2025



**STUDENT GUIDE
(SYLLABUS)
of studying the discipline**

« PHTHISIOLOGY »

Field of knowledge – 22 Healthcare

Specialty – 222 Medicine

Educational degree – master

Educational year – 4

Form of study – full-time

Department of Phthisiology and Pulmonology

Approved at a meeting of the department of Phthisiology and Pulmonology
«25» of August 2025 (Protocol № 1).

Head of the Department _____ Liliia TODORIKO
(signature)

Approved by the subject methodical commission on Therapeutic disciplines
«27» of August 2025 (Protocol № 7).

Chairman of the subject methodical
commission _____ Viktor TASCHUK
(signature)

Chernivtsi – 2025

1. GENERAL INFORMATION ABOUT SCIENTIFIC AND PEDAGOGICAL WORKERS WHO TEACH THE DISCIPLINE

Department	Department of Phthysiology and Pulmonology
Surname, name of scientific and pedagogical staff, scientific degree, academic status, e-mail	- Yeremenchuk Inha - PhD, Assistant Professor, ingae@bsmu.edu.ua - Semianiv Ihor – PhD, Assistant Professor, igor_semianiv@bsmu.edu.ua - Pidverbetska Olena – PhD, Assistant Professor, pidverbetska@bsmu.edu.ua
Web page of the department on the official website of the university	https://www.bsmu.edu.ua/ftiziatryi-ta-pulmonologiyi/
Department website	https://sites.google.com/a/bsmu.edu.ua/kafedra-ftiziatryi-ta-pulmonologije
E-mail	pulmonology@bsmu.edu.ua
Address	Ukraine, 58000, Chernivtsi, I. Bohun, 18 str.
Contact phone	(0372) 55-53-80

2. GENERAL INFORMATION ABOUT THE DISCIPLINE

Status of the discipline	compulsory
Number of credits	3
Total amount of hours	90
Lectures	10
Practical lessons	30
Individual work	50
Type of final control	final module control

3. DESCRIPTION OF THE DISCIPLINE (ABSTRACT)

The teaching of the educational discipline "Phthysiology" is aimed at mastering by students of higher education in the specialty "Medicine" systemic medical knowledge, skills and abilities of diagnosis, principles of treatment and prevention. tuberculosis, diagnosis of complications of this disease that require emergency care. Types of educational classes according to the curriculum: lectures, practical classes, independent work of the applicant. Topics of the lecture course reveal etiological, pathogenetic and epidemiological data, classification, clinical manifestations, principles of diagnosis, treatment and prevention of tuberculosis.

Educational practice includes: mastering the practical skills of examining a patient with suspected tuberculosis, making a preliminary diagnosis, prescribing a laboratory and/or instrumental examination, carrying out a differential diagnosis of tuberculosis; determining the tactics of managing a patient with tuberculosis, the principles of treatment of such patients according to their diagnosis or referring the patient to a specialized specialist.

Independent extracurricular work of applicants is aimed at independent search of thematic literature, independent study of parts of the curriculum, performance of individual tasks of the teacher, self-development, etc. Mastery of topics is monitored in practical classes. To determine the level of preparation of applicants, tests, solving clinical situational problems, business games, control of practical skills, etc. are used.

The organization of the educational process is carried out according to the requirements of the European credit transfer and accumulation system, which is based on a combination of learning technologies by sections and credit assessment credits - units of measurement of the learner's educational load, necessary for mastering a discipline or its section.

4. POLICY OF THE DISCIPLINE

4.1. List of normative documents:

- Regulations on the organization of the educational process – <https://cutt.ly/ArUqCMFh>;

- Instructions for assessing the educational activities of BSMU students in the implementation of the European credit transfer system of the educational process – <https://cutt.ly/yrUqVPvn>;
- Regulations on the procedure for reworking missed and uncredited classes – <https://cutt.ly/jrUqBS36>;
- Regulations on the appeal of the results of the final control of knowledge of higher education – <https://cutt.ly/3rUqMAbV>;
- Codex of Academic Integrity – <https://cutt.ly/FrUq1ljK>;
- Regulations on the prevention of academic plagiarism – <https://cutt.ly/MrUq6QAf>;
- Regulations on the procedure and conditions for students to choose elective courses – <https://cutt.ly/srUwo6Ci>;
- Regulations on the procedure for recognizing learning outcomes achieved through non-formal and/or informal education – <https://cutt.ly/SrUwp1ie>;
- Rules of conduct for students – <https://cutt.ly/ErUq72rZ>;
- Rules of internal labor regulations – <https://cutt.ly/UrUwiACe>.

4.2. Policy on adherence to the principles of academic integrity of students:

- independent performance of educational tasks of current and final controls without the use of external sources of information;
- cheating during control of knowledge is prohibited;
- independent performance of individual tasks and correct registration of references to sources of information in case of borrowing of ideas, statements, information.

4.3. Policy on adherence to the principles and norms of ethics and deontology by students:

- actions in professional and educational situations from the standpoint of academic integrity and professional ethics and deontology;
- compliance with the university's internal labor regulations and rules of conduct for students, be tolerant, friendly, and thoughtful in communicating with students and staff of departments, healthcare institutions, etc.
- awareness of the importance of examples of human behavior in accordance with the norms of academic integrity and medical ethics.

4.4. Attendance policy for students:

- attendance at all training sessions (lectures, practical (seminar) classes, final modular control) is mandatory for the purpose of current and final assessment of knowledge (except for respectable reasons).

4.5. Deadline policy and completion of missed or uncredited classes by students:

- reworks of missed classes are held according to the schedule of missed or uncredited classes and consultations.

5. PRECISIONS AND POST-REQUIREMENTS OF THE DISCIPLINE (INTERDISCIPLINARY RELATIONS)

List of disciplines, on which the study of academic discipline is based	List of academic disciplines, for which the basis is laid as a result of studying the discipline
Clinical Anatomy	Internal Medicine
Physiology	Surgery
Pathophysiology	Otorhinolaryngology
Histology	Urology
Pathomorphology	Gynecology
Microbiology	Neurology
Immunology	Infectious Diseases
Radiology	Epidemiology

Pharmacology	Pediatrics
Propaedeutics of Internal Medicine	Pediatric Infections
Propaedeutics of Pediatrics	Oncology
Hygiene and Ecology	–

6. PURPOSE AND TASKS OF THE DISCIPLINE:

- 6.1. The purpose of studying the discipline is to acquaint students with the main problems in modern tuberculosis, mastering the knowledge of the organization of medical care for patients with tuberculosis, forming the basics of clinical thinking in students, acquiring of professional competencies of examination of patients with tuberculosis, differential diagnosis of tuberculosis with other diseases, establishing a diagnosis, prescribing treatment and providing emergency medical care in emergency cases of phthisis, implementation of preventive measures that accelerate the development of tuberculosis among persons at risk of developing tuberculosis.
- 6.2. The main tasks of studying the discipline are: to master the skills of diagnostics, treatment and prevention of tuberculosis, diagnostics of complications of tuberculosis that require emergency care, to get the skills of the medical care organization for patients with tuberculosis at primary, secondary and tertiary levels.

7. COMPETENCIES, THE FORMATION OF WHICH IS CONTRIBUTED BY THE DISCIPLINE:

7.1. Integral competence:

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;

7.2. General competencies:

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

GC 4. Knowledge and understanding of the subject field and understanding of professional activity

7.3. Professional (special) competencies:

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

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

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

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

* **Note.** GC - general competencies, PC - special competencies.

8. RESULTS OF STUDYING THE DISCIPLINE (PLO).

As a result of studying the discipline student has to:

PLO 4. Identify and identify leading clinical symptoms and syndromes (cough, chest pain, hemoptysis, shortness of breath, effusion in the pleural cavity, fever, abdominal pain, pain in the limbs and back, headache, vomiting, paresis, paralysis, child growth retardation, lymphadenopathy, meningeal syndrome, coma, weight loss, cyanosis); 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 (tuberculosis of various localization).

PLO 5. Collect complaints, life and disease history, assess the patient's psychomotor and physical development, the state of the organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis (amplification methods for infectious diseases (PCR), microbiological examination of biological fluids and secretions, tuberculin diagnostics, analysis of pleural fluid, analysis of ascitic fluid, analysis of synovial fluid, histomorphological examination of a biopsy of lymph nodes, histomorphological examination of a biopsy of parenchymal organs,

histomorphological examination of a biopsy of mucous membranes, histomorphological examination of a biopsy of the skin, general blood analysis, general analysis of cerebrospinal fluid, methods of instrumental visualization of abdominal cavity organs, methods of instrumental visualization of thoracic cavity organs, methods of instrumental visualization of the genitourinary system, instrumental visualization of the spine, bones and joints), taking into account the patient's age.

PLO 6. To establish a final clinical diagnosis by making a reasoned decision and analyzing 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 (tuberculosis of various localization).

PLO 7. Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (amplification methods for infectious diseases (PCR), microbiological examination of biological fluids and secretions, tuberculin diagnostics, analysis of pleural fluid, analysis of ascitic fluid, analysis of synovial fluid, histomorphological examination of a biopsy of lymph nodes, histomorphological examination of a biopsy of parenchymal organs, histomorphological examination of a biopsy of mucous membranes, histomorphological examination of a biopsy of the skin, general blood analysis, general analysis of cerebrospinal fluid, methods of instrumental visualization of abdominal cavity organs, methods of instrumental visualization of thoracic cavity organs, methods of instrumental visualization of the genitourinary system, instrumental visualization of the spine, bones and joints) of patients with diseases of organs and body systems for differential diagnosis of diseases (tuberculosis of various localization).

PLO 9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (tuberculosis of various localization), 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 relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, if it is necessary to expand the standard scheme, to be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution.

Note. PLO - program learning outcomes.

8.1. Know:

- the main indicators that characterize the epidemic situation of tuberculosis in the world and in Ukraine;
- the impact of military operations and the Covid-19 pandemic on the dynamics of key monitoring indicators;
- indicator 3.3.2 of the Goal 3. Good health and well-being (target 3.3 "Stop the epidemics of HIV/AIDS and tuberculosis, including through the use of innovative practices and means of treatment") of the Sustainable Development Goals adapted for Ukraine (2015-2030 years) and its target values;
- factors and risk groups of tuberculosis development;
- features and evolution of the causative agent of tuberculosis;
- classification of the pathogen by the profile of the drug resistance, the concept of multidrug-resistant tuberculosis;
- characteristics of the tuberculosis epidemic process: source of infection, ways of transmission, susceptible organisms;
- immunopathogenesis of tuberculosis infection;
- criteria for latent tuberculosis infection;
- criteria for active tuberculosis;
- clinical classification of tuberculosis;
- clinical signs of tuberculosis and the concept of screening questionnaire;
- the conception of primary and secondary forms of tuberculosis;
- basic approaches to the detection and diagnosis of tuberculosis;

- the principle of microscopic diagnosis of tuberculosis: indications, advantages and disadvantages;
- the principle of cultural research on a liquid and solid medium in the diagnosis of tuberculosis: indications, advantages and disadvantages;
- the role of culture tests of drug sensitivity in the management of patients with tuberculosis;
- the role of molecular genetic research in the diagnosis of tuberculosis, in particular - in the diagnosis of multidrug-resistant forms of the disease;
- the role of radiological methods of research and the main radiological syndromes in the tuberculosis clinic;
- diagnostic algorithms for diagnosing tuberculosis at the primary, secondary, tertiary level of medical care;
- features of tuberculosis on the background of HIV-infection and algorithms for diagnosis and treatment of tuberculosis in HIV-positive patients;
- basic principles of treatment of patients with tuberculosis;
- standard regimens of antimycobacterial therapy of tuberculosis with preserved sensitivity to antibacterial drugs and chemoresistant tuberculosis;
- basics of infectious control over tuberculosis: administrative, engineering measures, measures of individual control of respiratory organs defense;
- basics of tuberculosis prevention;
- indications for preventive (prophylactic) treatment of latent tuberculosis infection (chemoprophylaxis of tuberculosis), preventive treatment schemes;
- preventive measures in the focus of tuberculosis infection, principles of work with contact persons;
- indications and contraindications to BCG vaccination.

8.2. Be able to:

- identify risk factors for tuberculosis;
- conduct patients survey to determine the symptoms that may indicate tuberculosis;
- apply the algorithm of examination of patients with symptoms that may indicate tuberculosis at the stage of primary care and develop a clinical route for the patient;
- determine the options for tactical actions of the doctor in accordance with the data of bacterioscopic examination of sputum, X-ray examination and other diagnostic methods;
- interpret the data of microscopic, molecular-genetic, bacteriological methods of detection of the causative agent of tuberculosis;
- evaluate the results of basic laboratory, radiological, instrumental methods of diagnostics and tuberculin skin test;
- perform a differential diagnosis of cough;
- to make a differential diagnosis of intoxication, bronchopulmonary syndrome and the most typical changes on the chest radiograph in patients with symptoms that may indicate tuberculosis;
- formulate a diagnosis of tuberculosis according to the current classification;
- organize the treatment of tuberculosis under direct supervision;
- form and maintain the patient's commitment to the treatment of tuberculosis;
- prescribe standardized medical treatment for patients with sensitive tuberculosis and determine the results of treatment;
- prescribe treatment to patients with drug-resistant tuberculosis;
- prescribe treatment to patients with tuberculosis in combination with HIV-infection;
- monitor the contacts of patients with tuberculosis;
- carry out chemoprophylaxis of tuberculosis;
- organize measures of administrative infection control of tuberculosis infection;
- organize measures to control the indoor air;
- correctly use and select individual respiratory protection;
- analyze the effectiveness of measures to combat tuberculosis, including the principles of cohort analysis of the effectiveness of treatment.

8.3. Demonstrate:

- detailed collection of the complaints and the anamnesis;
- collection the patient's epidemiological anamnesis;
- the conduction of screening survey of patients with suspected tuberculosis;
- physical examination of the patient;
- description of the radiological picture of different clinical forms of tuberculosis;
- performance of an intradermal Mantoux test, its evaluation the results;
- giving recommendations to a specific patient on current disinfection (collection and disinfection of sputum, disinfection of linen, sanitary items, food residues, etc.)
- filling the urgent message card to the sanitary substation for final disinfection;
- prescribing a chemoprophylaxis;
- prescription and interpretation of laboratory examination methods (general blood test, analysis of sputum, tuberculin skin tests, Quantiferon test)
- formulation a detailed clinical diagnosis according to the modern clinical classification of tuberculosis;
- making a treatment plan for a patient with susceptible and drug-resistant tuberculosis;
- prescribing anti-TB drugs;
- prescribing an adequate pathogenetic treatment to a specific patient;
- evaluation of the effectiveness of treatment of a particular patient.

9. INFORMATIONAL SCOPE OF THE DISCIPLINE

Description of each module of the discipline:

9.1. Specific learning objectives of the module (content module) .

Module 1. Phthisiology.

Content module 1. GENERAL ISSUES OF TUBERCULOSIS.

Specific objectives of the content module:

- To understand the etiology of tuberculosis, characteristics and properties of the causative agent of tuberculosis
- To understand the current trends in the epidemiology of tuberculosis in Ukraine and the world
- Analyze the epidemiological indicators of tuberculosis in Ukraine and the world in the context of achieving the target values of task 3.3 "Stop the epidemics of HIV/AIDS and tuberculosis, including through the use of innovative practices and means of treatment" of the Sustainable Development Goals
- To understand the links of the epidemiological process and the pathogenesis of tuberculosis
- Classify cases of tuberculosis according to the current classification
- Determine risk factors for the development of tuberculosis
- Understand the differences between active tuberculosis and latent tuberculosis infection

Content module 2. DETECTION AND DIAGNOSTICS OF TUBERCULOSIS

Specific objectives of the content module:

- determine the suspicion of tuberculosis based on the clinical manifestation and history of the disease

- carry out examinations of patients with suspected tuberculosis in accordance with current recommendations
- interpret examination data (laboratory, X-ray, and other) of patients with suspected tuberculosis, carry out differential diagnosis of tuberculosis
- generalize the results of examination of patients and establish a diagnosis of tuberculosis
- to diagnose latent tuberculosis infection

Content module 3. *CLINICAL FORMS OF TUBERCULOSIS*

Specific objectives of the content module:

- to understand the features of the course of primary and secondary tuberculosis
- distinguish paraspecific reactions in primary tuberculosis
- to determine the clinical form of tuberculosis based on the analysis of examination data of a tuberculosis patient, age, location of the process
- to understand the impact of BCG vaccination on the course of tuberculosis in a child

Content module 4. *TREATMENT OF TUBERCULOSIS. PALLIATIVE AND HOSPICE CARE*

Specific objectives of the content module:

- to understand the features of the course of primary and secondary tuberculosis
- distinguish paraspecific reactions in primary tuberculosis
- to determine the clinical form of tuberculosis based on the analysis of examination data of a tuberculosis patient, age, location of the process
- to understand the impact of BCG vaccination on the course of tuberculosis in a child

Content module 5. *TUBERCULOSIS IN COMBINATION WITH HIV AND OTHER DISEASES. COMPLICATIONS OF TUBERCULOSIS*

Specific objectives of the content module:

- to understand the significance of the problem of tuberculosis against the background of HIV infection, the mutual influence of HIV and tuberculosis
- screening HIV-positive persons for tuberculosis
- carry out screening for HIV infection in patients with tuberculosis and with suspicion of tuberculosis
- to determine the management tactics of patients with HIV/tuberculosis co-infection, to prescribe tuberculosis treatment for patients with HIV-positive status
- to determine the management tactics of tuberculosis patients during pregnancy depending on the period of pregnancy, course, clinical form and variant of tuberculosis resistance
- diagnose emergency conditions in the tuberculosis clinic and provide emergency medical care

Content module 6. *PROPHYLAXIS OF TUBERCULOSIS*

Specific objectives of the content module:

- to understand and plan infection control measures for the prevention of the spread of tuberculosis in health care institutions that provide assistance to tuberculosis patients, to carry them out
- plan examination of contact persons with an index case of tuberculosis
- to plan work in centers of tuberculosis infection
- determine the indications for preventive treatment of latent tuberculosis infection and choose a scheme of preventive treatment depending on the clinical situation
- determine contraindications to BCG vaccination, tactics of managing children with contraindications to vaccination
- explain the purpose and importance of BCG vaccination, possible options for the course of the post-vaccination period
- diagnose complications of BCG vaccination and determine the tactics of their management

9.2. Thematic structure of the module (content modules).

MODULE 1. PHTHISIOLOGY.

Content module 1. General issues of tuberculosis.

Topic 1. Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis.

Pathogen of tuberculosis, structure, metabolism, variability, sustainability in the environment. Classification. Pathogenicity and virulence of *Mycobacterium tuberculosis*. The main epidemiological indicators of tuberculosis infection and their evaluation. Epidemiology of tuberculosis in Ukraine and the world. The impact of military operations and the Covid-19 pandemic on the dynamics of key monitoring indicators. Goal 3. Good health and well-being (task 3.3 "Stop the epidemics of HIV/AIDS and tuberculosis, including through the use of innovative practices and means of treatment") of the Sustainable Development Goals adapted for Ukraine (2015-2030), indicator 3.3 .2 and its target values. Tuberculosis risk groups. The problem of multidrug-resistant and HIV-associated tuberculosis in Ukraine. Epidemic process in tuberculosis: source of tuberculosis infection, ways of transmission, susceptible organisms. Pathogenesis and pathomorphology of tuberculosis. Immunity in tuberculosis. Pathomorphosis of tuberculosis: changes in the epidemic process and course of tuberculosis in recent decades. The course of multidrug-resistant and HIV-associated tuberculosis. Prevalence of extrapulmonary tuberculosis. Clinical classification of tuberculosis. The concept of latent tuberculosis infection. Primary and secondary tuberculosis. Pulmonary, extrapulmonary, mixed localizations of tuberculosis. Generalized (miliary) tuberculosis.

Content module 2. Detection and diagnostics of tuberculosis.

Topic 2. Detection and diagnostics of tuberculosis.

International standards for tuberculosis control, the 3rd edition. Modern approaches to the detection and diagnosis of tuberculosis: detection of tuberculosis by screening and seeking medical help. The role of primary health care in the detection of tuberculosis. Sputum smear microscopy and X-ray examination as methods of the first step of examination. Implementing a practical approach to lung health. Standardization of clinical care. Coordination within the health sector. Simultaneous detection of tuberculosis and other common lung diseases: COPD, pneumoconiosis, bronchial

asthma, etc. Symptoms that may indicate tuberculosis. Screening survey for these symptoms as a method of active detection of tuberculosis. The route of a patient with a cough at the stage of primary care. The place of laboratory methods in the detection of tuberculosis. Indications, techniques, advantages and disadvantages of microscopic method of tuberculosis diagnostics. Cultural methods for the Mycobacterium tuberculosis detection on a liquid and solid medical medium. Drug sensitivity tests. Molecular genetic diagnostics of tuberculosis. Xpert MTB/RIF, GenoTypeMTBDRplus, Xpert MTB/XDR, GenoTypeMTBDRsl methods: application features, indications, advantages and disadvantages, interpretation of results. Application of X-ray examination in the diagnosis of tuberculosis. X-ray semiotics of pulmonary and extrapulmonary tuberculosis. The role of computed tomography and magnetic resonance imaging in the diagnosis and differential diagnosis of tuberculosis. The role of instrumental and invasive methods in confirming the diagnosis. Tuberculin diagnosis. The principle of the method, indications. The role of tuberculin testing in the detection of latent tuberculosis infection.

Content module 3. Clinical forms of tuberculosis.

Topic 3. Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary).

Pulmonary tuberculosis: prevalence, clinical and epidemiological significance, diagnosis. Generalized (miliary) tuberculosis. Pleural tuberculosis. Lymph node tuberculosis. Bone tuberculosis. Tuberculosis of the urogenital organs. Tuberculosis of the CNS. Tuberculosis of other localizations. Tuberculosis in children. The effect of mass immunization against tuberculosis on the pathomorphosis of tuberculosis in children. The course of tuberculosis in vaccinated and unvaccinated children.

Content module 4. Treatment of tuberculosis. Palliative and hospice care.

Topic 4. Treatment of tuberculosis. Palliative and hospice care.

Basic principles and methods of treatment of patients with pulmonary tuberculosis. TB drugs: classification, indications, side effects. Standard chemotherapy regimens for patients with drug-sensitive tuberculosis. The concept of chemoresistance: mono-, poly-, multidrug-resistant tuberculosis, advanced resistance. Standard, individual, empirical regimens of chemotherapy for chemoresistant tuberculosis. Treatment of extrapulmonary tuberculosis. Adjuvant therapy. Side effects of tuberculosis chemotherapy, strategies for overcoming them. Treatment monitoring, evaluation of effectiveness. Determining the results of tuberculosis treatment. Treatment under direct supervision. Forms of organization. Advantages of outpatient treatment of tuberculosis. Indications for hospitalization. Commitment to treatment. Methods of forming and maintaining commitment. The role of socio-psychological support. Methods of surgical treatment of pulmonary and extrapulmonary tuberculosis.

Content module 5. Tuberculosis in combination with HIV and other diseases. Complications of tuberculosis.

Topic 5. Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care.

HIV-associated tuberculosis: the significance of the problem in Ukraine and the world. Pathogenesis of tuberculosis on the background of HIV-infection. The importance of tuberculosis as an opportunistic infection. The course of co-infection with TB/HIV. Diagnosis of tuberculosis in HIV-positive patients: diagnostic algorithms used in an outpatient setting and in severe patients. Treatment of co-infection TB/HIV. Terms of appointment of anti-tuberculosis and antiretroviral therapy. Determining the prognosis of the disease. Immune reconstitution inflammatory syndrome in patients with HIV-infection, its impact on the course of tuberculosis. Significance of other concomitant pathology in the course of tuberculosis: diabetes mellitus, pneumoconiosis, kidney disease, treatment with immunodepressants, tumor necrosis factor. Tuberculosis and pregnancy. Emergencies in the tuberculosis clinic: spontaneous pneumothorax, pulmonary hemorrhage, bronchospasm, anaphylactic shock. Diagnosis, emergency care.

Content module 6. Prevention of tuberculosis.

Topic 6. Prevention of tuberculosis. Tuberculosis infection control.

Tuberculosis prevention. Ways to break the chain of infection transmission: detection, isolation, effective treatment of sources of infection, infection control, BCG vaccination, chemoprophylaxis. The concept of infection control and its scope. Administrative infection control. Distribution of patient flows, the concept of high, medium, low risk areas. Respiratory hygiene. Indoor air condition control: natural, artificial ventilation. Air filtration. UV irradiation: irradiator designs. Individual respiratory protection: types of respirators, rules of selection and application. The concept of contact persons, foci of tuberculosis infection. Contact tracking. BCG vaccination: terms, contraindications, technique. The course of the post-vaccination period. Complications of BCG. Indications for chemoprophylaxis of tuberculosis. Regimens of preventive treatment (chemoprophylaxis). Curation of patients.

10. STRUCTURE OF THE DISCIPLINE

Names of content modules and topics	Amount of hours				
	Total	including			
		Classroom		Independent students' work	Individual work
		Lectures	Practical lessons		
1	2	3	4	5	6
Module 1. Phthisiology					
Content module 1. General issues of tuberculosis					
Topic 1. Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis	12	2	4	–	6
Total on the content module 1	12	2	4	–	6
Content module 2. Detection and diagnosis of tuberculosis					
Topic 2. Detection and diagnostics of tuberculosis	16	2	5	7	2 Compilation of the algorithm for the diagnosis of tuberculosis at the primary level of medical care
Total on the content module 2	16	2	5	7	2
Content module 3. Clinical forms of tuberculosis					
Topic 3. Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary)	15	2	5	8	–
Total on the content module 3	15	2	5	8	–
Content module 4. Treatment of tuberculosis. Palliative and hospice care					
Topic 4. Treatment of tuberculosis. Palliative and hospice care	16	2	5	7	2 Writing the patient's medical history
Total on the content module 4	16	2	5	7	2
Content module 5. Tuberculosis in combination with HIV and other diseases. Complications of tuberculosis					

Topic 5. Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care	15	1	5	7	2
					1. Compilation of an algorithm for the diagnosis of tuberculosis in an HIV-positive patient at an outpatient appointment. 2. Compilation of an algorithm for the diagnosis of tuberculosis in an HIV-positive patient in serious condition
Total on the content module 5	15	1	5	2	7
Content module 6. Prophylaxis of tuberculosis.					
Topic 6. Prevention of tuberculosis. Tuberculosis infection control	14	1	4	5	4
Total on the content module 6	14	1	4	5	4
Individual work (if present)	–	–	–	–	10
Final module control	2		2	–	–
TOTAL HOURS	90	10	30	40	10

11. THEMATIC PLAN OF LECTURES

№	Name of topic	Amount of hours
1	Determination of tuberculosis as a scientific and practical problem. Epidemiology of tuberculosis in Ukraine and in the world. The impact of military operations and the Covid-19 pandemic on the dynamics of key monitoring indicators. Goal 3. Good Health and Well-Being (Target 3.3: “End the epidemics of HIV/AIDS and tuberculosis, including through the use of innovative practices and treatment methods”) of the Sustainable Development Goals adapted for Ukraine (2015–2030). The problem of multidrug-resistant and HIV-associated tuberculosis. Epidemic process in tuberculosis. Pathogenesis of tuberculosis infection.	2
2	Detection and diagnosis of tuberculosis.	2
3	Clinical variants of pulmonary, extrapulmonary, combined localization of tuberculosis.	2
4	General principles and methods of treatment of patients with tuberculosis.	2
5	Tuberculosis prevention. Infectious control of tuberculosis infection. Combined disease TB/HIV-infection.	2
	Total	10

12. THEMATIC PLAN OF PRACTICAL CLASSES

№	Name of topic	Amount of hours
1	Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis	4
2	Detection and diagnostics of tuberculosis	5
3	Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary)	5
4	Treatment of tuberculosis. Palliative and hospice care	5
5	Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care	5

6	Prevention of tuberculosis. Tuberculosis infection control	4
	Module control	2
	Total	30

13. THEMATIC PLAN OF INDIVIDUAL WORK

№	Types of self-independent work	Amount of hours
1.	Preparation for practical classes - theoretical training and mastering of practical skills	18
2.	Elaboration of topics that are not included in the classroom plan	
	Surgical treatment of tuberculosis	2
	Pleural tuberculosis	2
	Tuberculosis of the kidneys and urinary tract	2
	Tuberculosis of the male genitalia	2
	Tuberculosis of a woman's genitals	2
	Tuberculosis of the abdominal cavity	2
	Tuberculosis of bones and joints	2
	Tuberculosis of other localizations	2
	International standards for tuberculosis control, 3rd edition	2
	Implementing a practical approach to lung health	2
	Differential diagnosis of pulmonary dissemination, infiltrative changes, focal and rounded shadows, cavities in the lungs	2
3.	Individual independent student's work	
	Compilation of an infection control plan for a hospital	2
	Compilation of an algorithm for the diagnostics of tuberculosis at the primary care level	2
	Development of an algorithm for the diagnostics of tuberculosis in an HIV-positive patient on an outpatient basis	1
	Development of an algorithm for diagnostics of tuberculosis in an HIV-positive patient in a severe condition	1
	Writing a medical case history	4
Total		50

14. LIST OF INDIVIDUAL TASKS

1. Publication of scientific materials in the form of abstracts in periodicals (journals, collections of scientific papers).
2. Publication of scientific materials in the form of articles in periodicals (journals, collections of scientific papers).
3. Participation in scientific conferences with reports.

15. TASKS FOR INDEPENDENT WORK

1. Compilation of an infection control plan for a hospital.
2. Compilation of an algorithm for the diagnostics of tuberculosis at the primary care level.
3. Development of an algorithm for the diagnostics of tuberculosis in an HIV-positive patient on an outpatient basis.
4. Development of an algorithm for diagnostics of tuberculosis in an HIV-positive patient in a severe condition.
5. Writing a medical case history.

16. METHODS AND FORMS OF CONTROL (including criteria for assessing learning outcomes)

16.1. Form, procedure, methodology, and criteria for assessing current learning activities.

Assessment of the initial level of knowledge is conducted during the first practical class through solving 60 computer-based test tasks in order to evaluate the knowledge of theoretical and practical material studied in previous courses.

Ongoing assessment is carried out at each practical class in accordance with the specific objectives of each topic, using test tasks, clinical case studies, as well as evaluation of students' acquisition of practical skills in the examination and treatment of tuberculosis patients. In assessing students' knowledge, preference is given to standardized methods of control:

- **theoretical knowledge** – computer-based testing, individual questioning, interview, solving clinical case studies with photo illustrations.
- **practical skills and abilities** – assessment of the performance of standardized practical skills, namely:
 - identification of risk factors for tuberculosis;
 - conducting screening interviews regarding symptoms that may indicate tuberculosis;
 - evaluation of instrumental and laboratory test results in tuberculosis patients;
 - development of the patient's diagnostic pathway for tuberculosis detection and diagnosis;
 - prescribing treatment for a tuberculosis patient;
 - maintaining medical documentation for a tuberculosis patient;
 - prescribing preventive treatment (chemoprophylaxis) for tuberculosis;
 - planning infection control measures.

Evaluation of students' ongoing academic performance, modular control, and the discipline "Phthysiology" as a whole is carried out in accordance with the Regulations on the Organization of the Educational Process at Bukovinian State Medical University. Current assessment of students on specific topics is conducted according to the traditional 4-grade system ("excellent," "good," "satisfactory," "unsatisfactory"), followed by conversion into the ECTS credit-based grading scale in accordance with the Regulations on the Organization of the Educational Process at Bukovinian State Medical University. All types of work specified in the methodological guidelines for studying the topic are taken into account. The student must receive an assessment for each topic.

Criteria for evaluating students' ongoing academic performance when studying Module 1 "Phthysiology":

- A grade of **"excellent"** is awarded when the student has a complete knowledge of the class content and lecture material, illustrating answers with diverse examples; provides comprehensive, precise, and clear responses without leading questions; presents the material without errors or inaccuracies; confidently solves test tasks and clinical case studies, and successfully performs practical tasks of varying levels of complexity.
- A grade of **"good"** is awarded when the student knows the content of the class and understands it well, gives correct, consistent, and systematic answers to questions, although the answers are not exhaustive; however, the student responds correctly to additional questions; solves all test tasks and clinical case studies, and performs practical tasks, experiencing difficulties only in the most challenging cases.
- A grade of **"satisfactory"** is awarded on the basis of the student's knowledge of the entire content of the class and an adequate level of understanding. The student is capable of solving modified (simplified) tasks with the help of leading questions; solves problems and performs practical skills, experiencing difficulties even in simple cases; is unable to present an answer systematically on their own, but responds correctly to directly posed questions.
- A grade of **"unsatisfactory"** is awarded when the student's knowledge and skills do not meet the requirements for a "satisfactory" grade.

16.2. Form, procedure, methodology, and criteria for assessing individual independent work.

Assessment of students' independent work, which is provided for within the topic alongside classroom work, is carried out during the ongoing assessment of the topic at the corresponding classroom session.

Assessment of the level of knowledge on topics designated exclusively for independent study and not included in classroom sessions is conducted during the final modular assessment. Points for individual assignments are awarded to the student only upon their successful completion. The number of points assigned for different types of individual assignments depends on their scope and significance:

- for the publication of scientific materials in the form of abstracts in periodicals (journals, collections of scientific works) – **4 points**;
- for the publication of scientific materials in the form of articles in periodicals (journals, collections of scientific works) – **5 points**;
- for participation in scientific conferences with presentations – **6 points**.

These points are added to the total number of points earned by the student during classes as part of their ongoing academic performance.

16.3. Conditions for admission to the final assessment.

Students are admitted to the final assessment provided they have attended all classroom learning sessions (lectures and practical classes) scheduled in the academic calendar, successfully passed interim assessments with a grade of “passed,” completed all types of work required by the curriculum of the discipline, and obtained no fewer than the minimum number of points for ongoing academic performance.

16.4. Form, procedure, methodology, and criteria for assessment during the final assessment.

The form of the final assessment of academic performance in the discipline “Phthysiology” is the final modular control, which is conducted upon completion of the block of relevant content modules at the last separate practical class of the module.

The final assessment involves testing the student’s theoretical knowledge, demonstrating the performance of practical skills, and solving clinical case studies with interpretation of clinical, instrumental, and laboratory examination results of tuberculosis patients, as well as demonstrating the principles of treatment in accordance with the established diagnosis.

The final modular control for Module 1 “Phthysiology” includes:

1. computer-based test control – solving 30 test questions with a single correct answer;
2. oral response to three questions from the list of questions for preparation for the final modular control;
3. solving one clinical case study;
4. performing three practical skills from the list of practical tasks and exercises designated for the final modular control.

Criteria for evaluating the final modular control

Criteria for evaluating the test control:

- **10 points** – number of correct answers not less than 80%;
- **8 points** – number of correct answers not less than 70%;
- **6 points** – number of correct answers not less than 60%.

Criteria for evaluating the oral response to questions:

- **10 points** – complete, correct, and comprehensive response;
- **8 points** – correct response, but with inaccuracies;
- **6 points** – difficulties with the response; assistance from the instructor was required in establishing a clinical diagnosis, developing an examination plan, or treatment plan;
- **0 points** – no response to the question.

Criteria for evaluating the solution of a clinical case study:

- **10 points** – accurate clinical diagnosis established, with a proper plan for examination and treatment;
- **8 points** – accurate clinical diagnosis established, but with inaccuracies in the examination or treatment plan;
- **6 points** – difficulties in establishing the clinical diagnosis, examination, or treatment plan, corrected by the student with the instructor’s assistance;

- **0 points** – no response to the case study.

Criteria for evaluating the performance of a practical skill:

- **10 points** – performed without errors;
- **8 points** – performed with minor shortcomings, corrected by the student during execution;
- **6 points** – performed with shortcomings, corrected by the instructor;
- **0 points** – not performed.

17. LIST OF TASKS TO THE FINAL CONTROL

17.1. List of theoretical questions for the final module control.

Content module 1. GENERAL ISSUES OF TUBERCULOSIS.

1. The causative agent of tuberculosis: structure, metabolism, variability, sustainability in the environment.
2. Classification, pathogenicity and virulence of *Mycobacterium tuberculosis*.
3. The main epidemiological indicators of tuberculosis infection and their evaluation.
4. Epidemiology of tuberculosis in Ukraine and the world. Goal 3. Strong health and well-being (target 3.3 "Stop the epidemics of HIV/AIDS and tuberculosis, including through the use of innovative practices and means of treatment") of the Sustainable Development Goals adapted for Ukraine (2015-2030), indicator 3.3.2 and its target values.
5. Tuberculosis risk groups.
6. Types of drug-resistance. Definition of multidrug-resistant tuberculosis.
7. Epidemic process of tuberculosis: source of tuberculosis infection, routes of transmission, susceptible organisms.
8. Pathogenesis of tuberculosis infection.
9. The elements of tuberculous granuloma.
10. Clinical classification of tuberculosis.
11. The concept of latent tuberculosis infection.
12. Pathomorphosis of tuberculosis in modern conditions.

Content module 2. DETECTION AND DIAGNOSTICS OF TUBERCULOSIS

13. Symptoms that may indicate tuberculosis.
14. Clinical manifestations of pulmonary tuberculosis.
15. Simultaneous detection of tuberculosis and other common lung diseases: COPD, pneumoconiosis, bronchial asthma, etc.
16. Features of the course of tuberculosis on the background of HIV-infection.
17. Methods of diagnostics of tuberculosis at the primary care level.
18. The method of sputum smear microscopy: the role in the detection of tuberculosis, advantages and disadvantages.
19. Cultural method of examination of sputum on a liquid and solid medium: the role in the detection of tuberculosis, advantages and disadvantages.
20. Methods of determination and types of drug resistance of the causative agent of tuberculosis.
21. Xpert MTB/RIF method: features of application, indications, advantages and disadvantages, interpretation of results.
22. GenoTypeMTBDRplus method: features of application, indications, advantages and disadvantages, interpretation of results.
23. Методи Xpert MTB/XDR, GenoTypeMTBDRplus: features of application, indications, advantages and disadvantages, interpretation of results.
24. Methods of radiological diagnostics of tuberculosis.
25. Methods of instrumental diagnostics of tuberculosis.
26. Diagnostics of latent tuberculosis.

Content module 3. CLINICAL FORMS OF TUBERCULOSIS

27. The concept of the primary tuberculosis.
28. The concept of the secondary tuberculosis.

29. Tuberculosis in children. The course of tuberculosis in vaccinated and unvaccinated children.
30. Focal tuberculosis of the lungs: features of the course, diagnosis, treatment.
31. Infiltrative tuberculosis of the lungs: features of the course, diagnosis, treatment.
32. Subacute disseminated tuberculosis of the lungs: features of the course, diagnosis, treatment.
33. Chronic disseminated tuberculosis of the lungs: features of the course, diagnosis, treatment.
34. Cirrhotic of the lungs: features of the course, diagnosis, treatment.
35. Fibro-cavernous tuberculosis of the lungs: features of the course, diagnosis, treatment.
36. Tuberculoma of the lungs: features of the course, diagnosis, treatment.
37. Generalized (miliary) tuberculosis: features of the course, diagnostics, treatment.
38. Tuberculosis of the CNS: features of the course, diagnostics, treatment.
39. Lymph node tuberculosis: features of the course, diagnostics, treatment.
40. Pleural tuberculosis: features of the course, diagnostics, treatment.
41. Tuberculosis of bones and joints: features of the course, diagnostics, treatment.
42. Tuberculosis of the urinary tract: features of the course, diagnostics, treatment.
43. Tuberculosis of the female genital organs: features of the course, diagnostics, treatment.
44. Tuberculosis of the male genitalia: features of the course, diagnostics, treatment.
45. Tuberculosis of the abdominal cavity: features of the course, diagnostics, treatment.

Content module 4. *TREATMENT OF TUBERCULOSIS. PALLIATIVE AND HOSPICE CARE*

46. Classification of anti-TB drugs.
47. Basic principles of treatment of patients with pulmonary tuberculosis.
48. Standard treatment of patients with tuberculosis sensitive to basic anti-tuberculosis drugs.
49. Treatment regimen for MDR/Rif-TB BPaLM/BPaL: scheme and appointment criteria by age categories, localization and severity of the disease.
50. Standardized short-term treatment regimen for patients with tuberculosis with multiple drug resistance: scheme and appointment criteria by age categories, localization and severity of the disease.
51. Individualized long-term treatment regimen for patients with tuberculosis with multiple drug resistance: scheme and appointment criteria by age categories, localization and severity of the disease.
52. Organization of outpatient treatment of a patient with tuberculosis.
53. Indications for hospitalization of a patient with tuberculosis.
54. The concept of the immune reconstitution inflammatory syndrome, its impact on the course of tuberculosis.
55. Methods of surgical treatment of tuberculosis.
56. Palliative care for patients with tuberculosis.

Content module 5. *TUBERCULOSIS IN COMBINATION WITH HIV AND OTHER DISEASES. COMPLICATIONS OF TUBERCULOSIS*

57. Diagnostics of tuberculosis on the background of HIV-infection.
58. Treatment of patients with co-infection TB/HIV-infection. Terms of appointment of antituberculous and antiretroviral therapy.
59. Immune system recovery syndrome: definition, risk factors, diagnostic criteria, management tactics.
60. Emergency care for pulmonary hemorrhage.
61. Emergency care for spontaneous pneumothorax.

Content module 6. *PREVENTION OF TUBERCULOSIS*

62. The role of infection control in the prevention of tuberculosis.
63. The concept of administrative infection control.
64. The concept of indoor air control.

65. Respiratory protection of the medical worker: rules of selection, putting on and use of a respirator.
66. Tracking the contacts of a patient with tuberculosis.
67. Preventive treatment of TB infection: regimens, indications, contraindications.
68. BCG vaccination: timing, technique, contraindications.
69. Complications of BCG vaccination: frequency, classification, treatment.

17.2. List of practical tasks and assignments for the final module control.

1. To identify risk factors for tuberculosis.
2. To conduct a screening survey for symptoms that may indicate tuberculosis.
3. To determine the clinical symptoms of tuberculosis.
4. To interpret the results of bacterioscopic examination of sputum.
5. To interpret the results of bacteriological examination of sputum.
6. To interpret the results of molecular genetic studies of sputum.
7. To determine the criteria of patients recovery from tuberculosis.
8. To plan the patient's route of detection and diagnostics of tuberculosis.
9. To diagnose and provide emergency care in emergencies in patients with tuberculosis.
10. To prescribe treatment to a patient with tuberculosis.
11. To make medical records about a patient with tuberculosis.
12. To determine contraindications to BCG vaccination.
13. To prescribe chemoprophylaxis of tuberculosis.
14. To carry out tracking and medical supervision of contacts of the patient with tuberculosis.
15. To plan infection control measures.
16. To interpret a chest X-ray.
17. To interpret the result of the tuberculin skin test.

18. SCORE CALCULATION AND DISTRIBUTION SCHEME

The **module grade** is determined on the basis of the sum of the student's scores for ongoing academic performance (in points) and the score for the final modular control (in points), which is awarded for the assessment of theoretical knowledge and practical skills in accordance with the lists defined by the curriculum of the discipline. By decision of the Academic Council of the University, additional incentive points (no more than **12 points**) may be added for prize-winning places in international Olympiads and the second stage of the All-Ukrainian Student Olympiad (the total number of points for the discipline may not exceed **200 points**).

The **maximum number of points** a student can obtain during the study of the module is **200 points**, including:

- for ongoing academic performance – **120 points**;
- for the results of the final modular control – **80 points**.

The **minimum number of points** a student must obtain during the study of the module is **120 points**, including:

- for ongoing academic performance – **78 points**;
- for the results of the final modular control – **50 points**.

Current assessment of students on specific topics is carried out according to the traditional 4-grade system ("excellent," "good," "satisfactory," "unsatisfactory") with subsequent conversion into a multi-point scale.

Recalculation of the current success rate of applicants when studying module 1 "Phthisiology":

Number of module number of study hours / number of credits ECTS	Number of content modules, their numbers	Number of practical classes	Conversion into point of the traditional scale		Minimum score of points *
			Traditional scale	Scores for individual task	

			"5"	"4"	"3"	"2"		
Module 1 90/3,0	6 (№№ 1-6)	6	19	16	13	0	4-6	78

The final score for the current activity is recognized as the arithmetic sum of points for each lesson and for individual work.

The maximum number of points that a student can score for the current activity during the study of the module is **120 points**. It is calculated by multiplying the number of points corresponding to the grade "excellent" (19 points) by the number of topics in the module (last topic - final module control is not taken into account) (6 classes × 19 points = 114 points) with the addition of points for an individual students' task (maximum – 6 points).

The minimum number of points that a student must score for the current activity during the study of the module and for admission to the final module control is calculated by multiplying the number of points corresponding to "satisfactory" by the number of topics in the module (13 points × 6 classes = 78 points) and is equal to **78 points**.

Maximum number of points, which can be obtained by the acquirer during the modular control, is **80**, at the same time, the maximum score for test control is 10 points, the maximum score for answering 3 oral questions is 30 points (10 points for each question), the maximum score for solving a situational problem is 10 points, the maximum score for demonstrating the performance of 3 practical skills is 30 points (10 points for each skill).

The final module control is considered passed if the applicant received at least **50 points** (6-10 points for the test control, 18-30 points for an oral answer to 3 questions, 6-10 points for solving a situational problem, 18-30 points for demonstrating the implementation of 3 practical skills).

Conversion of the number of points from the discipline into grades according to ECTS and 4-point (traditional) scales

The number of points from the discipline "Phthisiology", which is awarded to students, is converted to the ECTS scale.

Conversion of points from the discipline "Phthisiology" to the ECTS scale:

Evaluation according to the 200-point scale(balls)	Evaluation according to the traditional 4-point scale
From 180 up to 200 scores	"5"
From 150 up to 179 balls scores	"4"
From 149 up to minimal number of scores that a student must collect	"3"
Less than the minimum number of points that a student must collect	"2"

Marks of discipline "FX», «F» («2») are exhibited for students who have not passed the discipline module after the study completion.

Mark "FX" is put to students who have received a minimum number of points for current educational activities but who have not passed the final module control. This category of students shall be entitled to retake the final module control according to the approved schedule (but no later than until the beginning of the next semester). Rearrangement of the final module control is allowed two times maximum.

Mark «F» is put to students who have visited all auditorium classes of the module, but do not meet the minimum number of points for current educational activities and is not admitted to the final testing. This category of students has the right to re-study module.

19. RECOMMENDED LITERATURE

19.1 Basic

1. Todoriko L., Shapovalov V., Semianiv I. Phthisiatry: tuberculosis diagnostics update: a teaching manual of English for foreign students. Chernivtsi: Meduniversity, 2016. 138 p.

19.2. Auxillary

1. Todoriko L., Semianiv I., Yeremenchuk I. Modern Aspects of Treatment and Prevention of Tuberculosis: The teaching manual in English for foreign students. Chernivtsi: HSEE of Ukraine «Bukovinian State Medical University». 2019. 193 p.
2. Case History: Essential Guide for Students / edited by Prof. L. Todoriko. Chernivtsi: Bukovinian State Medical University. 2020. 92 p.
3. Palliative and Hospice care: students' manual / edited by Prof. L. Todoriko. Chernivtsi: Bukovinian State Medical University. 2021. 198 p.
4. Todoriko L.D., Semianiv I.O., Yeremenchuk I.V., Pidverbetska O.V., Pidverbetskiy O.Ya. Tuberculosis: screening, infection prevention and control. Chernivtsi: BSMU, 2023. 122 p.

19.3 Information resources

1. Website of the Department of Phthisiology and Pulmonology on the official website of Bukovinian State Medical University:
<https://www.bsmu.edu.ua/ftiziatriyi-ta-pulmonologiyi/>
2. Electronic educational platform of BSMU:
<https://eosvita.bsmu.edu.ua/course/view.php?id=230>
3. Other information resources:
 - WHO TB guidelines: recent updates:
<https://www.who.int/publications/digital/global-tuberculosis-report-2021/featured-topics/tb-guidelines>
 - WHO eTB Guidelines: <https://who.tuberculosis.recmap.org/recommendations>

20. COMPILERS OF THE STUDENT GUIDE (SYLLABUS)

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Начальник навчального відділу

Сергій САЖИН