


MINISTRY OF HEALTH OF UKRAINE
KHARKIV NATIONAL MEDICAL UNIVERSITY
Department of Phthiology and Pulmonology
Year 2021-2022

SYLLABUS OF ACADEMIC DISCIPLINE
“Phthiology”
Normative
Format: Mixed
Branch of knowledge 22 «Healthcare»
Specialty 222 «Medicine»
Educational and professional program «Phthiology»
Second master's level of higher education
Course: four

Approved
by the Council of the Department
of Phthiology and Pulmonology

Protocol
“27” August 2021 № 13

Head of the Department
 O.S. Shevchenko

“27” August 2021

Approved by
Methodological Commission of KNMU on the
problems of professional training of a therapeutic
profile

Protocol
“31” August 2021 № 1







Head  P.G. Kravchun

“31” August 2021

SYLLABUS DEVELOPERS:

1. Shevchenko Olga Stanislavna, MD, Professor, Head of the Department of Phthiology and Pulmonology

TEACHERS

	<p>Olga Stanislavna Shevchenko Head of the Department, MD, Prof. http://knmu.kharkov.ua/index.php?option=com_content&view=article&id=7036%3A2021-02-17-13-26-30&catid=20%3A2011-05-17-09-30-17&Itemid=40&lang=uk os.shevchenko@knmu.edu.ua Location: Novo-Bavarskyi av. 2 (Regional Antituberculosis Dispensary # 1)</p>
	<p>Dmytro Olexandrovich Butov MD, Prof., Responsible for students' scientific work do.butov@knmu.edu.ua +380977723777 Location: Pirogova str., 8 (Regional Tuberculosis Hospital # 3)</p>
	<p>Svitlana Leonidivna Matveyeva PhD., Associate Prof., Responsible for the medical work of the department sl.matvieieva@knmu.edu.ua +380679331728</p>
	<p>Olexandra Ivanivna Choporova PhD, Associate Prof., Responsible for scientific work of the Department oi.choporova@knmu.edu.ua +380950477246 Location: Novo-Bavarskyi av. 2 (Regional Antituberculosis Dispensary # 1)</p>
	<p>Olga Olexandrivna Hovardovska Assistant, Responsible for the distance learning oo.hovardovska@knmu.edu.ua +380502397967 Location: Novo-Bavarskyi av. 2 (Regional Antituberculosis Dispensary # 1)</p>
	<p>Olga Mykolaivna Shvets Assistant, Responsible for infectious control om.shvets@knmu.edu.ua +380999193762 Location: Novo-Bavarskyi av. 2 (Regional Antituberculosis Dispensary # 1)</p>

Introduction

Syllabus of academic discipline “Phthisiology” is composed in accordance with Educational-Professional Program “Medicine” and the Project of Standard of Higher Education of Ukraine (hereinafter - the Standard) of the second (master's) level, branch of knowledge 22 «Health care», specialty 222 «Medicine»

Annotation: Course provides information about epidemiology, etiology, pathogenesis, clinical manifestations, diagnosis, treatment and prophylaxis of tuberculosis as well as its complications especially emergency ones

Subject: tuberculosis

Interdisciplinary connections:

Microbiology	Biological characteristics of the causative agent of tuberculosis. Methods of its detection. Variability of the pathogen during chemotherapy. Properties of the BCG strain. Atypical mycobacteria and their clinical significance. Principles of disinfection in tuberculosis. Tuberculin and its properties.
Pathological anatomy	Pathomorphology and pathogenesis of clinical forms of tuberculosis, their evolution in favorable and unfavorable course. Residual changes during treatment and their significance in the subsequent pathogenesis and morphogenesis of pulmonary tuberculosis.
Pathological physiology	Pathological physiology of the infectious process. Delayed type hypersensitivity immune process. The main indicators of humoral and cellular immunity.
Propaedeutic of internal medicine	Methods of examination of patients with lung diseases. The main clinical syndromes of lung diseases. Mastering the skills of physical examination of the patient.
Internal medicine	The main nosological forms of lung diseases and their clinical manifestations.
Radiology	Physical bases of the method of X-ray examination. Techniques used for the study of respiratory organs, their suitability, indications for use. Methods of reading chest X-ray pictures.
Pharmacology	Anti-TB drugs, their pharmacological properties, doses, methods of administration, combinations.
Epidemiology and hygiene	Epidemic process, the main links of the tuberculosis process. Ways to prevent tuberculosis infection
Public health and health management	The main indicators of tuberculosis: morbidity, prevalence, mortality. Criteria for tuberculosis elimination.

Prerequisites: knowledge in microbiology, physiology and pathophysiology, radiology, pharmacology.

Postrequisites: the knowledge about tuberculosis obtained will allow to make differential diagnosis of tuberculosis from other diseases in internal medicine as well as provide diagnosis and treatment of tuberculosis

Moodle-link: <http://distance.knmu.edu.ua/course/view.php?id=454>

1. AIM AND TASKS

Aim: mastering basic knowledge of epidemiology, etiology, pathogenesis, clinic, diagnosis, treatment and prevention of tuberculosis

Tasks:

- formation of students' ability to determine main symptoms and syndromes of tuberculosis;
- formation of students' ability to determine risk factors for tuberculosis;

- formation of students' ability to diagnose clinical forms of pulmonary and extrapulmonary tuberculosis;
- students' mastering of modern methods of tuberculosis diagnosis (bacteriological, determining the sensitivity of *M. tuberculosis* to anti-TB drugs, determining the DNA of *M. tuberculosis* by polymerase chain reaction, etc.);
- formation of students' ability to diagnose complications of tuberculosis and provide emergency care in emergency conditions in patients with tuberculosis;
- formation of students' ability to determine dispensary registration groups of people from high-risk groups and use the principles of tuberculosis prevention.

Competence and results of education:

- *integral:*
 - Ability to solve typical and complex specialized problems and practical problems in professional activities in the field of health care or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.
- *general:*
 - Ability to apply knowledge in practical situations
 - Knowledge and understanding of the subject and understanding of the profession
 - Ability to self-regulate and lead a healthy lifestyle, the ability to adapt and act in a new situation
 - Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained
 - Ability to evaluate and ensure the quality of work performed;
 - Definiteness and perseverance in terms of tasks and responsibilities
- *special (professional, subject):*
 - Ability to make a preliminary diagnosis of the disease
 - Skills in gathering patient information
 - Ability to evaluate the results of laboratory and instrumental research
 - Ability to determine the principles and nature of disease treatment
 - Ability to diagnose emergencies
 - Ability to determine tactics for providing emergency medical care
 - Emergency care skills
 - Skills to perform medical manipulations
 - Ability to determine the required regimen of work and rest in the treatment of the disease
 - Ability to determine therapeutic nutrition in the treatment of diseases
 - Ability to carry out sanitary and hygienic and preventive measures
 - Ability to plan preventive and anti-epidemic measures
 - Ability to carry out preventive and anti-epidemic measures
 - Ability to keep medical records

Detailing of competencies according to descriptors in the form of "Competence Matrix".

Competence matrix

№	Competence	Knowledge	Skill	Communication	Autonomy and responsibility
Integral competence					
Ability to solve typical and complex specialized problems and practical problems in professional activities in the field of health care or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.					
General competencies					
1.	Ability to apply knowledge in practical situations	Specialized conceptual knowledge acquired in the learning process.	Be able to solve complex problems and problems that arise in professional activities.	Clear and unambiguous communication of own conclusions, knowledge and explanations that substantiate them to specialists and non-specialists.	Responsible for making decisions in difficult conditions
2.	Knowledge and understanding of the subject and understanding of the profession	Deep knowledge of the structure of professional activity.	Be able to carry out professional activities that require updating and integration of knowledge.	Ability to effectively form a communication strategy in professional activities	To be responsible for professional development, ability to further professional training with a high level of autonomy.
3.	Ability to self-regulate and lead a healthy lifestyle, the ability to adapt and act in a new situation	Ways to self-regulate, lead a healthy life.	Be able to apply methods of self-regulation, be able to lead a healthy lifestyle and adapt to new situations (circumstances) of life and activity.	Establish appropriate connections to achieve results.	Be responsible for a healthy lifestyle and timely use of self-regulation methods.
4.	Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained	Methods of analysis, synthesis and further modern learning	Be able to analyze information, make informed decisions, be able to acquire modern knowledge	Establish appropriate connections to achieve goals.	Be responsible for the timely acquisition of modern knowledge.
5.	Ability to evaluate and ensure the quality of work performed	Methods for estimating the quality of activities.	Be able to ensure quality work.	Establish connections to ensure quality work.	Be responsible for the quality of work.

6	Definiteness and perseverance in terms of tasks and responsibilities	Responsibilities and ways to accomplish the tasks	Be able to set goals and objectives to be persistent and conscientious in the performance of duties	Establish interpersonal relationships to effectively perform tasks and responsibilities	To be responsible for the quality implementation of the tasks
Special (professional, subject) competencies					
1.	Ability to make a preliminary diagnosis of the disease	Specialized knowledge about human, organs and systems; knowledge of standard investigation methods; disease diagnosis algorithms; algorithms for determining leading symptoms or syndromes; previous and clinical diagnoses; knowledge of methods of laboratory and instrumental examination; knowledge of human condition assessment.	Be able to perform a physical examination of the patient; be able to make an informed decision about the leading symptom or syndrome; be able to make a preliminary diagnosis of the disease; to appoint laboratory and instrumental examination of the patient by application of standard techniques	Based on normative documents, to keep medical documentation concerning the patient (card of the outpatient / inpatient, etc.).	According to ethical and legal norms, be responsible for making informed decisions and actions regarding the correctness of the preliminary diagnosis
2.	Skills in gathering patient information	Specialized knowledge about the human, organs and systems, methods and standard schemes of questioning and physical examination of the patient.	Be able to provide a conversation with the patient (including the child); based on algorithms and standards, using standard techniques to perform a physical examination of the patient. Be	Enter information about the state of health of the person, the child in the relevant medical records	Be responsible for the quality collection of information received, based on interviews, examinations, palpation, percussion of organs and systems and timely assessment of human health

			able to assess the state of human health (including children).		and taking appropriate measures
3.	Ability to evaluate the results of laboratory and instrumental research	Specialized knowledge about the human, organs and systems, standard methods of laboratory and instrumental research.	Be able to analyze the results of laboratory and instrumental studies and to evaluate information about the patient's diagnosis	Assign and evaluate the results of laboratory and instrumental research	Be responsible for deciding on the evaluation of laboratory and instrumental research results
4.	Ability to determine the principles and nature of disease treatment	Specialized knowledge of algorithms and standard schemes of disease treatment	Be able to determine the principles and character of treatment of the disease	To form and convey to the patient and specialists conclusions about the principles and character of treatment	Be responsible for deciding on the principles and character of treatment of the disease
5.	Ability to diagnose emergencies	Specialized knowledge about the human, organs and systems, standard methods of examination (at home, on the street, in a health care facility) in the absence of information.	Be able, in the absence of information, using standard techniques, to assess the human condition and make a diagnosis.	Under any circumstances, adhering to the relevant ethical and legal norms, to make a decision on the assessment of the human condition, diagnosis and organization of the necessary medical measures depending on the human condition fill in the relevant medical documents.	Be responsible for the timeliness and effectiveness of medical measures to diagnose emergencies.
6.	Ability to determine tactics for providing emergency medical care	Legal framework for the provision of emergency medical care; specialized knowledge about urgent human conditions; principles of emergency medical care.	Be able to identify emergencies; principles and tactics of emergency medical care; to carry out organizational and diagnostic measures aimed at saving human life.	Formulate and convey to the patient or his / her legal representative the need for emergency care and to obtain consent for medical intervention.	To be responsible for the correctness of determining the emergency condition, its severity and tactics of emergency medical care.
7.	Emergency care skills	Specialized knowledge	Be able to provide	Explain the need for emergency medical care.	Be responsible for the

		about the structure of the human body, its organs and systems; algorithms for providing emergency medical care.	emergency medical care.		timeliness and quality of emergency medical care.
8.	Skills to perform medical manipulations	Specialized knowledge about human, organs and systems; knowledge of algorithms for performing medical manipulations.	To be able to perform medical manipulations	To form and convey to the patient, specialists conclusions about the need for medical manipulations	Be responsible for the quality of medical manipulations
9.	Ability to determine the required regimen of work and rest in the treatment of the disease	Specialized knowledge about human, organs and systems; knowledge of ethical and legal norms; knowledge of algorithms and standard schemes for determining the regimen of work and rest during treatment, based on a preliminary diagnosis	On the basis of a preliminary diagnosis, to be able to determine the regimen of work and rest in the treatment of the disease	To form and communicate to the patient and specialists the conclusions about the necessary regimen of work and rest in the treatment of the disease	To be responsible for the validity of the appointment of work and rest regimen in the treatment of the disease
10.	Ability to determine therapeutic nutrition in the treatment of diseases	Specialized knowledge about human, organs and systems; knowledge of algorithms and standard schemes of medical nutrition in the treatment of the disease	On the basis of a preliminary diagnosis, to be able to determine the character of therapeutic nutrition in the treatment of the disease	To form and communicate to the patient and specialists the conclusions about therapeutic nutrition in the treatment of the disease	To be responsible for the validity of the appointment of therapeutic nutrition in the treatment of the disease

11.	Ability to carry out sanitary and hygienic and preventive measures	The system of sanitary-hygienic and preventive measures among the fixed contingent of the population. The principles of medical examination of different groups of the population. The indicators of evaluation of the organization and effectiveness of medical examination. The methodological approaches for assessing the state of the environment and the presence of factors that affect the health of the population in these conditions. The principles of nutrition, water supply, regimens of activity and rest; principles and methods of promoting a healthy lifestyle	Be able to form groups of different contingents of the population for their medical examination. Be able to make a plan for medical examination of different groups of the population. Have the skills to organize medical examinations of relevant contingents. Have the skills to analyze the health of groups based on the results of medical examinations and the development of medical and preventive measures. Be able to organize the promotion of a healthy lifestyle, primary prevention of diseases and injuries.	Based on the results of medical examination and analysis of the state of health of the population, the state of environment, to know the principles of submission of analytical information to local government and health care services; heads of industrial enterprises, to carry out measures to eliminate harmful effects on public health. Use the local press for publications on health promotion and environmental improvement, use of radio, television, lectures and interviews.	To be responsible for timely and high-quality measures to assess the health of the population, measures to improve the health of the relevant contingents, improve the environment, promote a healthy lifestyle.
12.	Ability to plan preventive and anti-epidemic measures	Principles and systems of planning preventive and anti-epidemic measures for infectious diseases in	Be able to plan measures to prevent the spread of infectious diseases on the basis of epidemiological	Inform the population, heads of relevant institutions and enterprises about the timely implementation of preventive and anti-epidemic measures, vaccinations, etc.	To be responsible for the qualitative analysis of indicators of infectious morbidity of the population,

		<p>typical conditions and in conditions of epidemic distress based on the results of the analysis, the survey data of the center of infectious diseases. Preventive and anti-epidemic methods of organizing measures to prevent the spread of infectious diseases.</p>	<p>analysis, using preventive and anti-epidemic methods</p>		<p>timely carrying out of the corresponding preventive and anti-epidemic measures.</p>
13.	<p>Ability to carry out preventive and anti-epidemic measures</p>	<p>Principles of organizing and conducting a system of preventive and anti-epidemic measures for infectious diseases and preventing their spread in typical conditions and during the exacerbation of the epidemic situation. Methods of detection and early diagnosis of infectious diseases, the organization of primary anti-epidemic measures in the center of infectious diseases.</p>	<p>Be able to organize preventive and anti-epidemic measures for infectious diseases in health care facilities, among the population and in infectious disease centers on the basis of epidemiological analysis by risk groups, risk areas, time and risk factors.</p>	<p>Inform the heads of health care facilities, local authorities about the epidemic situation and the need for timely and high-quality preventive and anti-epidemic measures in health care facilities, among the population and in the centers of infectious diseases.</p>	<p>To be responsible for the quality and timeliness of early diagnosis of infectious diseases, the organization of effective preventive and anti-epidemic measures to prevent the spread of infectious diseases.</p>
14.	<p>Ability to keep medical records</p>	<p>System of official document</p>	<p>Be able to determine the source and</p>	<p>Obtain the necessary information from a specific source, analyze</p>	<p>Be responsible for the completeness</p>

		management in the professional work of a doctor, including modern computer information technology	location of the required information depending on its type; Be able to process information and analyze the information obtained	it and form appropriate conclusions	and quality of the analysis of information and conclusions based on its analysis.
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Education results:

Integrative final program learning outcomes, the formation of which is facilitated by the discipline.

Learning outcomes for the discipline.

1. The ability to make a diagnosis.

1.1. In the health care institution, its subdivisions and among the population:

- Be able to identify and record the leading clinical symptom or syndrome by making an informed decision, using the preliminary data of the patient's history, the data of the physical examination of the patient, knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms.
- To be able to make the most probable or syndromic diagnosis by making an informed decision, by comparing with the standards, using the preliminary data of the patient's history and the patient's examination data, based on the leading clinical symptom or syndrome, using knowledge about the person, his organs and systems, adhering to the appropriate ethical and legal standards.

1.2. In a health care institution, its subdivisions:

- To prescribe laboratory and / or instrumental examination by making an informed decision based on the most probable or syndromic diagnosis, according to standard schemes, using knowledge about a human, organs and systems, ethical and legal norms.
- Carry out differential diagnosis of the disease by making an informed decision, according to a certain algorithm, using the most probable or syndromic diagnosis, data from laboratory and instrumental examination, knowledge about human, organs and systems, ethical and legal norms.
- Making a preliminary diagnosis by making an informed decision and logical analysis, using the most probable or syndromic diagnosis, data from laboratory and instrumental examination of the patient, conclusions of differential diagnosis, knowledge about a human, organs and systems, ethical and legal norms.

2. Skills in collecting patient information

Collect data on patient complaints, disease history, life history (including occupational history), in the conditions of a health care institution, its subdivision or at a patient's home, using the results of an interview with a patient, according to the standard patient survey scheme.

Under any circumstances (in a healthcare institution, its subdivision, at the patient's home, etc.), using knowledge about a human, organs and systems, according to certain algorithms:

- collect information about the general state of the patient (consciousness, constitution), perform examination of the skin, subcutaneous fat layer, palpation of lymph nodes, thyroid and mammary glands;
- examine the state of the cardiovascular system (examination and palpation of the area of the heart and superficial vessels, determination of the percussion boundaries of the heart and blood vessels, auscultation of the heart and blood vessels)
- examine the state of the respiratory system (examination of the chest and upper respiratory

tract, palpation of the chest, percussion and auscultation of the lungs);

- examine the state of the abdominal organs (examination of the abdomen, palpation and percussion of the intestines, stomach, liver, spleen, palpation of the pancreas, kidneys, pelvic organs, digital examination of the rectum);
- examine the condition of the musculoskeletal system (examination and palpation)
- examine the state of the nervous system ...
- examine the state of the genitourinary system ...

3. Ability to assess the results of laboratory and instrumental research

To evaluate information in the healthcare institution, its subdivision, applying a standard procedure, using knowledge about a human, organs and systems, based on the results of laboratory and instrumental studies.

4. Ability to determine the principles of the treatment of diseases

Prescribe the treatment (conservative, surgical) of the disease, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision on existing algorithms and standard schemes.

5. Ability to diagnose emergency conditions

Making a diagnosis by making an informed decision and assessing a person's condition, under any circumstances (at home, on the street, in a health care institution, its subdivision), in conditions of lack of information and limited time, using standard methods of physical examination and available disease history, knowledge of the human, organs and systems, adhering to the relevant ethical and legal norms.

6. Ability to determine the tactics of providing emergency medical care

Determine the tactics of providing emergency medical care, under any circumstances, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision based on the diagnosis of an emergency in a limited time using standard schemes.

7. Skills in providing emergency medical services help

Provide emergency medical care, under any circumstances, using knowledge about a human, organs and systems, adhering to the appropriate ethical and legal norms, by making an informed decision, based on the diagnosis of an emergency in a limited time, according to certain tactics, using standard schemes.

8. Skills of performing medical procedures

Perform medical manipulations based on a preliminary clinical diagnosis and / or indicators of the patient's state, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision and using standard techniques.

9. The ability to determine the required work and rest regime in the treatment

Determine the necessary mode of work and rest in the treatment of a disease in a healthcare institution, at home with a patient on the basis of a preliminary clinical diagnosis, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision on existing algorithms and standard schemes

10. Ability to determine nutritional therapy in the treatment

Determine the necessary therapeutic nutrition in the treatment in a health care institution, at home with a patient on the basis of a preliminary clinical diagnosis, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision on existing algorithms and standard schemes.

11. Ability to maintain medical records

In a health care institution, its subdivisions:

Maintain medical documentation for the patient and the population using standard technology, based on regulatory documents.

12. Ability to carry out sanitary and hygienic and preventive measures

12.1. To form, in the conditions of a health care institution, its subdivisions in production, using a generalized procedure for assessing a person's health, knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision, among the assigned

contingent of the population:

- dispensary groups of patients;
- groups of healthy people related to dispensary observation.

12.2. Implement a system of anti-epidemic and preventive measures, in the context of a health care institution, its subdivisions based on data on the health status of certain population groups and on the presence of environmental impact on it, using existing methods, within the framework of primary health care to the population

12.3. Organize secondary and tertiary prevention among the population, using a generalized procedure for assessing the state of human health (screening, preventive medical examination), knowledge about a human, organs and systems, ethical and legal norms, by adopting a reasoned decision, in a healthcare institution, in particular:

- form dispensary observation groups;
- organize medical and recreational activities differentiated from the group of medical examination

13. Ability to plan preventive and anti-epidemic measures for infectious diseases

To plan measures to prevent the spread of infectious diseases in the conditions of a health care institution, its subdivisions, based on the results of an epidemiological examination of foci of infectious diseases, epidemiological analysis, using existing preventive and anti-epidemic methods.

14. Ability to carry out preventive and anti-epidemic measures for infectious diseases

14.1. Carry out in the conditions of a health care institution, its subdivisions:

- detection and early diagnosis of infectious diseases;
- primary anti-epidemic measures in the focus of an infectious disease.

14.2. To identify risk groups, risk areas, risk time, risk factors in a health care institution, its subdivisions using statistical and laboratory methods, and carry out an epidemiological analysis of the infectious morbidity of the population:

15. The ability to determine the tactics of maintaining people subject to dispensary observation

In a healthcare institution or at home with a patient, based on the data obtained about the patient's health, using standard schemes, using knowledge about a human, organs and systems, ethical and legal norms, by making an informed decision:

- determine the tactics of examination and secondary prevention of patients during dispensary observation;
- define tactics of examination and primary prevention of healthy individuals related to dispensary observation;

16. Ability to provide an examination of working capacity

Determine the presence and severity of disabilities, the type, degree and duration of disability with the preparation of appropriate documents, in the conditions of a health care institution on the basis of data on the disease and its course, especially the professional activity of a person.

17. Provide the requirements of ethics, bioethics and deontology in professional activities.

Soft skills: Information gathering and processing, resource management, clinical thinking, teamwork

2. INFORMATION SCOPE OF THE COURSE

Parameters	Field of knowledge, direction of training, educational and qualification level	Characteristics
		full-time day education
Credits – 3	Training direction 22 «Health care» (code and name)	Normative
Hours - 90	Specialty: 222 «Medicine» (code and name)	Year: 4 th
		Semester 7 th or 8 th
		Lectures 10 hours
		Practical, seminar 30 hours
Hours for full-time day study: auditory – 40 student’s self-work - 50	Educational and qualification level: the second (master's) level	Laboratory -
		Self-work 50 hours
		Individual tasks: -
		Type of control: differential credit

Lectures

№	Topic	Hours
1	Definition of tuberculosis as a scientific and practical problem. Epidemiology of tuberculosis. The problem of multidrug-resistant and HIV-associated tuberculosis. The epidemic process of tuberculosis. Pathogenesis of tuberculosis infection.	2
2	Detection and diagnosis of tuberculosis	2
3	General principles and methods of tuberculosis treatment. Prevention of tuberculosis. Infection control of tuberculosis infection.	2
4	Clinical variants of primary tuberculosis	2
5	Clinical variants of secondary tuberculosis	2
	Total	10

Practical classes

№	Topic	Hours
1	The causative agent of tuberculosis, its structure, metabolism, variability, resistance in the environment. Classification. Pathogenicity and virulence of mycobacteria. The main epidemiological indicators of tuberculosis infection and their assessment. Epidemiology of tuberculosis. Sources of tuberculosis infection. The mechanism of infection transmission. Pathogenesis of tuberculosis. Immune response for tuberculosis. Pathomorphosis of tuberculosis. Clinical classification of tuberculosis. Latent tuberculosis	4

	infection, primary and secondary tuberculosis. Risk groups.	
2	Symptoms of tuberculosis. Patient's route with a cough at the primary care stage. Laboratory methods for the detection of tuberculosis. Microscopic diagnosis of tuberculosis. Bacteriological methods for the diagnosis of tuberculosis. Molecular genetic diagnosis of tuberculosis. X-ray diagnosis of tuberculosis. The role of computed and magnetic resonance imaging in the diagnosis and differential diagnosis of tuberculosis. Radiological semiotics of pulmonary and extrapulmonary tuberculosis. The role of instrumental and invasive methods in confirming the diagnosis. Tuberculin diagnosis: principle of the method, indications, role in identifying latent tuberculosis infection. Clinical analysis of the patient.	4
3	The basic principles and methods of pulmonary tuberculosis treatment. Anti-TB drugs. Standard chemotherapy regimens. Drug-resistance: mono-, poly-, multidrug-, extensively drug-resistant tuberculosis. Standard, individual, empirical regimens for the treatment of drug-resistant tuberculosis. Treatment of extrapulmonary tuberculosis. Side effects of tuberculosis chemotherapy, strategies to overcome them. Treatment monitoring, effectiveness evaluation. Determining the results of tuberculosis treatment. Directly observed treatment. Outpatient and inpatient treatment of tuberculosis. Adherence to treatment. Methods of surgical treatment of pulmonary and extrapulmonary tuberculosis. Palliative care. The chain of transmission, ways to interrupt it: identification, isolation, effective treatment of infection sources, infection control, BCG vaccination, chemoprophylaxis. Infection control: administrative, engineering, individual. The distribution of patients, the concept of high, medium, low risk areas. Respiratory hygiene. Monitoring air condition of enclosed spaces: natural, artificial ventilation. Air filtration. UV irradiation: irradiator designs. Individual respiratory protection: types of respirators, selection and application rules. Tuberculosis contacts, foci of tuberculosis infection. Contact tracking. BCG vaccination: terms, contraindications, technique. Post-vaccination period. Complications of BCG. Indications for chemoprophylaxis of tuberculosis. Chemoprophylaxis regimens. Clinical analysis of the patient.	4
4	Clinical variants of primary pulmonary tuberculosis. Tuberculosis in children. Tuberculosis of unidentified localization, tuberculosis of intrathoracic lymph nodes, primary tuberculosis complex. The effect of mass BCG vaccination on the pathomorphosis of tuberculosis in children. Tuberculosis in vaccinated and unvaccinated children. Generalized (miliary) tuberculosis. Clinical analysis of the patient.	4
5	Clinical variants of secondary tuberculosis. Disseminated pulmonary tuberculosis. Tuberculosis of the pleura, lymph nodes, CNS. Focal and infiltrative pulmonary tuberculosis. Caseous pneumonia, pulmonary tuberculoma. Fibrous-cavitary and cirrhotic pulmonary tuberculosis. Clinical analysis of the patient.	4
6	HIV-associated tuberculosis. Pathogenesis of tuberculosis on the background of HIV infection. TB/HIV co-infection course, diagnosis, treatment. Terms of anti-tuberculosis and antiretroviral treatment onset. Determining the prognosis of the disease. The syndrome of the immune reconstitution in patients with HIV infection, its effect on the course of tuberculosis. Other comorbidities in tuberculosis patients: diabetes mellitus, pneumoconiosis, kidney diseases, treatment with immunosuppressants, tumor necrosis factor. Tuberculosis and pregnancy. Discussion and submission of case history.	5
7	Emergency conditions in tuberculosis patients: spontaneous pneumothorax, pulmonary hemorrhage, anaphylactic shock, bronchospasm. Diagnostics,	5

	emergency care. Differentiated credit	
Total		30

Self-work

№	Topic	Hours
1	Non-specific treatment of TB-patients (hygiene and dietary regimens, pathogenetic and symptomatic treatment). Surgical treatment. Spa treatment	5
2	Tuberculosis of peripheral lymph nodes. Tuberculosis of bones and joints. Clinical manifestations, diagnosis, treatment	5
3	TB pleuritis	5
4	Tuberculosis: roentgen-semiotics	5
5	Test with recombinant tuberculous antigen	5
6	Interferon- γ release assays	5
7	Radiological methods of diagnosis of pulmonary tuberculosis	5
8	Method of spirometry, changes in spirometric parameters for respiratory tuberculosis	5
9	Functional methods of TB diagnosis	5
10	Tuberculosis: differential diagnosis	5
Total		50

Teaching methods: explanation, conversation, lecture, illustration, demonstration, presentation, videos, discussion, round table, role-playing, simulation game, modeling of processes and situations, delegation of authority, case method, project method, debate, "Brainstorm", sparring partnership (pair training), standardized patient

Control methods:

Current control: oral examination; written survey; test control; creative tasks; individual tasks; report; writing a case history.

Final control: differential credit.

3. EVALUATION CRITERIA

3.1. Evaluation rules

Evaluation of current educational activities

During the assessment of mastering each educational topic of the discipline, the student is given a grade on a 4-point scale.

The final score in the semester is defined as the arithmetic mean of 4-point grades for each practical lesson, rounded to two decimal places and converted into a multi-point scale according to Table 1.

Table 1

Recalculation of the average score for the current control in a multi-point scale

4-point scale	120-point scale	4-point scale	120-point scale
5	120	3.91-3.94	94
4.95-4.99	119	3.87-3.9	93
4.91-4.94	118	3.83-3.86	92
4.87-4.9	117	3.79-3.82	91
4.83-4.86	116	3.74-3.78	90
4.79-4.82	115	3.7-3.73	89
4.75-4.78	114	3.66-3.69	88

4-point scale	120- point scale	4- point scale	120- point scale
4.7-4,74	113	3.62- 3,65	87
4.66-4,69	112	3.58-3,61	86
4.62-4,65	111	3.54- 3,57	85
4.58-4,61	110	3.49- 3,53	84
4.54-4,57	109	3.45-3,48	83
4.5-4,53	108	3.41-3,44	82
4.45-4,49	107	3.37-3,4	81
4.41-4,44	106	3.33- 3,36	80
4.37-4,4	105	3.29-3,32	79
4.33-4,36	104	3.25-3,28	78
4.29-4,32	103	3.21-3,24	77
4.25- 4,28	102	3.18-3,2	76
4.2- 4,24	101	3.15- 3,17	75
4.16- 4,19	100	3.13- 3,14	74
4.12- 4,15	99	3.1- 3,12	73
4.08- 4,11	98	3.07- 3,09	72
4.04- 4,07	97	3.04-3,06	71
3.99-4,03	96	3.0-3,03	70
3.95- 3,98	95	<3	Unsatisfactory

Providing and evaluating of differential credit

Differential credit in the discipline is a process during which the results obtained during the semester are checked:

- level of theoretical knowledge and practical skills;
- development of creative thinking;
- skills of independent work;
- competencies - the ability to synthesize the acquired knowledge and apply them in solving practical problems.

Teacher at the last practical class provides differential credit.

Providing of differential credit:

1. The solution of the test tasks of "Step 2" - 30 tests. Evaluation criterion - 90% of correctly solved tasks; "passed"
2. Assessment of practical skills and theoretical knowledge
3. Tasks for practical and professional training that reflect the skills and abilities in assessing the results of laboratory and instrumental research methods in order to diagnose and choose treatment tactics. (Table 2).

Table 2

Assessment of theoretical knowledge and practical skills, if they are presented in one ticket

Number of questions	«5»	«4»	«3»	Oral answer, which include the theoretical part of the discipline	For each answer the student receives from 10 to 16 points, which corresponds to: "5" - 16 points; "4" - 13 points; "3" - 10 points.
1	16	13	10		
2	16	13	10		
3	16	13	10		
4	16	13	10		
5	16	13	10		

	80	65	50		
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Discipline mark

For disciplines, the study of which ends in the current semester, and the form of control is a "differentiated test" it is assumed that the admission to the differential credit is calculated from 70 to 120 points. Differential credit is estimated from 50 to 80 points. The total mark is the sum of points and ranges from 120 to 200.

The correspondence of grades on the 200-point scale and four-point scale and the ECTS scale is given in Table 3.

Table 3

200-point scale	ECTS scale	4-point scale
180–200	A	Excellent
160–179	B	Good
150–159	C	Good
130–149	D	Satisfactory
120–129	E	Satisfactory
>120	F, Fx	Unsatisfactory

The mark of the discipline is given only to students who have passed all the practical classes, lectures, differential credit.

Those who have met the requirements of the programs of academic disciplines and were admitted to the final control but did not pass it are given a grade of Fx.

Those who were not admitted to the differential credit due to insufficient score are marked "not allowed" (grade F).

3.2. Questions for differential credit:

1. Tuberculosis risk factors
2. Possible treatment results in patients with pulmonary tuberculosis
3. Peculiarities of tuberculosis causative agent
4. Ways of *M. tuberculosis* spreading
5. Clinical classification of tuberculosis and formulation of the diagnosis
6. Tuberculosis symptoms and signs
7. The role of bacterioscopy, bacteriological and molecular-genetic tests in the diagnosis of tuberculosis
8. MTB resistance types
9. Tuberculosis X-ray signs
10. Mantoux test and test with recombinant tuberculosis antigen: purpose, procedure and interpretation
11. Basic principles of tuberculosis patients treatment
12. Side-effects of anti-tuberculosis drugs, prevention of side-effects
13. Standard tuberculosis treatment regimens depending on treatment category
14. Criteria of tuberculosis treatment effectiveness
15. Ways of tuberculosis prophylaxis
16. BCG vaccination and revaccination: indications and contraindications
17. BCG vaccination and revaccination procedure
18. BCG vaccination and revaccination complications; prophylaxis and treatment of those complications
19. Activities carried out in foci of tuberculosis infection, depending on the category of foci
20. Features of the course and treatment of pulmonary tuberculosis associated with other diseases and conditions
21. Dispensary supervision categories

3.3. Tasks for self-work:

1. Interpretation of bacterioscopy, molecular-genetic and bacteriological test results
2. Drawing up a scheme for examining a patient with tuberculosis and analysis of the data obtained
3. Determination of the clinical forms of tuberculosis and the formulation of the diagnosis according to the classification
4. Tuberculosis diagnosis basing on anamnestic, clinical, X-ray and laboratory data
5. Emergency care in urgent conditions in patients with tuberculosis
6. Diagnosis of primary and secondary tuberculosis complications
7. The appointment of complex therapy for tuberculosis patients
8. Formulation of the diagnosis of primary and secondary forms of tuberculosis according to the classification
9. X-ray analysis in primary and secondary forms of tuberculosis
10. Medical records of TB
11. Analysis of Mantoux test and test with recombinant tuberculosis antigen results

3.4. Individual tasks: writing of case history

3.5. Other tasks: making a presentation, writing an abstract, participation in students' scientific conference

3.6. Rules for appealing the assessment

The mark can be appealed in accordance with the Order of KNMU No. 252 dated 09/30/2020 "Regulations on the appeal of the results of the final control of applicants for education at Kharkiv National Medical University"

http://www.knmu.kharkov.ua/index.php?option=com_content&view=article&id=1226:20;&Itemid=&lang=uk

4. COURSE POLICY

To obtain a positive total mark, the student must attend all lectures and practical classes, as well as get a positive mark (3, 4 or 5) at each practical class and get at least 50 points for differential credit. At the penultimate lesson, the student should submit a filled workbook and case history for clinical tasks given by the teacher in the first lesson.

For admission to the lesson, the student must have a medical uniform and indoor shoes. To get a positive mark, the student must be ready to answer the questions about the topic of the lesson.

If a lecture is missed, the student must prepare an essay on a missed topic and submit it to do work-off to his teacher in the time free from the academic load or to the duty teacher. The essay should be prepared in accordance with the principles of academic integrity.

If a practical lesson is missed, the student can work-off it with his teacher in the teacher's free time or with the duty teacher. The work-off is provided as an interview on a missed topic. A student can work-off a missed lesson without a permission within a month. After this period, the student must get the permission from the dean's office to work-off the lesson.

Bad marks can be work-offed without permission at any time.

To get extra points, the student must prepare and publish the abstract or an article or make an oral report at the conference. To prepare an individual task, the student can use the help of his teacher and other employees of the department. The approval of the individual points is carried out at a meeting of the department. The individual task should be prepared according to the principles of academic integrity.

5. ACADEMIC INTEGRITY

The system of academic integrity development has been introduced at the university

About academic integrity

Order №305 of 27.08.19 on the organization of the educational process in KhNMU

Code of Academic Integrity of KhNMU

Order № 165 of 02.07.2020 on measures to develop the system of academic integrity in KhNMU

Plan

Regulations on academic integrity

Regulations on the Group for the Promotion of Academic Integrity of KhNMU

Regulations on the Commission on Academic Integrity, Ethics and Conflict Management of KhNMU

Order № 195 of 27.08.2020 on approval of the Regulations on the procedure for checking in KhNMU text documents of dissertations, reports on research papers, scientific publications, materials of scientific forums, educational literature, educational publications and teaching aids for the presence of textual borrowings

Regulations on the Procedure for Checking Text Documents at KhNMU - Dissertations, Reports on Research Papers, Scientific Publications, Materials of Scientific Forums, Educational Literature, Educational and Methodological Publications and Teaching Aids for Textual Borrowings

6. LITERATURE

Main literature:

1. Phthisiology: textbook / V.I.Petrenko, O.K.Asmolov, M.G.Boyko et al. – Kiyv. – AUS Medicine Publishing.- 415 p.
2. Phthisiology: schemes, tables, pictures: Hand book for students / O. S. Shevchenko, S. L. Matveyeva, O. I. Choporova et al. – Kharkov : KNMU, 2017. – 164 p.
3. Phthisiology. Hand book for students / O.S.Shevchenko, S.L.Matveyeva, A.I.Choporova. – Kharkov: KhNMU, 2011. - 108 p.

Additional literature:

1. WHO operational handbook on tuberculosis (Module 1 – Prevention): Tuberculosis preventive treatment . Geneva, World Health Organization. 2020. <https://apps.who.int/iris/bitstream/handle/10665/331525/9789240002906-eng.pdf>
2. Clinical Tuberculosis 6th edition. Edited By Lloyd N. Friedman, Martin Dedicoat, Peter D. O. Davies. 2021. 467 p. ISBN 9780815370239
3. Handbook of Tuberculosis. Stefan H. E. Kaufmann, Eric Rubin, Warwick J. Britton, Paul van Helden. 2017. 281 p. ISBN:9783527316830
4. Official American Thoracic Society/Infectious Diseases Society of America/Centers for Disease Control and Prevention Clinical Practice Guidelines: Diagnosis of Tuberculosis in Adults and Children. David M. Lewinsohn, Michael K. Leonard, Philip A. LoBue, David L. Cohn, Charles L. Daley, Ed Desmond, Joseph Keane, Deborah A. Lewinsohn, Ann M. Loeffler, Gerald H. Mazurek, Richard J. O'Brien, Madhukar Pai, Luca Richeldi, Max Salfinger, Thomas M. Shinnick, Timothy R. Sterling, David M. Warshauer, Gail L. Woods. 2017
5. Mycobacterium tuberculosis Pathogenesis, Infection Prevention and Treatment. D.M. Ferraris, R. Miggiano, M. Rizzi. 2020. 128 p. <https://doi.org/10.3390/books978-3-03936-659-0>
6. Reichman and Hershfield's Tuberculosis : A Comprehensive, International Approach. L.B. Reichman, E.S. Hershfield. 2021. 1400 p. ISBN13 9780367453510
7. CDC Core Curriculum On Tuberculosis: What The Clinician Should Know. 7th edition. 202

7. INFORMATIONAL RESOURCES

1. <http://distance.knmu.edu.ua/course/view.php?id=454>
2. http://knmu.kharkov.ua/index.php?option=com_content&view=article&id=243%3A2011-05-19-12-40-16&catid=7%3A2011-05-05-09-09-08&Itemid=27&lang=uk
3. https://www.who.int/health-topics/tuberculosis#tab=tab_1
4. <https://www.cdc.gov/tb/default.htm>