



CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 1/15

FACULTY MEDICINE

STUDY PROGRAM MEDICINE

DEPARTMENT PNEUMOPHTISIOLOGY

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum in Medicine

Minutes No. 1 of 16.09.21
Chairman [Signature]
(academic degree, scientific title)
Name, surname [Signature]
(signature)

APPROVED

at the Council meeting of the Faculty Medicine

Minutes No. 1 of 21.09.21
Dean of Faculty [Signature]
(academic degree, scientific title)
Name, surname [Signature]
(signature)

APPROVED

approved at the meeting of the Pneumophtisiology chair

Minutes No. 4 of 15.09.2021

Head of chair PhD, professor
Iavorschi, Constantin [Signature]

SYLLABUS

DISCIPLINE PNEUMOPHTISIOLOGY

Integrated studies

Type of course: **Compulsory**

Curriculum elaborat de colectivul de autori:

- Iavorschi, Constantin, PhD, professor
- Ustian, Aurelia, PhD, professor/associate professor
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CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:	09
Date:	08.09.2021
Page 1/14	

I. INTRODUCTION

- General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program

Pneumophtisiology is a clinical discipline in the field of Internal Medicine, which at the university stage will allow to the future physician to acquire basic principles in the management of patients with tuberculosis of the respiratory system. Tuberculosis of the respiratory system has close interdisciplinary links in the context of the university medical curriculum. Thus, the knowledge of Pneumoptisiology contributes to the formation of the holistic medical concept and the complex applicative abilities.

- Mission of the curriculum (aim) in professional training
The purpose of training students in pneumophtisiology takes account for the future medical professional activity and involves acquiring basic knowledge and training on respiratory tuberculosis practical skills needed to perform the diagnosis and treatment of patients with respiratory tuberculosis.
- Language (s) of the discipline: Romanian, Russian, English;
- Beneficiaries: students of the 4th year, faculty Medicine.

II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		S.07.O.066	
Name of the discipline		Pneumophtisiology	
Person(s) in charge of the discipline		Iavorschi Constantin, PhD, professor	
Year	IV	Semester/Semesters	VII/VIII
Total number of hours, including:			60
Lectures	10	Practical/laboratory hours	12
Seminars	13	Self-training	25
Form of assessment	Exam	Number of credits	2

III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

- *at the level of knowledge and understanding:*
 - ✓ to define the theoretical basis of respiratory tuberculosis at contemporary;



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:

09

Date:

08.09.2021

Page 2/14

- ✓ to understand the importance of respiratory tuberculosis studying, especially in the current epidemiological conditions;
- ✓ to identify particularities of primary tuberculosis in children, adolescents and adults;
- ✓ to know the etiopathogenesis, clinical manifestations, diagnosis and differential diagnosis, principles of treatment and prevention of various forms of respiratory tuberculosis;
- ✓ to identify the risk of TB contracting.
- **at the application level:**
 - ✓ to achieve practically all mandatory stages of the formulation of diagnosis: history, physical examination, interpretation of clinical data (formulation of the clinical diagnosis), indication and interpretation of investigations, formulation of diagnosis;
 - ✓ to learn application method of Pr. Mantoux with 2UT and results interpretation;
 - ✓ to interpret the chest radiographs with different forms of extrapulmonary tuberculosis;
 - ✓ to perform differential diagnosis of tuberculosis with other respiratory diseases;
 - ✓ to apply TB treatment according to tuberculosis cases and type of resistance;
 - ✓ to take the optimal decisions of the emergency aid in critical situations;
 - ✓ to apply prevention methods of tuberculosis in practice;
 - ✓ to formulate ethical and deontological principles in health care of patients with tuberculosis;
 - ✓ to resolve issues, multilateral and critical processing assimilated information.
- **at the integration level:**
 - ✓ to appreciate the importance of studying of Pneumophtisiology in context of therapy and integration of related medical disciplines;
 - ✓ creatively tackle problems of clinical medicine;
 - ✓ to infer interrelationships between Pneumophtisiology and other clinical disciplines;
 - ✓ to possess the skills of implementation and integration of knowledges obtained in medical practice;
 - ✓ to be able to objectively assess and self-assess knowledge in the field;
 - ✓ to be able to assimilate the achievements in Pneumophtisiology.

IV. PROVISIONAL TERMS AND CONDITIONS

For the good achievement of Pneumophtisiology the 4th-year student requires the following:

- confirmed skills in the following disciplines:
 - ✓ **Fundamental:** Human Anatomy, Histology, Cytology and Embryology, Physiology and Medical Rehabilitation, Biochemistry and Clinical Biochemistry, Molecular Biology and Human Genetics, Microbiology, Virology and Immunology;
 - ✓ **Preclinical:** Pathophysiology and clinical pathophysiology, Morphopathology, Pharmacology and Clinical Pharmacology, Internal Medicine - semiology, Surgery - semiology, Pediatrics, semiology and childcare;
 - ✓ **Clinical:** Internal Medicine, Obstetrics and Gynecology, Surgery, Pediatrics, Urology, Neurology, Ophthalmology, Otorhinolaryngology, Dermatovenereology, Endocrinology, Hematology and Oncology, Infectious Diseases, Epidemiology.
- digital competences (Internet using, document processing, electronic tables and presentations, use of graphic programs);
- communication ability and team working;
- qualities - tolerance, compassion, autonomy.



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:

09

Date:

08.09.2021

Page 3/14

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self- training
1.	History of tuberculosis, epidemiology, etiology and pathogenesis of tuberculosis.	2	-	1
2.	Detection and diagnosis of TB. Treatment of tuberculosis.	2	-	1
3.	Primary latent tuberculous infection. Particularities of primary tuberculosis. Primary tuberculosis complex. Tuberculosis of intrathoracic lymph nodes. Complications of primary tuberculosis.	2	-	1
4.	Secondary pulmonary tuberculosis (disseminated, nodular, infiltrative, fibro-cavitary). Clinical particularities, differential diagnosis.	2	-	1
5.	TB prevention. Control of TB infection. Organization of tuberculosis control in RM. <i>Patient-centred model</i> of care for tuberculosis.	2	-	1
6.	Appropriation particularities and methods of examination of TB patient: clinical and paraclinical investigation. Classification of TB. Tuberculin skin test. Microbiological and radiological examination. Inspection of the patient.	-	5	4
7.	Examination and results evaluation of patients with primary tuberculosis. Diagnosis and treatment. Clinical discussion of patients with primary tuberculosis complex, tuberculosis of intrathoracic lymph node. Complications of primary tuberculosis: pleurisy, meningitis, atelectasis.	-	5	4
8.	Examination and results evaluation of patients with secondary pulmonary tuberculosis (disseminated TB, nodular TB). Diagnosis and treatment. Clinical discussion of patients with secondary pulmonary tuberculosis.	-	5	4
9.	Examination and results evaluation of patients with secondary pulmonary tuberculosis (infiltrative TB, fibro-cavitary TB). Diagnosis and treatment. Clinical discussion of patients with secondary pulmonary tuberculosis.	-	5	4
10.	Prevention of tuberculosis. Criteria of TB foci formation. Activities in tuberculosis focus. Recovery of tuberculosis focus. Epidemiological investigation. TB infection control. TB control in primary health care level. Joint activities between the centres of public health, primary care medicine and phthisiopneumology services in TB control.	-	5	4
Total		10	25	25

VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE

Mandatory essential practical tools are:



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 4/14

- assessment of the epidemiological situation on tuberculosis in a territory
- primary examination of TB patients
- interpretation of the sputum smear exam
- assessment of bacteriological examination in the TB diagnosis
- performing the tuberculin skin test
- assessment of the result of the tuberculin skin test
- interpretation of the results of IGRA tests
- interpretation of radiographs in pulmonary TB
- formation of the clinical diagnosis according to the clinical classification of TB
- performing thoracentesis
- differential diagnosis of exudate and transudate
- knowledge of the criteria for differentiating pleural effusion in TB
- knowledge of the clinical signs of pneumothorax
- possessing the knowledge to differentiate the types of pneumothorax
- knowledge of the clinical signs of pulmonary hemorrhage
- prescribing sensitive TB treatment schemes and regimens
- knowledge of indications and contraindications in immunization with BCG vaccine
- assessment of normal post-BCG vaccine reactions
- knowledge of possible complications and the causes of their development in immunization with the BCG vaccine
- knowledge of the criteria for assessing TB outbreaks
- knowledge of TB outbreak remediation measures
- the examination of TB contacts
- indications for preventive chemotherapy
- knowledge of TB infection control (managerial, engineering and personal protection)
- knowledge of strategy in TB
- use and implementation of knowledge in the positive diagnosis of various clinical forms of TB
- knowing the peculiarities of the evolution of TB / HIV co-infection
- knowledge of the peculiarities of the evolution of TB and diabetes
- elaboration of treatment schemes in resistant TB
- assessment of the causes of side effects and their clinical manifestations of antituberculosis treatment
- elimination of adverse phenomena in antituberculosis treatment
- applying the knowledge gained to solve clinical situations

Note: The essential practical tools characteristic of the discipline, obligatory to be acquired by each student during the module, will be listed. These will serve as a



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 5/14

basis for the stage of evaluating practical skills and will constitute their portfolio per study program.

VII. OBJECTIVES AND CONTENT UNITS

Objective	Content units
Theme (chapter) 1. History of tuberculosis, epidemiology, etiology and pathogenesis of tuberculosis.	
<ul style="list-style-type: none"> • To define the notion of "Tuberculosis" • To know the etiology of tuberculosis, the types, and structure of <i>M.tuberculosis</i> • To demonstrate the knowledge of the tuberculous epidemiological chain • To apply epidemiological indicators for the characteristic of the TB epidemiological situation in the Republic of Moldova • To integrate TB risk factors into collecting of the patients' anamnestic data 	1 TB epidemiology. TB endemic and epidemiological indicators for its evaluation. The Current TB situation and characteristics of TB endemic in the World and in the Republic of Moldova. The TB epidemiological chain. Natural history of tuberculosis in the population.
	2 TB etiology. Genus <i>Mycobacterium</i> . Classification. Biochemical structure. Microscopic morphology. Growing on culture media. Natural resistance to physical and chemical agents. Primary chemoresistance. Secondary chemoresistance.
	3 Transmission of TB infection. Sources of infection. The ways of TB transmission and the mechanism of contamination.
	4 Host body's reaction to tuberculosis infection. Experimental Tuberculosis. Koch phenomenon. Mechanism of the immune response. Tuberculin reaction. Protective immunity. The relationship hypersensitivity - immunity.
	5 Pathogenesis of tuberculosis. Stages of TB pathogenesis. Morphopathology of tuberculosis.
	6 Evolution of TB infection. Role of the environmental factors. Cycle of the TB infection in humans. Infection and disease.
Theme (chapter) 2. Detection and diagnosis of TB.	
<ul style="list-style-type: none"> • To define the main ways of TB suspect persons detection • To know the methods of examination for the diagnosis of latent tuberculosis infection and active tuberculosis • To demonstrate knowledge of the laboratory methods used to detect <i>M. tuberculosis</i> • To apply tuberculin skin test results to children • To integrate the examination results for the differential diagnosis of TB with other diseases 	1 TB detection. Passive way - examination of a suggestive person. Active method: examination of the risk groups, examination of the dangerous groups. Epidemiological investigation spun. Algorithm of TB diagnosis.
	2 TB diagnosis. Medical history. Clinical evaluation of the suspect patient. Implementation and critical evaluation of complementary examinations. Inpatient hospital medical records, rules for filling.
	3 Microbiological examination. The importance of microbiological investigations in the diagnosis of tuberculosis. General principles and methods of harvesting, transportation and keeping of the pathological products. Microscopical examination. Bacteriological examination (examination by culture). Growing of mycobacteria on the liquid media (BACTEC, MB / BacT). Molecular genetic methods of diagnosis and identification of species of <i>Mycobacteria tuberculosis</i> (polymerase chain reaction, GenoType®MTBDRplus, Xpert MTB/RIF, BD ProbeTec™, "fingerpriting", spoligotyping). Results interpretation. Susceptibility testing methods of <i>M. tuberculosis</i> .
	4 Tuberculin skin test. Tuberculin. Types of tuberculin. Purposes of tuberculin test using. Advantages and disadvantages of tuberculin test. Technique of IDR Mantoux test with 2 UT. Evolution of Mantoux test. Body's reaction to tuberculin. Interpretation of the tuberculinic reactions. Tuberculin conversion. Booster effect.



**CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES**

Edition: 09

Date: 08.09.2021

Page 6/14

Objective	Content units
	<p>5 Imaging elements of tuberculosis diagnostic. Value and place of radiological examination in the diagnosis of pulmonary tuberculosis. Techniques and methods. Possibilities and limits. Normal radiological anatomy of the lungs and hilar region. Radiological semiology of respiratory tuberculosis. (Basic radiological changes in pulmonary TB). Interpretation of pathological opacity in pulmonary tuberculosis. Computed tomography (CT). Nuclear magnetic resonance (NMR). Ultrasound examination.</p>
	<p>6 Respiratory functional explorations. Respiratory pathophysiology of pulmonary tuberculosis. Spirometry. Pletizmografy. Gasometry. Perfusion scintigraphy. Results interpretation of functional examinations.</p>
	<p>7 Laboratory investigations. Biochemical and immunological investigation. Examination of liver function. Examination of kidney function. Cytological examination of pleural effusion. Biochemical examination of cerebral spinal fluid. Results interpretation.</p>
	<p>8 Bronchoscopy in diagnosis of tuberculosis. Indications for bronchoscopy. Bronchoscopy technique. Pathological endoscopic semiology. Endoscopic aspects of the specific bronchopulmonary pathology. Bronchoscopic harvesting methods. Bronchoalveolar lavage (LBA).</p>
	<p>9 Biopsy in TB diagnosis. Indications for biopsy. Methods of biopsy. Histological aspect of tuberculosis. Histological appearance of lung cancer. Histological appearance of nonspecific inflammation.</p>

Theme (chapter) 3. TB treatment.

<ul style="list-style-type: none"> To define the aims and principles of antituberculous treatment To know the classification of antituberculosis drugs To demonstrate the ability to form individual treatment for patients with mono- and polyresistance To apply treatment regimens and schemes in sensitive and resistant tuberculosis To integrate the drug and pathogenetic treatment in TB patients 	<p>1 Antituberculosis drugs. Classification of anti-tuberculosis drugs. The pharmacological activity of first- and second-line anti-tuberculosis drugs. The side-effects of antituberculosis drugs, classification. The mode of action. Interaction with other drugs. New antituberculosis drugs.</p>
	<p>2 Chemotherapy. Aims of treatment. General principles of treatment. Regimens. DOTS classic TB treatment: basic principles, schemes. Patient registration groups in strategy DOTS.</p>
	<p>3 TB treatment monitoring and evaluation of TB treatment results.</p>
	<p>4 Treatment of drug-resistant TB. Treatment of multidrug resistant tuberculosis (MDR TB): standardized and individual regimen. Treatment of patients with mono- and polyresistant tuberculosis. Management of XDR TB patients.</p>
	<p>5 TB patient communication, information and education. The importance of health education in tuberculosis control. The importance of the patient's adherence to the treatment.</p>
	<p>6 Adjunctive therapy.</p>

Theme (chapter) 4. Primary Latent TB Infection. Particularities of primary tuberculosis. Primary tuberculosis complex. Tuberculosis of intrathoracic lymph nodes. Complications of primary tuberculosis.

<ul style="list-style-type: none"> To define primary tuberculosis To know the clinical forms of primary tuberculosis 	<p>1 Clinical classification of tuberculosis. Basic principles of classification. Compartments. Clinical forms of pulmonary TB. Extrapulmonary tuberculosis. Characteristic of tuberculosis process. Phases of tuberculosis. Complications of tuberculosis. Posttb sequelae. Elements of diagnosis formulation based on the classification.</p>
	<p>2 Primary tuberculosis. Primary Tuberculosis complex. General particularities of primary tuberculosis. Pathogenesis. Primary latent TB</p>



**CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES**

Edition: 09

Date: 08.09.2021

Page 7/14

Objective	Content units
<ul style="list-style-type: none"> To demonstrate the ability to recognize the particularities of primary tuberculosis To apply diagnostic criteria for primary tuberculosis To integrate knowledge into the case management - the child with tuberculosis 	infection. Morphopathology of primary TB complex. Positive and differential diagnostic. Treatment and prognosis.
	3 Tuberculosis of intrathoracic lymph nodes. Pathogenesis. Morphopathology. Clinical forms. Symptoms and evolution. Complications. Positive and differential diagnosis. Treatment. Tuberculosis sequelae of primary infection. Epidemiological significance of posttuberculoase sequelae.
Theme (chapter) 5. Secondary pulmonary tuberculosis (disseminated, nodular, infiltrative, fibro-cavitary). Clinical particularities, differential diagnosis.	
<ul style="list-style-type: none"> To define forms of secondary pulmonary tuberculosis and complications To know the clinical, imagistic and laboratory particularities of examinations of pulmonary tuberculosis To demonstrate the ability to perform differential diagnosis with other lung diseases To apply clinical and paraclinical diagnostic methods to confirm the diagnosis of secondary tuberculosis forms and appropriate treatment regimens To integrate the forces of TB detection methods to diagnose as early as possible (without complications) the secondary tuberculosis forms 	1 Disseminated pulmonary tuberculosis. Pathogenesis. Clinical forms. Pathological anatomy. Miliary tuberculosis. Subacute and chronic disseminated pulmonary tuberculosis. Symptoms and evolution. Radiological signs. Positive and differential diagnosis. Treatment.
	2 Nodular pulmonary tuberculosis. Pathogenesis. Symptoms, evolution and prognosis. Appreciation of specific activity of nodular pulmonary tuberculosis. Positive and differential diagnosis. Treatment.
	3 Infiltrative pulmonary tuberculosis. Pathogenesis. Clinical and radiographic types of tuberculosis infiltrates. Particularities of evolution. Symptoms and prognosis. Positive and differential diagnosis. Treatment. Caseous pneumonia.
	4 Fibro-cavitary pulmonary tuberculosis. Pathogenesis. Contributing factors. Clinical and radiological characteristics. Evolution and prognosis. Complications. Differential diagnosis. Treatment.
	5 Tuberculous pleurisy. Pathogenesis. Classification. Clinical and radiological symptoms. Indications and methods of thoracentesis. Pleural fluid examination. Differential diagnosis. Evolution and treatment. Tuberculosis empyema.
	6 Tuberculosis of the bronchi. Pathogenesis. Clinical forms and location. Correlation with localisation of pulmonary tuberculosis. Clinical manifestation of bronchial tuberculosis. Clinical manifestation of laryngeal tuberculosis. Differential diagnosis. Evolution, treatment.
	7 Pulmonary haemorrhage. Pathogenesis. Classification. Symptoms. Positive and differential diagnosis. Therapeutically treatment. Indications for surgical intervention.
	8 Spontaneous pneumothorax. Pathogenesis. Clinical and radiological picture. Evolution. Positive and differential diagnostic. Complications. Therapeutically treatment. Surgical treatment.
	9 Tuberculosis and HIV infection. Epidemiology. Correlation between AIDS and tuberculosis. Clinical and radiological particularities of tuberculosis in patients with HIV/AIDS. Detection and diagnosis of tuberculosis in patient with HIV/AIDS. Detection and diagnosis of HIV/AIDS in patient with tuberculosis. Particularities of anti-tuberculosis therapy in patients with AIDS.
Theme (chapter) 6. Tuberculosis prophylaxis. TB infection control. Organizing Tuberculosis Control in Moldova. Patient-centred model of healthcare for tuberculosis patients.	
<ul style="list-style-type: none"> To define the tuberculosis prophylaxis directions To know the specific prophylaxis measures, 	1 BCG Vaccination and revaccination. Immunogenesis and vaccine protection. Definition of BCG vaccine. Indications and contraindications to vaccination. BCG vaccination technique. Evolution of post-vaccination reactions. Post-BCG complications and their classification. Causes of development and their prevention methods. Experimental, new vaccines.



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 8/14

Objective	Content units
<p>principles, indications, contraindications, complications and their causes</p> <ul style="list-style-type: none"> • To know the non-specific prophylaxis measures, the epidemiological hazard criteria of the TB foci and tuberculosis infection control measures • To apply TB chemoprophylaxis measures to control TB • To integrate nonspecific and specific prophylaxis measures in the control of TB infection • To apply the patient-centred model of health care for tuberculosis patients 	<p>2 Drug prophylaxis of tuberculosis. Primary prevention (chemoprophylaxis). Secondary prophylaxis (preventive chemotherapy). Indications. Methodology.</p>
	<p>3 Tuberculous focus. Criteria of TB foci formation. Classification of TB foci. Activities in focus of tuberculosis. Recovery of tuberculous focus. Epidemiological investigation. Collaboration between phthisiopneumology service and public health.</p>
	<p>4 Control of tuberculosis infection. Managerial activities. Administrative control. Environmental control measures. Personal respiratory protection.</p>
	<p>5 National Programme of Tuberculosis Control. Purpose and objectives.</p>
	<p>6 Organizational structure and responsibilities of TB control services. Central level. Regional / city level. Primary level. TB control in primary health care level. Joint activities between the centres of public health, primary care medicine and phthisiopneumology service in TB control.</p>
	<p>7 The patient-centered model of healthcare for tuberculosis patients is defined as a complex set of cheap, accessible and acceptable medical services offered in a favorable environment for the prophylaxis, diagnosis and treatment of tuberculosis and is aimed at increasing the effectiveness of treatment by providing patient support on throughout the treatment.</p>

VIII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY FINALITIES

✓ Professional (specific) (SC) competences

- **PC1.** Driving an effective history and accurate medical history recording of the patient with respiratory problems.
- **PC2.** Carrying out the general and particular clinical examination of the respiratory system, recording the pathological signs and their classification in the global pathological picture of the patient with respiratory problems.
- **PC3.** Issuing differential diagnosis assumptions.
- **PC4.** Interpretation of the medical analyses results of respiratory functional tests and radiological investigations.
- **PC5.** Recognizing the clinical elements that guide the diagnosis of tuberculosis.
- **PC6.** Knowing the components of epidemiological risk of tuberculosis and elementary prevention, risk population, etc.
- **PC7.** Knowing the therapeutic strategy in the treatment of tuberculosis, as well as possible antituberculosis medication side effects
- **PC8.** Knowing the practical elements of the fibrobronchoscopic examination, pleural puncture, radiological examination.

✓ Transversal competences (TC)

- **TC1.** Active listening of the patient, his or her followers and other people who can provide relevant information about the patient's health.
- **TC2.** Developing empathic, professional, and mutual respectable communication skills with patients and their dependents.



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:	09
Date:	08.09.2021
Page 9/14	

- **TC3.** Prioritize information and differentiate essential information from non-essential information.
- **TC4.** Effective and comprehensive explanation of the procedures, consensus, and therapeutic strategy that should be applied to the patients with respiratory problems.
- **TC5.** Clinical case presentation in a concise, efficient and complete way.

✓ **Study finalities**

- Obtaining theoretical and practical skills specific to Pneumophtisology.
- Clinical case of respiratory tuberculosis examination and presentation.
- Performing and interpreting the results of specific clinical trials.
- Management of respiratory tuberculosis cases in accordance with current regulations.

Note. Discipline finalities (are deduced from the professional competencies and the formative valences of the informational content of the discipline).

IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with information sources	Reading the lecture or the material in the manual to the theme carefully. Reading questions on the subject, which require a reflection about it. Get acquainted with the list of additional information sources on the topic. Selecting the additional information source for that topic. Reading the text entirely, carefully and writing the essential content. The wording of generalizations and conclusions regarding the importance of the topic/subject.	Ability to extract the essentials; interpretative skills; the volume of work	During the module
2.	Writing the patient's history report	Active research of the literature about the disease. Ability to compile a concise but accurate summary of etiology, pathogenesis and treatment methods. To generalize observations on the patient in the form of epicrisis. Strengthening skills in comprehensive patient research. Systematic and logical presentation of all obtained data.	Ability to extract the essentials; interpretative skills; the ability to formulate conclusions; the volume of work	During the module
3.	Clinical case presentation	1. Summary of the patient's history report (civil data, admission reasons, history of the present illness, summary epidemiological anamnesis,	Resolving the situation problems; the ability to extract the essential;	During the module



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:

09

Date:

08.09.2021

Page 10/14

positive elements of the objective exam, laboratory data and analysis and synthetic recapitulation of the patient's observation)

2. Support Positive Diagnosis
3. Analysing the peculiarities of the case
4. Differential diagnosis
5. Evolution and prognosis
6. Treatment
7. Further curative-prophylactic indications, assessments of work capacity.

interpretative skills;
the ability to formulate conclusions;
the work volume

X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

• *Teaching and learning methods used*

In the teaching of Pneumoptisology, different measures and teaching methods are used, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. The Pneumoptiziology discipline is taught as a clinic module, which provides both lectures and seminars / practical lessons. The student is required to be fully present during the module, without differentiating lectures classes from practical lessons. At the lectures, the theoretical course will be read by the course holders. In the lectures are used: exposure lesson, conversation lesson, synthesis lesson with exposition, explanation, description, demonstration, exemplification, orientation.

If necessary, depending on the epidemiological situation, the teaching activity of the Department can be carried out in a mixed regime (online courses, practical lessons - offline) or exclusively online.

In the practical lessons, students study the discipline in the Municipal Clinical Hospital of Phthisiopneumology Chisinau departments through clinical inspection of admitted patients, through exposure, interactive debate, solving related tests, drawing up thematic medical records and case studies.

During the practical lessons are useful forms of individual, frontal activity and group work. For better assimilation of information are used, different semiotic systems (scientific language, graphical and computerized language), didactic materials (tables, schematic, chest X-rays, case presentation) and practical procedures (IDR, pleural puncture, etc.). In the lectures are used modern Informational Technologies - PowerPoint presentations.

Suggestions for individual activity

At present, the individual activity of the student in medicine is gradually becoming a major form of the educational process. As a result, of the individual activity, the process of accumulation, structuring, and consolidating of the knowledge takes place.

From a pedagogical point of view, a less efficient method of learning is the passive listening of the courses, even if they are very structured and illustrated. Theoretical knowledge needs to be put into practice with applicative results. The practical fulfillment of one thing is much more effective than just reading about how to do it. At the same time, performing a thing without theoretical support delays the expected outcome. There is one more secret of success, repeating and perfecting, but even more effective is to teach someone else to do something. That is why those who teach discipline have the best knowledge about it.



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 11/14

If you want to have success in the appropriation of the Pneumophysiology course, you are going to be actively working with the material. What does this thing mean:

1. Initially read the material, but do not simply diagonally overlook it. Do notes. Try to formulate the highlights alone. Study schemas and images in the manual; as a self-evaluation, solve the tests on that topic.
2. Come to practical lessons and lectures not only to present but with the thought of learning something new, see clinical cases, recapitulate and consolidate the studied at home material with the teacher. If you do otherwise, you are unlikely to meet the requirements. At lectures, be actively involved in the subject, and not just stenograph the heard ones. Pass the information by yourself and ask yourself: do you agree with the teacher? Do you understand what this is all about? Does the material teach correspond with those from the manual?
3. Ask the teacher, each other, yourself. Once you ask questions, it means that you try to understand and process the taught material, which can only be welcomed.
4. Organize in groups from 2-3 students to meet you regularly to discuss course material and prepare for practical lessons, examinations. As a rule, in small groups, a much wider and clearer understanding is synthesized than working individually. In addition, the ability to explain to the colleagues the assimilated material will only help you.
5. The duration of the Pneumophysiology course is short, which provides for the rational time using with the establishment of the "golden" balance between the effort made to acquire knowledge, other responsibilities and personal life.

- ***Applied (specific to the discipline) teaching strategies/technologies***

Didactic technology encompasses the set of forms, methods, means, techniques, and relationships with which content is conveyed in order to achieve the objectives and designates the approach taken by the teacher to apply the principles of learning in a practical training situation. Teaching technology also covers aspects of the media and appropriate technical equipment. However, it does not only refer to the use in the transmission of information with the help of technical means but will include all the components of the educational process. The teaching methods belong to the executory side of the instructive-educational activity. Any method has an instrumental character, representing the practical way of information, interpretation, action. As a complex set of procedures, a method asserts its efficiency insofar as it comprises and structures the procedures most appropriate to the learning situation. The functional transfer of the method in process and vice versa is characterized by flexibility and depends on the concrete didactic situation. The teaching methods are selected by the teacher according to the educational purposes, the individual particularities of the students, the content of the teaching-learning process, the nature of the teaching aids, his teaching experience. In the practical classes, both classical (traditional) methods are used: exposition, explanation, conversation, discovery, demonstration, work with the textbook and other sources, etc., as well as modern methods: case study, simulation methods, modeling, etc. In the actual teaching-learning process, each lesson uses methods of transmitting and acquiring knowledge such as exposition, lecture, conversation, problematization, reading, etc.; for the formation of skills and abilities are used: exercise, practical work, etc. Depending on the organization of the students' activity, frontal methods are applied (presentation, demonstration); methods of individual activity (reading); group activity methods (case study, role play); combined methods, which are suitable for several ways of organizing the activity (experiment). For the assessment of knowledge and practical stimulation of students: oral questioning, verbal observation and appreciation, written works, tests, etc.

- ***Methods of assessment (including the method of final mark calculation)***



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition: 09

Date: 08.09.2021

Page 12/14

Current: it is performed daily in practical lessons and includes several assessment methods (oral response, written control paper, testing, clinical problems, etc.). The formative evaluation foresees the obligatory presence of the student at all classes / practical lessons. In case of absence, the student is obliged to recover the respective hours.

At each practical lesson, the student is appreciated with a grade based on the estimation of the pretest or control work, the work on the patient's bed, and the practical mastery of the topic. The daily mark is the arithmetic mean of all the tests taken during the lesson.

The presentation of the clinical case in PPT format is noted based on its presentation at the end of the module and the discussion (support) of the clinical case in front of colleagues during the cycle.

The annual attestation provides for the deduction of the arithmetic average mark of the marks accumulated by the student at the totalization (written form) and at the presentation of the clinical case in PPT format, which must not be less than grade 5. From the final mark, the annual average is 50%.

Students with an annual average below 5,0, as well as students who have not recovered their absences from practical work, are not admitted to the exam.

Final: it takes the form of an exam, which is a combination of 2 stages – tests in SIMU and an oral part. The exam is held at the end of the module, in accordance with the provisions of the student assessment regulations in force.

1. The student will be assessed by tests in SIMU, which consists of 50 tests, which include single compliments and multiple compliments. The test result represents 20% of the final mark and is graded with marks from 0 to 10. The testing stage is eliminatory, students who do not obtain a minimum of 5.00 do not pass and are not admitted to the oral test. The score obtained is multiplied by 0.5 to result in the final mark of the theoretical test.

2. The oral part consists of the oral answer based on BDE 8.5.1. Question card (each card includes 3 theoretical questions) and from the clinical case, representing 30% of the final mark, - the teacher will discuss with the student about the clinical case. The teacher reserves the right to ask the student additional questions.

According to the regulations, the exam is passed only if the mark of the oral test is equal to or higher than 5.00.

In case of failure to pass the oral test, the student will repeat only the stage of the oral part. In case of not passing the tests in SIMU, the student will retake the exam in full (2 stages: tests in SIMU and oral).

Exam topics (questions and clinical cases) are approved at the department meeting and are brought to the attention of students at least one week before the exam.

The final mark consists of 3 components: anual mark (coefficient 0.5), SIMU test mark (coefficient 0.2), oral test mark (coefficient 0.3). The assessment of knowledge on each component is assessed with marks from 1 to 10 with decimals and hundredths.

The final mark is the average of the current assessments and the final examination and is assessed with grades from 1 to 10 with rounding to 0.5 decimal places.



CD 8.5.1 DISCIPLINE SYLLABUS FOR UNIVERSITY STUDIES

Edition:

09

Date:

08.09.2021

Page 13/14

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-9,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations in the failed exam.

XI. RECOMMENDED LITERATURE:

A. Obligatorie:

1. Ghid Ftiziologie. Chişinău, 2011
2. Ghid Ftiziopneumologie. Chişinău, 2008
3. Nadia Ait-Khaled, Donald A. Enarson. Tuberculosis. A Manual for Medical Students. WHO, 2003.
4. Protocol clinic naţional. Tuberculoza la adult. Chişinău, 2020
5. Protocol clinic naţional. Tuberculoza la copil. Chişinău, 2020

B. Suplimentară

1. Botnaru V. Tuberculoza în cazuri clinice commentate. Chişinău, 2018
2. Bumbăcea D. şi al. – Tuberculoza. Curs pentru studenţi. România, 2005
3. Core Curriculum on Tuberculosis: What the Clinician Should Know. CDC. Seventh Edition. 2021



**CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES**

Edition: 09

Date: 08.09.2021

Page 14/14

4. Ghidul pentru diagnosticul și tratamentul tuberculozei la copii. București, 2006
5. Jose A. Caminero Luna. A Tuberculosis Guide for Specialist Physicians. International Union Against Tuberculosis and Lung Disease (IUATLD). Paris, 2004
6. Juan Carlos Palomino, Sylvia Cardoso Leão, Viviana Ritacco. Tuberculosis 2007. From basic science to patient care. www.TuberculosisTextbook.com
7. Koshechkin V. A., Ivanova Z. A. Tuberculosis. Textbook. ГЭОТАР- Медиа, 2008
8. Lange C., Migliori J.B. Tuberculosis. ERS monograph, 2012
9. Materiale instructiv-metodice, norme legislative, publicații periodice de specialitate.
10. Programul Național de Control al Tuberculozei pentru anii 2021 – 2025
11. Robert Gie. Diagnostic atlas of intrathoracic tuberculosis in children. International Union Against Tuberculosis and Lung Disease (IUATLD). Paris, 2003
12. Self-Study Modules on Tuberculosis. Centres for Disease Control and Prevention. Atlanta, Georgia, 2018
13. Бородулин Б. Е., Бородулина Е. А. Фтизиатрия. Учебное пособие. Москва, 2021.
14. Перельман М.И., Богадельникова И.В. Фтизиатрия. Москва, 2015.