INTERNATIONAL HIGHER SCHOOL OF MEDICINE

«Special Clinical disciplines» Department

SYLLABUS

Phthisiopulmonology

20_25_-20_26_ academic year
for students of medical faculty
4th Course VIIIth Semester
_____ groups of the Central Campus,
_____ groups of the Issyk-Kul campus
4 credits (120 h, including auditoria 72 h, self-working – 48 h)

Lecturers:

____ groups Central Campus	**Fedorova Svetlana Vladimirovna** 0 557 709 711 Email: fedorova-s.v@mail.ru Zoom
____ groups Issyk-Kul Campus	**Eshimbetova Cholpon Zalymovna** 0 771 945 867 Eshimbetova.Cholpon@mail.ru Zoom

Venue:

Practical classes:

____ groups Central Campus	**Fedorova Svetlana Vladimirovna** 0 557 709 711 fedorova-s.v@mail.ru
Venue:	«Vedanta plus», classroom № 209
____ groups Central Campus	**Maliukova Ekaterina Alexandrovna** 0 552 342 912 katerina.maliukova@gmail.com
Venue:	St. Dzhantosheva, 70, conference room
____ groups Central Campus	**Eshimbetova Cholpon Zalymovna** 0 771 945 867 Eshimbetova.Cholpon@mail.ru
Venue:	«Vedanta plus», classroom № 208
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Venue:	«Vedanta plus», classroom № 306
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Venue:	«Vedanta plus», classroom № 307
____ groups Central Campus	**Kim Tatyana Mironovna** 0 703 827 975 tanya_ko06@mail.ru
Venue:	«Vedanta plus», classroom № 201
____ groups Central Campus	**Bulatov Timur Erikovich** 0 702 010 630 timabulatov95@outlook.com
Venue:	«Vedanta plus», classroom № 304
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Venue:	National Center of Phthisiology, classroom № 001
____ groups Central Campus	**Yushenko Irina Vyacheslavovna** 0 550 021 311 iriska0306686@gmail.com
Venue:	«Vedanta plus», classroom № 307
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	National Center of Phthisiology, classroom № 001

The Syllabus is considered
at the meeting of the department of _SCD_
Protocol № _1_ dated _29.08.2025_
Head of the department: D.A. Maktybaeva

Course Objective: the acquisition by students of fundamental basic knowledge, abilities and skills in the field of phthisiopulmonology, based on the evidence and WHO recommendations, aimed at early detection, adequate treatment of cases and prevention of tuberculosis at all levels of health care, taking into account the future specifics of work and the needs of consumers (both patients and employers)), as well as the ability to apply the acquired knowledge, abilities and skills to effectively solve professional problems.

After study of the discipline the student must:

Know:

- epidemiology of tuberculosis in the world and in the countries of Central and Southeast Asia;
- the structure and nature of infection control measures for tuberculosis;
- the main current WHO and CDC recommendations for the prevention of tuberculosis;
- up-to-date country policies and regulations on TB infection control;
- the essence of the main methods for detecting tuberculosis, criteria for evaluating the results obtained;
- standard diagnostic algorithms for the detection of tuberculosis;
- the main directive and regulatory, accounting and reporting documents on tuberculosis in the country, the main criteria for evaluating a set of measures to detect tuberculosis;
- WHO classification of tuberculosis;
- standard algorithms for diagnosing tuberculosis in adults and children recommended by WHO;
- criteria for the diagnosis of urgent and life-threatening conditions in tuberculosis;
- the basic principles, methods and standard algorithms for the treatment of tuberculosis recommended by WHO, and substantiate them from the standpoint of evidence-based medicine.

Skill:

- identify the main risk factors for the development of tuberculosis in solving standard clinical problems;
- plan and carry out infection control measures in health care facilities when a single contagious case of tuberculosis is detected;
- select persons at high risk of tuberculosis, prescribe an appropriate examination and correctly interpret their results in accordance with approved national diagnostic algorithms;
- formulate a diagnosis, use standard algorithms for making a diagnosis in accordance with the current WHO classification of tuberculosis in typical clinical situations;
- formulate a diagnosis of urgent and life-threatening conditions in tuberculosis;
- apply the standard algorithms for the treatment of tuberculosis recommended by WHO in typical clinical situations.

Attitude:

- skills in the proper use of personal protective equipment for tuberculosis;
- developing a strategy for planning, implementing, monitoring the effectiveness and evaluating infection control measures for tuberculosis in healthcare organizations and households at the level of the district, region of the country;
- skills in monitoring the effectiveness of tuberculosis detection and optimization of a set of measures to detect tuberculosis at all levels of health care;
- the skills to determine the main criteria for the diagnosis of tuberculosis and the reasonable use of standard diagnostic algorithms, taking into account the current WHO classification in typical clinical situations, as well as the correct and effective determination of the main diagnostic criteria for timely diagnosis urgent and life-threatening conditions in tuberculosis;
- using the basic methods of evidence-based medicine, as well as on the basis of the synthesis and analysis of information about the etiology, pathogenesis, clinic and diagnosis of tuberculosis, to give practical recommendations for treatment in situations requiring deviation from standard algorithms.

Prerequisites: normal anatomy, normal physiology, pathological anatomy, pathological physiology, microbiology, radiology, propaedeutics of internal diseases, basic pharmacology, pulmonology, pediatrics, internal diseases, clinical pharmacology.

Postrequisites: infectious diseases, polyclinic medicine, family medicine.

THEMATIC PLAN OF LECTURES

№	Theme of lecture	Hours	Date
1	Tuberculosis as an infectious disease. Microbiological, radiological methods for the diagnosis of tuberculosis.	2	
2	Treatment of tuberculosis.	2	
3	Diagnosis of tuberculosis in children. Tuberculin skin test. Specific tuberculosis prophylaxis. BCG vaccination. Treatment of latent TB infection.	2	

4	Tuberculosis in children and adolescents. Primary tuberculosis. Latent tuberculous infection. Tuberculosis of the intrathoracic lymph nodes. Primary tuberculous complex. Complications of primary tuberculosis. Miliary tuberculosis of the lungs. Disseminated pulmonary tuberculosis.	2	
5	Tuberculosis in adults and the elderly. Secondary tuberculosis. Pulmonary tuberculosis. Complications of pulmonary tuberculosis. The concept of drug-resistant tuberculosis.	2	
6	The main clinical forms of extrapulmonary tuberculosis. Tuberculous meningitis. Tuberculous pericarditis. Tuberculous pleurisy. Tuberculosis of the peripheral lymph nodes. Tuberculosis of bones and joints. Genitourinary tuberculosis. Abdominal tuberculosis.	2	
7	Co-infection HIV / tuberculosis.	2	
8	Infection control of tuberculosis.	2	
Total:		**16**	

THEMATIC PLAN OF PRACTICAL CLASSES

№	Theme of practical class	Hours	Date
1	Tuberculosis as an infectious disease. The tuberculosis situation in the world. National strategic plan of India for tuberculosis elimination. DOTS, DOTS-plus, STOP TB, END TB strategies. WHO classification of tuberculosis.	2	
2	X-ray methods for diagnosing tuberculosis. Typical radiological signs of tuberculosis in adults and children. Interpreting of X-rays.	2	
3	Microbiological methods for diagnosing tuberculosis, traditional methods of microbiological diagnostics (microscopy, culture, biological method) and molecular genetic methods for microbiological diagnostics of tuberculosis recommended by WHO. Demonstration of video clips series: «Microscopy», «Phenotypic culture», «BACTEC MGIT», «XpertMTB/Rif», «Nanopore sequencing».	2	
4	WHO diagnostic algorithm. Sputum collection procedure. Safety precautions before, during and after sputum collection. Requirements for a place for collecting sputum, for a container for collecting sputum. Medical documentation, recommended by WHO: «Request for microbiological examination». Demonstration of video clip: «Procedure of sputum collection».	2	
5	Treatment of tuberculosis, basic methods and principles. Classification of anti-tuberculosis drugs. Clinical pharmacology of anti-tuberculosis drugs. WHO classification of tuberculosis cases.	2	
6	WHO guidelines for the treatment of drug-susceptible tuberculosis. The concept of standardized chemotherapy regimens. Choosing of proper treatment regimen. Monitoring the effectiveness and safety of treatment. Determination of treatment outcomes according to the WHO classification.	2	
7	Medical documentation, recommended by WHO: «Treatment card of TB patient». Taking anti-tuberculosis drugs in DOT-regimen. Communication with patients, social, psychological, financial support for TB patients aimed at increasing adherence to treatment.	2	
8	**Module No. 1: "Classification of tuberculosis according to WHO. Basic methods of diagnosis and treatment of tuberculosis".**	2	
9	Immunological methods for diagnosing tuberculosis. Tuberculin diagnostics. Interferon-γ tests. Technique, evaluation and interpretation, indications and contraindications. Demonstration of video clips series: «Tuberculin skin test».	2	
10	Methods of specific prevention of tuberculosis. BCG vaccination. Demonstration of video clips series: «BCG-vaccination».	2	
11	Tuberculosis in children and adolescents. Primary tuberculosis, definition, source and ways of infection, pathogenesis and features of the clinical course of primary tuberculosis. Paraspecific reactions, mechanisms of development, pathomorphology, clinical manifestations, significance in the diagnosis of primary tuberculosis. Latent tuberculosis infection, diagnostics. Preventive treatment of latent tuberculosis infection.	2	

12	Tuberculosis of the intrathoracic lymph nodes, pathogenesis features, pathomorphology, clinic, diagnostics, differential diagnostics. Peculiarities of sputum collection in children under 5 years of age.	2	
13	Primary tuberculosis complex, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics. The most common complications of tuberculosis in children and adolescents.	2	
14	Miliary tuberculosis, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics.	2	
15	Disseminated pulmonary tuberculosis, pathogenesis features, pathomorphology, clinic, diagnostics, differential diagnostics. Some special recommendations for TB treatment in children.	2	
16	**Module 2: «Tuberculosis in children and adolescents».**	2	
17	Secondary tuberculosis. Tuberculosis in adults and the elderly, pathogenesis (endogenous reactivation and exogenous superinfection), features of the clinical course and progression of secondary tuberculosis. Clinical forms of pulmonary tuberculosis, pathomorphology, clinic, diagnostics, differential diagnostics. Application of the WHO algorithm for the diagnosis of pulmonary tuberculosis.	2	
18	Cavitary forms of pulmonary tuberculosis as the most epidemiologically dangerous, the main causes of their development. Pathogenesis of TB cavity, classification of cavities, pathomorphology of the cavities, clinic, diagnosis, differential diagnosis, treatment features. The main complications of pulmonary tuberculosis.	2	
19	Drug-resistant tuberculosis. Microbiological, clinical and programmatic reasons for the development of drug resistance in tuberculosis. WHO classification of drug-resistant tuberculosis. Methods for detecting drug resistance recommended by WHO. General recommendations for the management of drug-resistant tuberculosis cases. Indications for surgical treatment in pulmonary tuberculosis.	2	
20	Extrapulmonary tuberculosis. General principles of diagnosis in accordance with the WHO algorithm. Tuberculous meningitis and pericarditis as the most severe forms of extrapulmonary tuberculosis, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features. Complications of tuberculous meningitis and tuberculous pericarditis. Indications for surgical treatment in tuberculous meningitis and pericarditis.	2	
21	Extrapulmonary tuberculosis: tuberculous pleurisy as one of the most common clinical forms, tuberculosis of genitourinary system, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features. Complications of tuberculous pleurisy. Extrapulmonary tuberculosis: tuberculosis of peripheral lymph nodes, tuberculosis of the musculoskeletal system, clinical forms, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features, possible complications, prognosis. Indications for surgical treatment.	2	
22	Abdominal tuberculosis, genito-urinary tuberculosis, clinical forms, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features, possible complications, prognosis. Indications for surgical treatment. Rare localizations of extrapulmonary tuberculosis (tuberculosis of skin, eyes, adrenal glands, thyroid gland, large vessels, oral cavity etc). General recommendations for the treatment of extrapulmonary tuberculosis, indications for surgical treatment in extrapulmonary tuberculosis.	2	
23	**Module 3: «Tuberculosis in adults and the elderly. The main forms of pulmonary and extrapulmonary tuberculosis. drug-resistant tuberculosis».**	2	
24	HIV/tuberculosis co-infection. The situation in the world. Peculiarities of clinical manifestations of tuberculosis in PLWHA at early and late stages of HIV infection. Peculiarities of diagnosis of tuberculosis in PLHIV at early and late stages of HIV infection. Demonstration of video clip: «HIV-replication».	2	
25	Detection of tuberculosis in PLWHA, WHO diagnostic algorithm. Treatment and prevention of tuberculosis in HIV-infected patients.	2	
26	Infection control of tuberculosis in healthcare facilities. Administrative, engineering and individual infection control measures. Infection control of tuberculosis in healthcare facilities. Infection control of tuberculosis in households.	2	

	Communication with patients and their family members. Work targeted to avoiding stigmatization of TB patients.		
27	**Module 4: «HIV/TB co-infection. Infection control of tuberculosis».**	2	
28	**Final control,** solution of clinical cases, interpretation of radiographs. Calculation of the final individual rating of students.	2	
Всего:		**56**	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

Unit №	**Theme of independent work**	**Hours**	**Date**
Unit № 1.	Topic 1: “Progress of global efforts of the world community in the fight against tuberculosis. The main epidemiological indicators of tuberculosis according to WHO data".	2	
	Topic 2: “Nanopore sequencing for diagnosing tuberculosis, essence of the method, advantages and disadvantages".	2	
	Topic 3: “Genomics and proteomics of M. tuberculosis. Molecular genetic technologies in the diagnosis of tuberculosis. Molecular genetic diagnostic methods approved by WHO: Truenat MTB, MTB Plus, MTB-RIF Dx assays, TB-LAMP assay, Line Probe Assays, essence of methods, advantages and disadvantages".	2	
	Topic 4: "Monitoring of the DS TB treatment efficacy".	2	
	Topic 5: "Diagnosis and treatment of the main adverse reactions of first-line anti-TB drugs."	2	
Unit № 2	Topic 6: “Modern methods of immunological diagnosis of tuberculosis: QuantiFERON test, TSPOT TB test, essence of the methods, advantages and disadvantages”.	2	
	Topic 7: "Factors contributing to the progression of latent tuberculosis infection to active tuberculosis in children"	2	
	Topic 8: "Procedure of the sputum collection for microbiological examination in tuberculosis in children under 5 years of age: procedure of obtaining and evaluation of gastric lavage fluid and stool-test, comparative analysis"	2	
	Topic 9: "Differential diagnosis of intrathoracic lymphoadenopathy in children."	2	
	Topic 10: "Differential diagnosis of pulmonary disseminations is in children."	2	
Unit № 3	Topic 11: “Biopsy as a method for diagnosing tuberculosis. Scope and indications for biopsy in pulmonary and extrapulmonary tuberculosis: brush biopsy, needle, transbronchial and trans thoracal biopsy, endoscopy, diagnostic operations".	2	
	Topic 12: "Management of TB patients with treatment failure and palliative care".	2	
	Topic 13: "Differential diagnosis of pulmonary infiltrates in adults".	2	
	Topic 14: "Differential diagnosis of pulmonary cavities in adults".	2	
	Topic 15: "Differential diagnosis of tuberculous meningitis."	2	
	Topic 16: "Differential diagnosis of tuberculous pleurisy."	2	
Unit № 4	Topic 17: “Personal respiratory protection: respirators, surgical masks, rules for use and storage. Fit-test: quantitative, qualitative".	2	
	Topic 18: "Infection control in congregate settings (hostels, nursing homes, orphanages, prisons)."	2	
	Topic 19: "Peculiarities of X-ray findings of pulmonary tuberculosis in PLWHA".	2	
	Topic 20: "Differential diagnosis of pulmonary tuberculosis in PLWHA".	2	
	Topic 21: "Differential diagnosis of extrapulmonary tuberculosis in PLWHA".	2	
	Topic 22: "Suitability of TB/HIV treatment: contraindications and drug interactions of anti-tuberculosis drugs in PLWHA".	2	
	Topic 23: "Education of medical staff, patients, civil society as an administrative measure of infection control of tuberculosis".	2	
	Topic 24: "Drawing up an approximate plan for infection control of tuberculosis in a health care facility"	2	
	Total:	48	

Recommended reading for the discipline:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug susceptible tuberculosis. – WHO, 2023. – 72 p.
2. WHO operational handbooks on tuberculosis. Module 4: Treatment, Module 4: treatment and care, Chapter 3 Tuberculosis care and support. 3. Care and support interventions to enable TB treatment adherence. – WHO, 2025. – P. 181-250.
3. WHO operational handbook on tuberculosis. Module 5: Management of tuberculosis in children and adolescents. – WHO, 2022. – 264 p.
4. WHO consolidated guidelines on tuberculosis Module 2: Screening Systematic screening for tuberculosis disease. – WHO, 2021. – 68 p.
5. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. – WHO, 2021. – 11 p.
6. WHO consolidated guidelines on tuberculosis Module 1: Prevention. Tuberculosis preventive treatment. – WHO, 2020. – 56 p.
7. WHO operational handbook on tuberculosis. Module 3: Diagnosis. Rapid diagnostics for tuberculosis detection. – WHO, 2020. – 96 p.
8. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.
9. Guidelines for treatment of drug-susceptible tuberculosis and patients' care. – WHO, 2017. – 80 p.
10. Guidelines on extra-pulmonary TB for India. – WHO, 2016. – 130 p.
11. Definitions and reporting framework for tuberculosis. – WHO, 2013. – 47 p.
12. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
13. John Crofton Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.
14. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – WHO, 2009. – 100 p.

Additional literature:

15. Central TB Division, Directorate General of Health Services, Ministry of Health with Family Welfare, Nirman Bhavan, New Delhi. Revised National Tuberculosis Control Programme. National Strategic Plan for Tuberculosis Elimination, 2017-2025. – DOTS. Pura course. Pakka ilaai, 2017. – 109 p.
16. Rapid implementation of the XpertMTB/Rif diagnostic test. – WHO, 2011. – 34 p.
17. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.
18. WHO. Active tuberculosis. Drug safety monitoring. – WHO/HTM/TB/2015. – 28 p.
19. WHO. Practical manual of processing stool samples for diagnosis of childhood TB. – WHO. – 2022. – 44 p.
20. https://www.cochrane.org/CD011420/INFECTN_lateral-flow-urine-lipoarabinomannan-assay-detecting-active-tuberculosis-people-living-hiv

6. Policy and procedure for grading all types of work:

For the period of studying the discipline, the student scores point for the relevant parameters (per unit):
Current control - 40
IWS -20
Control work (module) - 40
Total: 100 points (40+20+40)

Grading system for student's achievements

Criteria for grading for the discipline				
Maximal score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Interval description	insufficient mastery of the threshold level of competence formation, does not know a significant part of the program material, makes significant mistakes, does not cope with practical tasks	threshold level of competence formation, knowledge of only the basic material, difficulties in performing practical tasks	high level of competence formation, without significant inaccuracies	high, advanced level of competence formation, without inaccuracies

Current control - 40	0-23	24-30	31-35	36-40
Independent work - 20	0-11	12-14	15-17	18-20
Control work (module) – 40	0-23	24-30	31-35	36-40

For missed classes, the overall score for the discipline is reduced: up to 25% of classes missed - by 2 points, from 25 to 50% of classes - by 5 points, 50% or more of classes - by 10 points. For violations of the conduct policy, the overall discipline score will be reduced by a maximum of 10 points.

Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).
- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-10 points.

Academic Ethics Policy.
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-10 points.

GUIDELINES FOR THE PRACTICAL CLASSES OF THE DISCIPLINE

UNIT 1

Key questions of the practical class 1: «Tuberculosis as an infectious disease. The tuberculosis situation in the world. National strategic plan of India for tuberculosis elimination. DOTS, DOTS-plus, STOP TB, END TB strategies. WHO classification of tuberculosis».

2 hours

- The main stages in the development of the doctrine of tuberculosis.
- Epidemiological situation of tuberculosis in the world.
- Major international programs to combat tuberculosis: DOTS, DOTS-plus, end-TB, STOP-TB, PAL program.
- The urgency of the problem of tuberculosis in India.
- National strategic plan of India for tuberculosis elimination. Vision. Goals. Tasks.
- Classification of tuberculosis by WHO.
- WHO definitions of pulmonary and extra-pulmonary tuberculosis.
- WHO definitions of bacteriologically confirmed and clinically diagnosed cases of tuberculosis.
- WHO definitions of smear-positive and smear-negative pulmonary cases of tuberculosis.
- Smear-positivity as indicator of contagiousness of TB cases.
- Formulation of the clinical diagnosis of tuberculosis.
- The principle of constructing the International Classification of Tuberculosis.
- Solving clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. Definitions and reporting framework for tuberculosis – 2013 revision. – 47 p.
2. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
3. Central TB Division, Directorate General of Health Services, Ministry of Health with Family Welfare, Nirman Bhavan, New Delhi. Revised National Tuberculosis Control Programme. National Strategic Plan for Tuberculosis Elimination, 2017-2025. – DOTS. Pura course. Pakka ilaai, 2017. – 109 p.
4. https://www.who.int/tb/en/
5. Lecture course on phthisiopulmonology. Lecture 1.

Key questions of the practical class 2: «X-ray methods for diagnosing tuberculosis. Typical radiological signs of tuberculosis in adults and children».

2 hours

- Methods for the diagnosis and detection of tuberculosis (X-ray, microbiological, immunological, histological).
- Methods for detecting tuberculosis: screening and patient-initiated pathways of detecting.
- The history of the discovery of X-rays.
- The main methods of X-ray examination of patients with respiratory tuberculosis (fluorography, radiography, tomography, electroradiography, roentgenokymography, angiopulmonography, bronchography, fistulography, pneumomediastinography, computed tomography, radioisotope research methods), advantages and disadvantages accordingly to WHO.
- X-ray image of normal chest organs in frontal and lateral projection [video film].
- X-ray image of the lobar and segmental structure of the lungs [video film].
- Scheme for describing pathological shadows on the chest X-ray [video film].
- The main radiological signs of the respiratory system tuberculosis.
- Clinical forms of pulmonary tuberculosis in the chest X-ray.
- X-ray picture of the evolution of various forms of respiratory tuberculosis.
- Application of computed and MRI tomography and other X-ray methods for diagnosing tuberculosis.
- Decoding and interpretation of a series of chest X-rays, tomograms.

Recommended reading for the class:

Main literature:

1. WHO consolidated guidelines on tuberculosis Module 2: Screening. Systematic screening for tuberculosis disease. - World Health Organization, 2021. – 68 p.
2 WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
3. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
4. Lecture course on phthisiopulmonology. Lecture 1.

Key questions of the practical class 3: « Microbiological methods for diagnosing tuberculosis, traditional methods of microbiological diagnostics (microscopy, inoculation, biological method) and molecular genetic methods for microbiological diagnostics of tuberculosis recommended by WHO».

2 hours

- Control of the knowledge level in basic disciplines. Epidemiological and clinical significance of various types and forms of Mycobacteria tuberculosis (drug-resistant Mycrobacteria of tuberculosis, L-forms, filtering forms, BCG, non-tuberculous acid-fast mycobacteria, etc.).
- Microbiological diagnosis of tuberculosis as a method for verifying the diagnosis.
- Bacterioscopic method for detecting ACB (acid-fast bacteria), types of microscopy (electron, fluorescent, simple) [video film].
- Simple microscopy of sputum, the main advantages and disadvantages of the method) [video film].
- Cultural phenotypic method for detecting MBT (Mycobacterium tuberculosis). The essence of the method, the main advantages and disadvantages) Drug susceptibility test (DST). [video film].
- Biological method for detecting MBT. The essence of the method, the main advantages and disadvantages) [video film].
- The concept of molecular genetic methods for microbiological diagnosis of tuberculosis recommended by WHO (XpertMTB/Rif, XpertMTB/Rif Ultra Assays, Truenat MTB, MTB Plus and MTB-RIF Dx assays, TB-LAMP assay, Line Probe Assays, Urine LF-LAM assay) [video film].
- The concept of molecular genetic methods of DST of the causative agent of tuberculosis [video film].
- Radiometric system BACTEC MJIT-960 [video film].
- Nanopore sequencing [video film].
- Interpretation of microbiological analyses.

Recommended reading for the class:

Main literature:

1. WHO operational handbook on tuberculosis. Module 3: Diagnosis. Rapid diagnostics for tuberculosis detection. - World Health Organization, 2020. – 120 p.
2. Lecture course on phthisiopulmonology. Lecture 1.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.
2. WHO. Rapid implementation of the XpertMTB/Rif diagnostic test. – 2011. – 34 p.

Key questions of the practical class 4: «WHO Diagnostic Algorithm. sputum collection procedure. Safety precautions before, during and after sputum collection. Requirements for a place for collecting sputum, for a

container for collecting sputum. Medical documentation, recommended by WHO: «Request for microbiological examination».

2 hours

- Sputum microscopy and XpertMTB/Rif as methods for detecting tuberculosis accordingly to WHO recommendations [video film].
- Comparative sensitivity and reliability of the methods. Smear-positivity as indicator of contagious TB cases [video film].
- Indications for XpertMTB/Rif and simple sputum microscopy for MTB detection in accordance with WHO recommendations [video film, to comment a procedure of sputum collection].
- Requirements for the place for collecting sputum [video film].
- Requirements for a container for collecting sputum. Safety precautions before, during and after sputum collection [video film].
- Interpretation of sputum microscopy and XpertMTB/Rif results.
- Algorithms for detecting tuberculosis recommended by WHO [video film].
- Work with medical documentation. Filling out WHO forms "Request for microbiological examinations".
- Solving clinical cases.

Recommended reading for the class:

Main literature:

1. WHO operational handbook on tuberculosis. Module 3: Diagnosis. Rapid diagnostics for tuberculosis detection. - World Health Organization, 2020. – 120 p.
2. Lecture course on phthisiopulmonology. Lecture 1.

Key questions of the practical class 5: «Tuberculosis treatment, basic methods and principles. Classification of anti-tuberculosis drugs. Clinical pharmacology of anti-tuberculosis drugs. Classification of cases depending on previous history of treatment according to WHO».

2 hours

- History of treatment of TB patients.
- Principles and methods of treatment of TB patients.
- Classification of anti-tuberculosis drugs.
- Classification of cases depending on previous history of treatment according to WHO.
- Solving clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
2. Lecture course on phthisiopulmonology. Lecture 2.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 6: «WHO guidelines for the treatment of drug-susceptible tuberculosis. The concept of standardized chemotherapy regimens. Choosing of the proper treatment regimen. Monitoring the effectiveness and safety of treatment. Determination of treatment outcomes according to the WHO classification».

2 hours

- The concept of short-term standardized courses of chemotherapy accordingly to WHO recommendations.
- Regimens of treatment recommended by WHO for drug-susceptible TB.
- Other methods of treatment (surgical treatment, corticosteroids).
- Doses of drugs recommended by WHO depending on body mass.
- Management of drug-susceptible TB cases according to algorithms recommended by WHO.
- Determination of treatment outcomes according to WHO.
- Filling out the patient's treatment card (WHO form).
- Solving clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
2. Lecture course on phthisiopulmonology. Lecture 2.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 7: «Medical documentation, recommended by WHO: «Treatment card of TB patient». Taking anti-tuberculosis drugs in DOT-regimen. Communication with patients, social, psychological, financial support for TB patients aimed at increasing adherence to treatment».

2 hours

- Taking anti-tuberculosis drugs in DOT-regimen.
- Filling out the patient's treatment card (WHO form).
- Care and support interventions for people with TB (people-centered approach, health education, a package of treatment adherence interventions).
- Psychological support to patients.
- Counselling TB patients.
- Staff education.
- Avoiding stigmatization TB patients.
- Interpreting real clinical cases, told by TB patients.

Recommended reading for the class:

Main literature:

1. WHO operational handbooks on tuberculosis. Module 4: Treatment, Module 4: treatment and care, Chapter 3 Tuberculosis care and support. 3. Care and support interventions to enable TB treatment adherence. – WHO, 2025. – P. 181-250.

Key questions of the practical class 8: «Module 1: WHO classification of tuberculosis. Basic methods of diagnosis and treatment of tuberculosis».

2 hours

- Module 1 (Survey (testing) of students. Solving situational tasks. Analysis of a series of radiographs. Calculation of the individual rating of students in unit number 1).

Recommended reading for the class:

Main literature:

1. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
2. Lecture course on phthisiopulmonology. Lecture 2.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

UNIT 2

Key questions of the practical class 9: «Immunological methods for diagnosing tuberculosis. Tuberculin diagnostics. T.s.t. technique, assessment and interpretation, indications and contraindications. Interferon-ɣ releasing assays (IGRA). ».

2 hours

- History of obtaining tuberculin. The mechanism of development of the immune response to the introduction of tuberculin. Tuberculins: ATK, PPD - S. Types of tuberculin tests. [video films]
- Tuberculin Mantoux test with 5 TE, staging technique. Reactions to tuberculin tests, their registration and clinical interpretation. [video films, interpreting the technic of counting Mantoux reaction]
- Application t.s.t. for early detection of tuberculosis.
- Infectious and post-vaccination sensitivity (allergy) to tuberculin. Use of tuberculin tests for differential diagnosis of tuberculosis and other diseases.
- ɣ-interferon releasing assay. QuantiFERON test. TSPOT TB.
- Predisposing factors that can influence the body's sensitivity to tuberculin.
- Presentation, solving and interpretating clinical cases.

Recommended reading for the class:

Main literature:

1. WHO consolidated guidelines on tuberculosis Module 2: Screening. Systematic screening for tuberculosis disease. - World Health Organization, 2021. – 68 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Lecture course on phthisiopulmonology. Lecture 3.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 10: «Methods of specific prevention of tuberculosis. BCG vaccination. Preventive treatment of latent tuberculous infection».

2 hours

- Specific prophylaxis. BCG vaccine. The level of protection.
- Technique of intradermal BCG vaccination, timing, assessment of local vaccination reactions.
- Indications and contraindications for vaccination and revaccination from the standpoint of WHO.
- Complications of vaccination, their monitoring and treatment.
- Organization of vaccination. [video films]
- Presentation and interpretation of clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 2: Screening. Systematic screening for tuberculosis disease. - World Health Organization, 2021. – 68 p.
2. Lecture course on phthisiopulmonology. Lecture 3.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 11: «Tuberculosis in children and adolescents. Primary tuberculosis, definition, source and ways of infection, pathogenesis and features of the clinical course of primary tuberculosis. Paraspecific reactions, mechanisms of development, pathomorphology, clinical manifestations, significance in the diagnosis of primary tuberculosis. Latent tuberculosis infection, diagnostics. WHO recommendations for the preventive treatment of latent tuberculosis infection».
2 hours

- Primary tuberculosis, definition.
- Pathogenesis of primary tuberculosis. Source of infection and main ways of tuberculosis infection transmission. The importance of the massiveness of infection and the "gateway" of infection for the occurrence of primary tuberculosis.
- Primary infection, "conversion" of tuberculin skin test. Characteristic features of the primary period of tuberculosis infection.
- Paraspecific reactions, types, pathogenesis.
- Latent tuberculosis infection (TBI).
- Diagnosis of TBI. Use of the Mantoux test to identify persons with an increased risk of tuberculosis and those in need of examination and observation by a phthisiatrician. [video films]
- Treatment of latent tuberculosis infection, indications, regimens.
- Possible outcomes and prognosis in latent tuberculosis infection.
- Solving clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 1: Prevention. Tuberculosis preventive treatment. - World Health Organization, 2020. – 56 p.
2. WHO consolidated guidelines on tuberculosis Module 2: Screening. Systematic screening for tuberculosis disease. - World Health Organization, 2021. – 68 p.
3. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.
4. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
5. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
6. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
7. Lecture course on phthisiopulmonology. Lecture 4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 12: «Tuberculosis of the intrathoracic lymph nodes, pathogenesis features, pathomorphology, clinic, diagnostics and differential diagnostics. Peculiarities of sputum collection in children under 5 years of age».
2 hours

- Tuberculosis of the intrathoracic lymph nodes. Topography of the mediastinal lymph nodes.
- Features of the pathogenesis, pathomorphology of tuberculosis of the intrathoracic lymph nodes.
- Clinical manifestations of tuberculosis of the intrathoracic lymph nodes.
- Diagnostics (immunological, bacteriological) of tuberculosis of intrathoracic lymph nodes, diagnostic minimum of studies, expected results. X-ray signs of tuberculosis of the intrathoracic lymph nodes, analysis of a series of X-rays, tomograms. Diagnostic criteria for tuberculosis of the intrathoracic lymph nodes.
- Possible outcomes of tuberculosis of the intrathoracic lymph nodes. The prognosis for tuberculosis of the intrathoracic lymph nodes.
- Solving clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.

2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
3. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
4. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
5. Lecture course on phthisiopulmonology. Lecture 4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 13: «Primary tuberculosis complex, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics. The most common complications of tuberculosis in children and adolescents: tuberculous pleurisy, atelectasis, generalization of tuberculosis infection; pathogenesis, clinical manifestations, features of diagnosis and treatment».
2 hours

- Primary tuberculosis complex. Pathomorphology of the primary complex, three components (primary tuberculous affect, specific tuberculous lymphangitis, specific tuberculous lymphadenitis).
- Clinical picture of PTC.
- Diagnostics (immunological, bacteriological) PTC, diagnostic minimum of studies, expected results. X-ray picture of PTC, depending on the stage of the disease. Decoding of a series of radiographs, tomograms. Diagnostic criteria for PTC.
- Possible outcomes of PTC, Gon focus. Forecast.
- The most common complications of tuberculosis in children: tuberculous pleurisy, atelectasis, generalization of tuberculosis infection; pathogenesis, clinical manifestations, features of diagnosis and treatment.
- Fundamentals of differential diagnosis of tuberculosis in children.
- Solving clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
3. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
4. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
5. Lecture course on phthisiopulmonology. Lecture 4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 14: «Miliary tuberculosis, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics».
2 hours

- Miliary tuberculosis, definition. Pathogenesis, risk factors for miliary tuberculosis. Pathomorphology of miliary tuberculosis.
- Clinical manifestations of miliary tuberculosis.
- Microbiological, immunological diagnosis of miliary tuberculosis. X-ray signs of miliary tuberculosis, analysis of a series of roentgenograms, tomograms. Diagnostic criteria for miliary tuberculosis.
- Features of clinical manifestations of miliary tuberculosis in HIV-infected patients. Diagnostics (bacteriological, immunological, histological, radiological) of miliary tuberculosis in HIV-infected patients. WHO recommendations for the diagnosis of tuberculosis in HIV-infected patients. Diagnostic criteria for miliary tuberculosis in HIV-infected patients.
- Possible outcomes of miliary tuberculosis. Prognosis for miliary tuberculosis.
- Fundamentals of differential diagnosis of miliary tuberculosis.
- Presentation and interpretation of clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
3. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.

4. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
5. Lecture course on phthisiopulmonology. Lecture 4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 14: «Disseminated pulmonary tuberculosis, pathogenesis features, pathomorphology, clinic, diagnostics and differential diagnostics».
2 hours

- Disseminated pulmonary tuberculosis, definition. Pathogenesis and pathomorphology of disseminated pulmonary tuberculosis.
- Clinical manifestations of disseminated pulmonary tuberculosis.
- Diagnostics (immunological, bacteriological) of disseminated pulmonary tuberculosis. X-ray signs of disseminated pulmonary tuberculosis, analysis of a series of X-rays, tomograms. Diagnostic criteria for disseminated pulmonary tuberculosis.
- Possible outcomes of disseminated pulmonary tuberculosis. The prognosis for disseminated pulmonary tuberculosis.
- Fundamentals of differential diagnosis of disseminated pulmonary tuberculosis.
- Solving clinical cases.

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
3. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
4. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
5. Lecture course on phthisiopulmonology. Lecture 4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 16: «Module 2: «Tuberculosis in children and adolescents»».
2 hours

- Module 2 (Survey (testing) of students. Solving situational tasks. Analysis of a series of radiographs. Calculation of the individual rating of students in unit number 2).

Recommended reading for the class:
Main literature:
1. WHO consolidated guidelines on tuberculosis Module 5: Management of tuberculosis in children and adolescents. - World Health Organization, 2022. – 128 p. 3.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. - World Health Organization, 2021. – 11 p.
3. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
4. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p. 8.
5. Lecture course on phthisiopulmonology. Lectures 3-4.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

UNIT 3

Key questions of the practical class 17: «Secondary tuberculosis. Tuberculosis in adults and the elderly, pathogenesis (endogenous reactivation and exogenous superinfection), features of the clinical pathway of secondary tuberculosis. Clinical forms of pulmonary tuberculosis, pathomorphology, clinic, diagnostics and differential diagnostics. Application of the WHO algorithm for the diagnosis of pulmonary tuberculosis».
2 hours

- Definition of secondary tuberculosis, features of the pathway of secondary tuberculosis, pathogenesis of secondary tuberculosis.
- Definition of pulmonary tuberculosis, pathogenesis of pulmonary tuberculosis: endogenous reactivation, exogenous superinfection. Factors predisposing the development of active pulmonary tuberculosis.
- Tuberculosis in adults and the elderly, pathogenesis (endogenous reactivation and exogenous superinfection), features of the clinical course and progression of secondary tuberculosis.
- Clinical forms of pulmonary tuberculosis, pathomorphology, clinic, diagnostics and differential diagnostics.

- Application of the WHO algorithm for the diagnosis of pulmonary tuberculosis.
- Solving clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Lecture course on phthisiopulmonology. Lecture 5.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 18: «Cavitary forms of pulmonary tuberculosis as the most epidemiologically dangerous, the main causes of their development. Pathogenesis of TB cavity, classification of cavities, pathomorphology of the cavities, clinic, diagnosis, differential diagnosis, treatment features. The main complications of pulmonary tuberculosis».

2 hours

- The concept of cavitary forms of pulmonary tuberculosis. Pathogenesis, pathomorphology, clinical picture, diagnosis, differential diagnosis of destructive forms of pulmonary tuberculosis.
- X-ray signs of cavitary forms of pulmonary tuberculosis, the use of X-ray methods in the diagnosis of destructive forms of pulmonary tuberculosis.
- Complications of pulmonary tuberculosis: pulmonary hemoptysis and bleeding, spontaneous pneumothorax, pulmonary insufficiency, etc.
- Possible outcomes of destructive forms of pulmonary tuberculosis, prognosis for destructive forms of destructive forms of pulmonary tuberculosis.
- Analysis of a series of radiographs.
- Presentation and interpretation of clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Lecture course on phthisiopulmonology. Lecture 5.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 19: «Drug-resistant tuberculosis. Microbiological, clinical and programmatic reasons for the development of drug resistance in tuberculosis. WHO classification of drug-resistant tuberculosis. Methods for detecting drug resistance recommended by WHO. General recommendations for the management of drug-resistant tuberculosis cases. Indications for surgical treatment in pulmonary tuberculosis».

2 hours

- Concept of drug-resistant tuberculosis. Types of drug resistance. Reasons for the formation of drug resistance: microbiological, clinical and programmatic. Microbiological mechanisms of drug resistance formation, amplification.
- Clinical aspects of drug resistance formation, monotherapy. Patient populations at high risk of drug resistance.
- Test for drug susceptibility of mycobacterium tuberculosis, methods. Indications for a drug resistance test by inoculation on solid nutrient media and BMD.
- General characteristics of second-line anti-tuberculosis drugs. New drugs for the treatment of extensively drug-resistant tuberculosis. General practitioner tactics in identifying drug-resistant tuberculosis.
- Possible outcomes of drug-resistant tuberculosis.
- Adverse treatment outcomes for drug-resistant tuberculosis, the concept of palliative care.
- Prognosis for drug-resistant tuberculosis.
- Interpretation of X-ray films and clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO consolidated guidelines on tuberculosis Module 4: Treatment. Drug-resistant tuberculosis treatment. - World Health Organization, 2020. – 120 p.
4. Lecture course on phthisiopulmonology. Lecture 5.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 20: «Extrapulmonary tuberculosis: tuberculous meningitis and pericarditis as the most severe forms of extrapulmonary tuberculosis, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features. Complications of tuberculous meningitis and tuberculous pericarditis. Indications for surgical treatment in tuberculous meningitis and pericarditis».

2 hours

- Extrapulmonary tuberculosis, prevalence of extrapulmonary tuberculosis, pathogenesis of extrapulmonary tuberculosis: hematogenous, lymphogenous and mixed generalization of tuberculosis infection in the human body. The main clinical forms of extrapulmonary tuberculosis.
- Tuberculous meningitis as the most severe form of tuberculosis. Prevalence of tuberculous meningitis, pathogenesis and pathomorphology of tuberculous meningitis.
- Clinical manifestations of tuberculous meningitis.
- Diagnosis of tuberculous meningitis, differential diagnosis. Lumbar puncture, study of cerebrospinal fluid in tuberculous meningitis. Features of the treatment of tuberculous meningitis.
- Complications of tuberculous meningitis. Indications for surgical treatment for tuberculous meningitis.
- Possible outcomes of tuberculous meningitis, prognosis for tuberculous meningitis.
- Tuberculous pericarditis as a severe form of extrapulmonary tuberculosis, prevalence, features of pathogenesis, pathomorphology.
- Clinical manifestations of tuberculous pericarditis.
- Diagnosis of tuberculous pericarditis, pericardial puncture, analysis of pericardial effusion in tuberculous pericarditis.
- Treatment of tuberculous pericarditis. Complications of tuberculous pericarditis, indications for surgical treatment. Possible outcomes, prognosis for tuberculous pericarditis.
- Analysis of a series of radiographs. Presentation and interpretation of clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Guidelines on extra-pulmonary TB for India. - World Health Organization, 2016. – 130 p.
4. Lecture course on phthisiopulmonology. Lecture 6.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 21: «Extrapulmonary tuberculosis: tuberculous pleurisy as one of the most common clinical forms, tuberculosis of peripheral lymph nodes, tuberculosis of the musculoskeletal system, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features. Complications of tuberculous pleurisy».

2 hours

- Tuberculous pleurisy as one of the most common forms of extrapulmonary tuberculosis, pathogenesis and pathomorphology of tuberculous pleurisy, clinical manifestations of tuberculous pleurisy.
- Diagnosis of tuberculous pleurisy, pleural puncture, analysis of pleural effusion in tuberculous pleurisy. Microbiological diagnostics, X-ray diagnostics for tuberculous pleurisy. Ultrasound examination of the pleural cavity with tuberculous pleurisy. Videothoracoscopy with pleural biopsy is a cornerstone in the diagnosis of tuberculous pleurisy. The value of immunological tests in the diagnosis of tuberculous pleurisy in children and adolescents.
- Peculiarities of treatment of tuberculous pleurisy, possible outcomes of tuberculous pleurisy, prognosis for tuberculous pleurisy.
- Tuberculosis of peripheral lymph nodes, features of pathogenesis, pathomorphology. Clinical manifestations of tuberculosis of the intrathoracic lymph nodes.
- Diagnosis of tuberculosis of the intrathoracic lymph nodes. Puncture excisional, incisional biopsy for tuberculosis of peripheral lymph nodes, indications. Microbiological research methods, cytological research methods, histological research methods for tuberculosis of peripheral lymph nodes.
- Treatment of tuberculosis of peripheral lymph nodes. Possible outcomes, prognosis for tuberculosis of peripheral lymph nodes.
- Tuberculosis of the musculoskeletal system, features of pathogenesis, pathomorphology. A variety of clinical manifestations of tuberculosis of the osteoarticular system. Clinical manifestations of tuberculous arthritis, tuberculous spondylitis, tuberculosis of flat bones and soft tissues.

- Diagnosis of tuberculosis of the musculoskeletal system. X-ray diagnostic methods. Puncture of joints, analysis of synovial fluid, biopsy of the synovial membrane in tuberculous arthritis. Puncture of drip abscesses. Cytological, histological, microbiological diagnostics of osteoarticular tuberculosis.
- Treatment of tuberculosis of the musculoskeletal system. Complications of osteoarticular tuberculosis, indications for surgical treatment. Possible outcomes, prognosis in osteoarticular tuberculosis.
- Analysis of a series of radiographs. Presentation and interpretation of clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Guidelines on extra-pulmonary TB for India. - World Health Organization, 2016. – 130 p.
4. Lecture course on phthisiopulmonology. Lecture 6.

Additional literature:

1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 22: «Extrapulmonary tuberculosis: abdominal tuberculosis, tuberculosis of genitourinary system, clinical forms, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features, possible complications, prognosis. Rare localizations of extrapulmonary tuberculosis (tuberculosis of skin, eyes, adrenal glands, thyroid gland, large vessels, oral cavity etc.).
General recommendations for the treatment of extrapulmonary tuberculosis, indications for surgical treatment in extrapulmonary tuberculosis».

2 hours

- Abdominal tuberculosis, features of pathogenesis, pathomorphology. Clinical manifestations of abdominal tuberculosis. Diagnosis of abdominal tuberculosis, differential diagnosis.
- Microbiological research methods, cytological research methods, histological research methods for abdominal tuberculosis.
- Treatment of abdominal tuberculosis. Possible outcomes, prognosis for abdominal tuberculosis.
- Complications of abdominal tuberculosis, indications for surgical treatment.
- Tuberculosis of the urinary system, features of pathogenesis, pathomorphology. Clinical manifestations of tuberculosis of the urinary system. Diagnosis of tuberculosis of the urinary system, differential diagnosis. Microbiological research methods, cytological research methods, histological research methods for tuberculosis of the urinary system.
- Treatment of tuberculosis of the urinary system. Possible outcomes, prognosis for tuberculosis of the urinary system.
- Tuberculosis of the female and male genital organs, features of pathogenesis, pathomorphology. Clinical manifestations of tuberculosis of the female and male genital organs. Diagnosis of tuberculosis of the female and male genital organs, differential diagnosis. Microbiological research methods, cytological research methods, histological research methods for tuberculosis of the female and male genital organs.
- Treatment of tuberculosis of the female and male genital organs. Possible outcomes, prognosis for tuberculosis of the female and male genital organs.
- Complications of tuberculosis of the urinary system and female and male genital organs, indications for surgical treatment. Possible outcomes, prognosis.
- Tuberculosis of the eyes, skin, adrenal glands, large vessels, etc., features of pathogenesis, pathomorphology.
- Clinical manifestations of tuberculosis of the eyes, skin, adrenal glands, large vessels, etc.
- Diagnosis of tuberculosis of the eyes, skin, adrenal glands, large vessels, etc., differential diagnosis. Microbiological research methods, cytological research methods, histological research methods for tuberculosis of the eyes, skin, adrenal glands, large vessels, etc.
- Treatment of tuberculosis of the eyes, skin, adrenal glands, large vessels, etc. Possible outcomes, prognosis for tuberculosis of the eyes, skin, adrenal glands, large vessels, etc.
- Complications of tuberculosis of the eyes, skin, adrenal glands, large vessels, etc., indications for surgical treatment. Possible outcomes, prognosis.
- General recommendations for the treatment of extrapulmonary tuberculosis, indications for surgical treatment in extrapulmonary tuberculosis.
- Interpretation of X-ray films. Presentation and interpretation of clinical cases.

Recommended reading for the class:

Main literature:

1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Guidelines on extra-pulmonary TB for India. - World Health Organization, 2016. – 130 p.

4. Lecture course on phthisiopulmonology. Lecture 6.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 23: «Module 3: «Tuberculosis in adults and the elderly. The main forms of pulmonary and extrapulmonary tuberculosis. Drug-resistant tuberculosis».
2 hours

- Module 3: Survey (testing) of students. Solving situational tasks. Analysis of a series of radiographs. Calculation of the individual rating of students in unit number 3.

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Guidelines on extra-pulmonary TB for India. - World Health Organization, 2016. – 130 p.
4. WHO consolidated guidelines on tuberculosis Module 4: Treatment. Drug-resistant tuberculosis treatment. - World Health Organization, 2020. – 120 p.
5. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
6. Lecture course on phthisiopulmonology. Lectures 5-6.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

UNIT 4

Key questions of the practical class 24: «HIV/tuberculosis co-infection. The situation in the world. Peculiarities of clinical manifestations of tuberculosis in PLWHA at early and late stages of HIV infection. Peculiarities of diagnosis of tuberculosis in PLWHA at early and late stages of HIV infection».
2 hours

- HIV / TB situation in the world.
- Pathogenesis of TB development in HIV-infected [video film].
- Clinical manifestations of tuberculosis in HIV-infected, depending on the depth of immunodeficiency in the early and late stages of HIV infection.
- Peculiarities of diagnosis of tuberculosis in people living with HIV infection in the early and late stages of HIV infection.
- Interpretation of radiographs. Interpretation of X-ray films and clinical cases.

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
4. Lecture course on phthisiopulmonology. Lecture 7.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 25: «Detection of tuberculosis in PLWHA, WHO diagnostic algorithm. Treatment and prevention of tuberculosis in HIV-infected patients».
2 hours

- Features of microbiological diagnosis of tuberculosis in HIV-infected. Features of X-ray diagnosis of tuberculosis in HIV-infected. LAM test for the diagnosis of tuberculosis in HIV-infected.
- Detection and management of tuberculosis cases in HIV-infected - WHO diagnostic algorithm.
- Treatment of latent tuberculosis infection in HIV-infected.
- Prevention of tuberculosis in HIV-infected.
- Vaccination of newborns born to HIV-infected mothers.
- The course of tuberculosis treatment in HIV-infected. Prognosis of HIV / TB co-infection cases.
- Interpretation of X-ray films and clinical cases.

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.

4. Lecture course on phthisiopulmonology. Lecture 7.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.
2.
https://www.cochrane.org/CD011420/INFECTN_lateral-flow-urine-lipoarabinomannan-assay-detecting-active-tuberculosis-people-living-hiv

Key questions of the practical class 26: «Infection control of tuberculosis in healthcare facilities. Administrative, engineering and individual infection control measures. Infection control of tuberculosis in healthcare facilities. Infection control of tuberculosis in households. Communication with patients and their family members. Work targeted to avoiding stigmatization of TB patients».
2 hours

- Infection control, definition.
- Contact, definition.
- Factors that determine the intensity of contact (frequency, time, distance).
- Infectious dose, definition. Factors that determine the infectious dose (concentration of live MBT in the surrounded air, contact time).
- The process of TB infection in community.
- Risk of tuberculosis infection. The risk of developing active tuberculosis after infection.
- Infection control measures. Infection control management. Administrative measures for infection control. Engineering measures for infection control. Artificial and natural ventilation. Fans. Ultraviolet radiators. Individual infection control measures. Masks, respirators.
- FIT test: qualitative, quantitative.
- Infection TB control measures in households.
- Education of patient's families' members and population, avoiding stigmatization.
- Solving clinical cases.

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – 2009. – 100 p.
4. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
5. Lecture course on phthisiopulmonology. Lecture 8.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 27: «Module 4: «HIV/TB co-infection. Infection control of tuberculosis»».
2 hours

- Module 4 (Survey (testing) of students. Solving situational tasks. Analysis of a series of radiographs. Calculation of the individual rating of students in unit number 4).

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – 2009. – 100 p.
4. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
5. Lecture course on phthisiopulmonology. Lecture 7-8.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 28: «Final control, solution of clinical cases, interpretation of radiographs. Calculation of the final individual rating of students».
2 hours

- Survey (testing) of students.
- Solving clinical cases.
- Analysis of a series of X-rays.
- Calculation of the final individual rating of students.

Recommended reading for the class:
Main literature:
1. WHO. – Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – 2013. – 297 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. WHO. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – 2009. – 100 p.
4. WHO. Guidelines for treatment of drug-susceptible tuberculosis and patient care. – 2017. – 80 p.
5. Lecture course on phthisiopulmonology. Lectures 1-8.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.
2.
https://www.cochrane.org/CD011420/INFECTN_lateral-flow-urine-lipoarabinomannan-assay-detecting-active-tuberculosis-people-living-hiv

METHODOLOGICAL INSTRUCTIONS FOR THE IMPLEMENTATION OF INDEPENDENT WORK ON THE DISCIPLINE, INDICATING THE DEADLINES FOR SUBMISSION

UNIT 1

Key questions of the independent work Topic 1, work with literature: "Progress of the global efforts of the world community in the fight against tuberculosis. DOTS strategy, DOTS-plus strategy, Stop-TB strategy, End-TB strategy. The main epidemiological indicators for tuberculosis according to WHO".
2 hours
- Factors influencing the tuberculosis epidemic: socio-economic development of countries, BCG vaccination, treatment, HIV epidemic.
- DOTS strategy.
- DOTS-plus strategy.
- Stop-TB strategy.
- End-TB strategy.
- The main epidemiological indicators for tuberculosis according to WHO.

Recommended reading for the class:
Basic literature:
1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
Additional literature:
1. Central TB Division, Directorate General of Health Services, Ministry of Health with Family Welfare, Nirman Bhavan, New Delhi. Revised National Tuberculosis Control Programme. National Strategic Plan for Tuberculosis Elimination, 2017-2025. – DOTS. Pura course. Pakka ilaai, 2017. – 109 p.
2. https://www.who.int/tb/en/

Key questions of the independent work Topic 2, work with literature: « Nanopore sequencing for diagnosing tuberculosis, essence of the method, advantages and disadvantages».
2 hours
- Modern methods of microbiological diagnosis of tuberculosis, nanopore sequencing.
- The essence of the methods, the main advantages and disadvantages.

Recommended reading for the class:
Basic literature:
1. Consolidated Guidelines Module 3: Diagnosis Module 3: Rapid diagnostics for tuberculosis detection 2. Recommendations 2.3 Follow-on diagnostic tests for detection of additional drug-resistance after TB confirmation Targeted next-generation sequencing. WHO TB KNOWLEDGE SHARING PLATFORM. https://tbksp.who.int/en/node/2701

Key questions of the independent work Topic 3, task to complete: "Genomics and proteomics of M. Tuberculosis. Molecular genetic technologies in the diagnosis of tuberculosis. Molecular genetic diagnostic methods approved by WHO: Truenat MTB, MTB Plus, MTB-RIF Dx assays, TB-LAMP assay, Line Probe Assays, essence of methods, advantages and disadvantages".
2 hours
- Genomics and proteomics of M. Tuberculosis.
- Molecular genetic technologies in the diagnosis of tuberculosis.
- Truenat MTB, MTB Plus and MTB-RIF Dx assays (method principle, advantages, disadvantages).
- TB-LAMP assay (method principle, advantages, disadvantages).

- Line Probe Assays (method principle, advantages, disadvantages).
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 3: Diagnosis. Rapid diagnostics for tuberculosis detection. – WHO, 2020. – 96 p.

Additional literature:

1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 4, task to complete: «Monitoring of the DS TB treatment efficacy».

2 hours

- Monitoring of treatment response by:
- clinical symptoms,
- sputum smears and culture,
- weight,
- height (for children),
- chest X-ray,
- rapid molecular testing,
- DST.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. Operational Handbooks Module 4: Treatment. Module 4: treatment and care, Chapter 1: Drug-susceptible TB treatment , 9. Monitoring treatment response.
2. WHO TB KNOWLEDGE SHARING PLATFORM. https://tbksp.who.int/en/node/3026

Key questions of the independent work Topic 5, task to complete: «Monitoring of the main adverse reactions of the first-line anti-TB drugs».

2 hours

- Classification of adverse reactions.
- Peripheral neuropathy, "guilty" drug, clinic, diagnostics, methods of elimination.
- Convulsive seizures, "guilty" drug, clinic, diagnostics, methods of elimination.
- Acute psychosis, "guilty" drug, clinic, diagnostics, methods of elimination.
- Headache, "guilty" drug, clinic, diagnostics, methods of elimination.
- Toxic hepatitis, "guilty" drug, clinic, diagnostics, methods of elimination.
- Arthralgia, "guilty" drug, clinic, diagnostics, methods of elimination.
- Optic neuritis, "guilty" drug, clinic, diagnostics, methods of elimination.
- Nausea, vomiting, "guilty" drug, clinic, diagnostics, methods of elimination.
- Hearing loss, "guilty" drug, clinic, diagnostics, methods of elimination.
- Vestibulopathy, "guilty" drug, clinic, diagnostics, methods of elimination.
- Electrolyte imbalance, "guilty" drug, clinic, diagnostics, methods of elimination.
- Anaphylaxis, "guilty" drug, clinic, diagnostics, methods of elimination.
- Bronchospasm, "guilty" drug, clinic, diagnostics, methods of elimination.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. Operational Handbooks Module 4: Treatment. Module 4: treatment and care. Annex 2. Monitoring and management of adverse events in treatment of drug-resistant tuberculosis
2. WHO TB KNOWLEDGE SHARING PLATFORM. https://tbksp.who.int/en/node/3051

Additional literature:

1. WHO. Active tuberculosis. Drug safety monitoring. – WHO/HTM/TB/2015. – 28 p.

UNIT 2

Key questions of the independent work Topic 6, work with literature: "Modern methods of immunological diagnosis of tuberculosis: QuantiFERON test, TSPOT TB test, essence of the methods, advantages and disadvantages".

2 hours

- Use of the IGRAs for the diagnosis of TB infection
- Use of the IGRAs for the diagnosis of TB disease

Recommended reading for the class:

Basic literature:
1. WHO Consolidated Guidelines on Tuberculosis. Module 4: Treatment. Module 3: Diagnosis. Tests for TB infection. – 68 p.

Key questions of the independent work Topic 7, work with literature: "Factors contributing to the progression of latent tuberculosis infection to active tuberculosis".
2 hours
- Influence of HIV infection on the transition of latent tuberculosis infection to active.
- Influence of secondary immunodeficiency states on the transition of a latent tuberculosis infection into an active one.
- Other factors contributing to the progression of latent tuberculosis infection to active tuberculosis.

Recommended reading for the class:
Basic literature:
1. WHO consolidated guidelines on tuberculosis Module 2: Screening Systematic screening for tuberculosis disease. – WHO, 2021. – 68 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.
3. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
Additional literature:
1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 8, task to complete: «Procedure of the sputum collection for microbiological examination in tuberculosis in children under 5 years of age: procedure of obtaining and evaluation of gastric lavage fluid and stool-test, comparative analysis**».**
2 hours
- Aspiration of gastric lavage water in small children for the purpose of bacteriological studies on the office, procedure technique, indications and contraindications.
- Stool test, stool collection and storage, procedure technique.
- Implementation of stool test.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:
Basic literature:
1. WHO. Practical manual of processing stool samples for diagnosis of childhood TB. – WHO. – 2022. – 44 p.
2. WHO operational handbook on tuberculosis. Module 5: Management of tuberculosis in children and adolescents. – WHO, 2022. – 264 p.
3. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. – WHO, 2021. – 11 p.
4. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
5. John Crofton Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Key questions of the independent work Topic 9, task to complete: «Differential diagnosis of the intrathoracic lymphadenopathy in children».
2 hours
- Make a table of the differential diagnosis of tuberculosis of intrathoracic lymph nodes with:
- Lymphoproliferative diseases.
- Lymphogranulomatosis.
- Mediastinal tumors.
- Sarcoidosis.
- Bronchial retention cysts.
- Esophageal diverticulum.
- Hernia of the esophageal opening of the diaphragm.
- Aneurysms of large vessels.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:
Basic literature:
1. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Key questions of the independent work Topic 10, task to complete: «Differential diagnosis of pulmonary disseminations in children».

2 hours

- Differential diagnosis of disseminated forms of tuberculosis with:
- Pneumonias
- Oncological diseases
- Sarcoidosis
- Solving tasks and clinical cases, given by teacher

Recommended reading for the class:

Basic literature:

1. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

UNIT 3

Key questions of the independent work Topic 11, work with literature: "Biopsy as a method for diagnosing tuberculosis. Scope and indications for biopsy in pulmonary and extrapulmonary tuberculosis: brush biopsy, needle, transbronchial and trans thoracal biopsy, endoscopy, diagnostic operations".

2 hours

- Biopsy methods.
- Bronchoscopy.
- Biopsy of bronchi and lung tissue.
- Indications for permanent biopsy.
- Transbronchial puncture biopsy, features of the procedure.
- Thoracoscopy, biopsy of the pleura, features of the procedures.
- Other endoscopic methods for biopsy.
- Diagnostic operations.

Recommended reading for the class:

Basic literature:

1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Key questions of the independent work Topic 12, work with literature: "Management of TB patients with treatment failure and palliative care".

2 hours

- Treatment outcome «Treatment is failured» in DS and DR TB.
- Palliative care, when it should be provided.
- Essential pocket of palliative care.
- Social support.
- Benefits of palliative care: Physical, psychological, spiritual.

Recommended reading for the class:

Basic literature:

1. WHO operational handbooks on tuberculosis. Module 4: Treatment, Module 4: treatment and care, Chapter 3 Tuberculosis care and support. 3. Care and support interventions to enable TB treatment adherence. – WHO, 2025. – P. 233-250.

Key questions of the independent work Topic 13, task to complete: «Differential diagnosis of pulmonary infiltrates in adults».

2 hours

- Differential diagnosis of pulmonary tuberculosis with bacterial pneumonia,
- pulmonary abscess,
- bronchiectasis,
- lung cancer,
- sarcoidosis,
- hydatid cyst.
- Application of the WHO diagnostic algorithms in the differential diagnosis of pulmonary tuberculosis.
- Differential diagnosis criteria.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.

2. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Key questions of the independent work Topic 14, task to complete: «Differential diagnosis of pulmonary cavities in adults».

2 hours

- Differential diagnosis of cavitary tuberculosis with the following diseases,
- pulmonary abscess after rupture,
- bronchiectasis,
- cavitating lung cancer,
- sarcoidosis,
- hydatid cyst after rupture.
- Application of the WHO diagnostic algorithms in the differential diagnosis of cavitary tuberculosis.
- Differential diagnosis criteria.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
2. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Key questions of the independent work Topic 15, task to complete: «Differential diagnosis of tuberculous meningitis».

2 hours

- Differential diagnosis of cavitary tuberculosis with the following diseases,
- bacterial meningitis,
- viral meningitis,
- fungal meningitis,
- parasitic meningitis,
- cerebral vasculitis,
- c.n.s. sarcoidosis,
- brain stroke,
- brain trauma,
- intracranial tumors,
- encephalitis,
- drug-induced meningitis.
- Differential diagnosis criteria.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

Additional literature:

1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 16, task to complete: « Differential diagnosis of tuberculous pleurisy».

2 hours

- TB pleuritis: allergic TB pleuritis in children and adolescents, perifocal TB pleuritis, TB of pleura, TB empyema.
- Differential diagnosis with the following diseases:
- Nonspecific pleuritis,
- Pleuritis in sarcoidosis,
- Pleuritis in oncological diseases,
- Mesothelioma,
- Pleuritis in fungal diseases.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:

Basic literature:

1. John Crofton. Crofton's clinical tuberculosis. The third edition. – International Union against Tuberculosis and Lung Diseases, 2009. – 200 p.

UNIT 4

Key questions of the independent work Topic 17, work with literature: «Individual protection for tuberculosis. FIT test: qualitative, quantitative».

2 hours

- Correct use of personal protective equipment for tuberculosis.
- Masks, respirators.
- FIT test: qualitative, quantitative.

Recommended reading for the class:

Basic literature:

1. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – WHO, 2009. – 100 p.

Key questions of the independent work Topic 18, work with literature: « Infection control in congregate settings (hostels, nursing homes, orphanages, prisons) ».

2 hours

- Administrative measure of infection control of tuberculosis in congregate settings.
- Environmental measure of infection control of tuberculosis in congregate settings.
- Individual measure of infection control of tuberculosis in congregate settings.

Recommended reading for the class:

Basic literature:

1. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – WHO, 2009. – 100 p.

Key questions of the independent work Topic 19, task to complete: «Peculiarities of X-ray findings of pulmonary tuberculosis in PLWHA».

2 hours

- X-ray findings of pulmonary TB at early and late stages of HIV-infection:
- intrathoracic lymphadenopathy,
- infiltrates,
- cavities,
- disseminations,
- pleural effusions.
- Solving tasks and clinical cases, given by the teacher.

Recommended reading for the class:

Additional literature:

1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 20, task to complete: "Differential diagnosis of pulmonary tuberculosis in PLHIV".

2 hours

- Differential diagnosis of tuberculosis in HIV-infected.
- Differential diagnosis of opportunistic infections in HIV-infected.
- Viral, bacterial, fungal infections of the lungs in HIV patients.
- Mycobacteriosis.
- Pneumocystis pneumonia.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:

Additional literature:

1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 21, task to complete: "Differential diagnosis of extrapulmonary tuberculosis in PLHIV".

2 hours

- Differential diagnosis of TB meningitis in PLHIV.
- Differential diagnosis of peripheral lymph nodes TB in PLHIV.
- Differential diagnosis of kidney TB in PLHIV.
- Differential diagnosis of abdominal TB in PLHIV.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:

Additional literature:
1. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.

Key questions of the independent work Topic 22, task to complete: "Suitability of TB/HIV treatment: contraindications and drug interactions of anti-tuberculosis drugs in PLHIV".
2 hours
- Types of drug interactions of anti-tuberculosis drugs.
- Side effects that develop as a result of drug interactions of anti-tuberculosis drugs.
- Solving of tasks and clinical cases, given by teacher.

Recommended reading for the class:
Basic literature:
1. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.

Key questions of the independent work Topic 23, task to complete: "Education of medical staff, patients, civil society as an administrative measure of infection control of tuberculosis".
2 hours
- Education of medical staff.
- Education of patients.
- Education of population.
- Solving tasks and clinical cases, given by teacher.

Recommended reading for the class:
Basic literature:
1. Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. – WHO, 2009. – 100 p.

Key questions of the independent work Topic 24: « Drawing up an approximate plan for infection control of tuberculosis in a health care facility».
2 hours
- To study the examples of planes for infection control in literature.
- To create the own plan accordingly to a task, given by teacher.

Recommended reading for the class:
Basic literature:
1. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.
2. Operational Handbooks. Module 1: Prevention. Module 1: Infection prevention and control. Annexes. Annex 3. Example of an outline of facility tuberculosis infection prevention and control plan
3. WHO TB KNOWLEDGE SHARING PLATFORM. https://tbksp.who.int/en/node/2597