INTERNATIONAL HIGHER SCHOOL OF MEDICINE

Department of Special clinical disciplines

SYLLABUS

Phtisiopulmonology
2026_-2027_ academic year
for students of medical faculty
4th Course VIIIth Semester
… groups of the Central Campus,
… groups of the Issyk-Kul campus

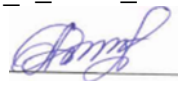
4 credits (120 h, including auditoria 72 h, self-working – 48 h)

Groups:	**Lecturers:**
… groups Central Campus	**Fedorova Svetlana Vladimirovna**
… groups Issyk-Kul Campus	**Kim Tatyana Mironovna**
	Bulatov Timur Erikovich

Practice:

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The Syllabus is considered
at the meeting of the department of _SCD_
Protocol №_1_dated_28.08.26.__

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.

As a result of studying the discipline, **a 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	Data
1.	Tuberculosis as an infectious disease. Microbiological, X-ray methods for diagnosing tuberculosis.	2	Accordingly to the schedule

2.	Diagnosis of tuberculosis in children. Skin tuberculin test. Specific prevention of tuberculosis. BCG vaccination. Treatment of latent tuberculosis infection.	2	Accordingly to the schedule
3.	Principles and methods of treatment of patients with tuberculosis.	2	Accordingly to the schedule
4.	Primary tuberculosis. Tuberculosis in children and adolescents. Latent tuberculosis infection. Tuberculosis of the intrathoracic lymph nodes. Primary tuberculosis complex. Complications of primary tuberculosis.	2	Accordingly to the schedule
5.	Disseminated forms of tuberculosis. Miliary pulmonary tuberculosis. Disseminated pulmonary tuberculosis.	2	Accordingly to the schedule
6.	Secondary tuberculosis. Tuberculosis in adults and the elderly. Pulmonary tuberculosis. Complications of pulmonary tuberculosis. The concept of drug-resistant tuberculosis.	2	Accordingly to the schedule
7.	The main clinical forms of extrapulmonary tuberculosis. tuberculous meningitis. Tuberculous pericarditis. Tuberculous pleurisy. Tuberculosis of peripheral lymph nodes. Tuberculosis of bones and joints. Tuberculosis of the genitourinary system. Abdominal tuberculosis.	2	Accordingly to the schedule
8.	HIV/tuberculosis co-infection.	2	Accordingly to the schedule
9.	Infection control of tuberculosis.	2	Accordingly to the schedule

THEMATIC PLAN OF PRACTICAL CLASSES

№	**Theme of practical class**	**Hours**	**Data**
1.	Tuberculosis as an infectious disease. The tuberculosis situation in the world. WHO classification of tuberculosis.	2	Accordingly to the schedule
2.	X-ray methods for diagnosing tuberculosis. Typical radiological signs of tuberculosis in adults and children.	2	Accordingly to the schedule
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	Accordingly to the schedule
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.	2	Accordingly to the schedule
5.	Immunological methods for diagnosing tuberculosis. Tuberculin diagnostics. Interferon-ɣ tests. Technique, assessment and interpretation, indications and contraindications.	2	Accordingly to the schedule
6.	Methods of specific prevention of tuberculosis. BCG vaccination. Preventive treatment of latent tuberculous infection.	2	Accordingly to the schedule
7.	Tuberculosis treatment, basic methods and principles. Classification of anti-tuberculosis drugs. Clinical pharmacology of anti-tuberculosis drugs. Classification of cases of tuberculosis according to WHO.	2	Accordingly to the schedule
8.	WHO guidelines for the treatment of drug-susceptible tuberculosis. The concept of standardized chemotherapy regimens. Monitoring the effectiveness and safety of treatment.	2	Accordingly to the schedule
9.	Determination of treatment outcomes according to the WHO classification. Module 1: WHO classification of tuberculosis. Basic methods of diagnosis, treatment and prevention of tuberculosis.	2	Accordingly to the schedule
10.	Tuberculosis in children and adolescents. Primary tuberculosis, definition, source of infection and ways of transmission, pathogenesis and features of the clinical pathway of primary tuberculosis. Paraspecific reactions, mechanisms of development, pathomorphology, clinical manifestations, significance in the diagnosis of primary tuberculosis. Latent tuberculosis infection,	2	Accordingly to the schedule

	diagnostics. WHO recommendations for the preventive treatment of latent tuberculosis infection.		
11.	Tuberculosis of the intrathoracic lymph nodes, features of pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis. Peculiarities of sputum collection in children under 5 years of age.	2	Accordingly to the schedule
12.	Primary tuberculosis complex, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics.	2	Accordingly to the schedule
13.	Miliary tuberculosis, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics.	2	Accordingly to the schedule
14.	Disseminated pulmonary tuberculosis, pathogenesis features, pathomorphology, clinic, diagnostics, differential diagnostics.	2	Accordingly to the schedule
15.	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. Module 2: Tuberculosis in children and adolescents.	2	Accordingly to the schedule
16.	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	Accordingly to the schedule
17.	Cavitary forms of pulmonary tuberculosis as the most epidemiologically dangerous, the main reasons of their development. Pathogenesis of cavity, classification of cavities, pathomorphology of the cavity, clinic, diagnosis, differential diagnosis, treatment features. The main complications of pulmonary tuberculosis.	2	Accordingly to the schedule
18.	Drug-resistant tuberculosis. Microbiological, clinical and program reasons for the development of drug resistance in tuberculosis. WHO classification of drug-resistant tuberculosis. Methods for detecting drug resistance in tuberculosis recommended by WHO. General recommendations for the management of cases of drug-resistant tuberculosis. Indications for surgical treatment in pulmonary tuberculosis.	2	Accordingly to the schedule
19.	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	Accordingly to the schedule
20.	Extrapulmonary tuberculosis: tuberculous pleurisy as one of the most common clinical forms, tuberculosis of the genitourinary system, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features. Complications of tuberculous pleurisy.	2	Accordingly to the schedule
21.	Extrapulmonary tuberculosis: tuberculosis of the peripheral lymph nodes, tuberculosis of the musculoskeletal system, abdominal organs, clinical forms, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features, possible complications, prognosis. Indications for surgical treatment.	2	Accordingly to the schedule
22.	Other possible localizations of extrapulmonary tuberculosis, general principles of diagnosis in accordance with the WHO algorithm. General recommendations for the treatment of extrapulmonary tuberculosis, indications for surgical treatment of extrapulmonary tuberculosis. Module 3: Tuberculosis in adults and the elderly. The main forms of pulmonary and extrapulmonary tuberculosis. drug-resistant tuberculosis.	2	Accordingly to the schedule

23.	Co-infection HIV/tuberculosis. 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	Accordingly to the schedule
24.	Detection of tuberculosis in PLWHA, WHO diagnostic algorithm. Treatment and prevention of tuberculosis in PLWHA.	2	Accordingly to the schedule
25.	Infection control of tuberculosis in healthcare facilities. Administrative, engineering and individual infection control measures.	2	Accordingly to the schedule
26.	Infection control of tuberculosis in households. Module 4: HIV/TB co-infection. Infection control of tuberculosis.	2	Accordingly to the schedule
27.	Final control, solution of situational problems, interpretation of radiographs. Calculation of the final individual rating of students.	2	Accordingly to the schedule

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

Unit №	**Theme of independent work**	**Hours**	**Data**
Unit № 1.	Topic 1: “Progress of 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 of tuberculosis according to WHO data. "	2	Accordingly to the schedule
	Topic 2: “Genomics and proteomics of M. tuberculosis. Molecular genetic technologies in the diagnosis of tuberculosis. Molecular genetic diagnostic methods approved by WHO."	2	Accordingly to the schedule
	Topic 3: “Modern methods of immunological diagnosis of tuberculosis: ɣ-interferon tests".	2	Accordingly to the schedule
	Topic 4: “Tuberculosis situation in the world and in the WHO South-East Asia region. India Strategic Plan to Eliminate TB 2017-2025 Factors influencing the TB epidemic”.	2	Accordingly to the schedule
	Topic 5: "Glucocorticosteroids as one of the pathogenetic methods for the treatment of tuberculosis."	2	Accordingly to the schedule
	Topic 6: "Monitoring of the main adverse reactions of first-line anti-TB drugs."	2	Accordingly to the schedule
Unit № 2	Topic 7: "Prevention of tuberculosis in children in the presence of contact with drug-resistant forms of the disease."	2	Accordingly to the schedule
	Topic 8: "Tuberculosis in newborns. Breastfeeding of newborns by mothers with tuberculosis. Congenital tuberculosis."	2	Accordingly to the schedule
	Topic 9: "WHO-recommended standardized algorithms for diagnosing tuberculosis in children."	2	Accordingly to the schedule
	Topic 10: "Methods and role of X-ray examination, features of the X-ray picture in pulmonary tuberculosis in children."	2	Accordingly to the schedule
	Topic 11: “Complications of tuberculosis in children: bronchial tuberculosis, broncho-nodular fistula, broncho-esophageal fistula, interlobar and mediastinal pleurisy, tuberculous mediastinitis, primary pulmonary cavity, primary pulmonary tuberculoma, caseous pneumonia, etc. Pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment”.	2	Accordingly to the schedule
	Topic 12: "Factors contributing to the progression of latent tuberculosis infection to active tuberculosis in children."	2	Accordingly to the schedule
	Topic 13: "Procedure of the sputum collection for microbiological examination in tuberculosis in children under 5 years of age."	2	Accordingly to the schedule

	Topic 14: "Differential diagnosis of the most common forms of tuberculosis (tuberculosis of the intrathoracic lymph nodes, primary tuberculosis complex) in children."	2	Accordingly to the schedule
	Topic 15: "Differential diagnosis of disseminated and miliary tuberculosis in children."	2	Accordingly to the schedule
	Topic 16: "Peculiarities of treatment of tuberculosis in children in special situations - renal failure, liver disease, pregnancy etc."	2	Accordingly to the schedule
Unit № 3	Topic 17: “Scope and indications for additional studies in pulmonary tuberculosis: swabs from the nasopharynx, gastric lavage, bronchoscopy, biopsy of the bronchi and lung tissue. Biopsy as a method for diagnosing tuberculosis."	2	Accordingly to the schedule
	Topic 18: “Differential diagnosis of tuberculosis of the female and male genital organs, tuberculosis of the urinary system, treatment features, possible complications, prognosis. Indications for surgical treatment."	2	Accordingly to the schedule
	Topic 19: “Differential diagnosis of abdominal tuberculosis, treatment features, possible complications, prognosis. Indications for surgical treatment."	2	Accordingly to the schedule
	Topic 20: "Rare localizations of extrapulmonary tuberculosis: tuberculosis of the skin, eyes, large vessels, tongue, etc."	2	Accordingly to the schedule
	Topic 21: "Differential diagnosis of pulmonary tuberculosis."	2	Accordingly to the schedule
	Topic 22: “Complications of pulmonary tuberculosis requiring urgent medical care: pulmonary hemoptysis and bleeding; spontaneous pneumothorax - open, closed, valvular; pathogenesis, clinical manifestations, diagnosis, differential diagnosis, emergency care at the prehospital and hospital stages."	2	Accordingly to the schedule
	Topic 23: “Monitoring the safety of drug-resistant tuberculosis treatment. Practical use of the scale of severity of adverse events in the treatment of tuberculosis."	2	Accordingly to the schedule
	Topic 24: "Differential diagnosis of tuberculous meningitis."	2	Accordingly to the schedule
	Topic 25: "Differential diagnosis of tuberculous pleurisy."	2	Accordingly to the schedule
Unit № 4	Topic 26: "Lipoarabinomannan test (LAM-test) for the diagnosis of tuberculosis in PLWHA."	2	Accordingly to the schedule
	Topic 27: "Peculiarities of X-ray diagnosis of tuberculosis in PLWHA."	2	Accordingly to the schedule
	Topic 28: "Prospects for the treatment of drug-resistant tuberculosis in PLWHA."	2	Accordingly to the schedule
	Topic 29: "Management of TB patients with treatment failure and palliative care."	2	Accordingly to the schedule
	Topic 30: "Infection control measures aimed at reducing the risk of nosocomial transmission of tuberculosis among PLWHA."	2	Accordingly to the schedule
	Topic 31: "Infection control in congregate settings (hostels, nursing homes, orphanages, prisons)."	2	Accordingly to the schedule
	Topic 32: "Differential diagnosis of tuberculosis in PLWHA."	2	Accordingly to the schedule
	Topic 33: "Drug interactions of anti-tuberculosis drugs in PLWHA."	2	Accordingly to the schedule
	Topic 34: "Education of medical staff, patients, civil society as an administrative measure of infection control of tuberculosis."	2	Accordingly to the schedule

	Topic 35: "Drawing up an approximate plan for infection control of tuberculosis in a health care facility."	2	Accordingly to the schedule
	Topic 36: “Personal respiratory protection: respirators, surgical masks, rules for use and storage. Fit-test: quantitative, qualitative."	2	Accordingly to the schedule

Recommended reading for the discipline:

Basic literature:

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

Additional literature:

13. 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.
14. Rapid implementation of the XpertMTB/Rif diagnostic test. – WHO, 2011. – 34 p.
15. Palomino J.C. Tuberculosis. – Tuberculosis Textbook.com. BourcillierKamps.com., 2007. – 687 p.
16. 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: (late arrivals, absences, behavior in the classroom, late submission of work).

- Be punctual and complete tasks.
- Be sure to attend classes.
- Avoid missing classes for unexcused reasons.
- Come to class in a clean medical apron.
- Not use a phone in the classroom.
- Actively participate in the learning process.
- Do homework on time.

Politics of academic ethics.

Be tolerant, respect the opinions of others.

- Formulate objections in the correct form.
- Provide constructive feedback in class.
- 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; passing an exam for another student, unauthorized copying of materials.

For violations of the conduct policy and policy of academic ethics, the overall score is reduced from 1 until 10 points.

Guidelines for the practical classes of the discipline

Key questions of the practical class 1: «Tuberculosis as an infectious disease. The tuberculosis situation in the world. 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.
- 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. Lecture course on phthisiopulmonology. Lecture 1.

Additional literature:

1. India, National Strategic Plan for Tuberculosis Elimination, 2017-2025. – 2017. – 109 p.

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].
- 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».

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].
- 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].
- Filling out WHO forms “Referrals for microscopic and XpertMTB/Rif examination of sputum”, “Referrals for culture and DST”.
- 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: «Immunological methods for diagnosing tuberculosis. Tuberculin diagnostics. Interferon-ɣ tests. Technique, assessment and interpretation, indications and contraindications».

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]
- Application of the test for early detection of tuberculosis. Latent tuberculosis infection, diagnosis. 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]
- Infectious and post-vaccination sensitivity (allergy) to tuberculin. Use of tuberculin tests for differential diagnosis of tuberculosis and other diseases. ɣ-interferon test. A number of factors that can influence the body's sensitivity to tuberculin. Solving situational tasks. [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. John Crofton. Crofton's clinical tuberculosis. The third edition. – 2009. – 200 p.
3. Lecture course on phthisiopulmonology. Lecture 2.

Additional literature:

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

Key questions of the practical class 6: «Methods of specific prevention of tuberculosis. BCG vaccination. Preventive treatment of latent tuberculous infection».

2 hours

- Specific prophylaxis. BCG vaccine. 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 treatment. Organization of vaccination. [video films]
- Chemoprophylaxis, indications and methods. Types of chemoprophylaxis. Organization of chemoprophylaxis, contingents requiring specific chemoprophylaxis in accordance with WHO recommendations. Chemoprophylaxis regimens. [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 2.

Additional literature:

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

Key questions of the practical class 7: «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 3.

Additional literature:

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

Key questions of the practical class 8: «WHO guidelines for the treatment of drug-susceptible tuberculosis. The concept of standardized chemotherapy regimens. Monitoring the effectiveness and safety of treatment».

2 hours

- Regimens of treatment of TB patients requiring. The concept of short-term standardized courses of chemotherapy accordingly to WHO recommendations.
- Management of TB cases, including drug-resistant tuberculosis according to algorithms recommended by WHO.
- Other methods of treatment.
- Filling out the patient's treatment card (TB01 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 3.

Additional literature:

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

Key questions of the practical class 9: « Determination of treatment outcomes according to the WHO classification.

Module 1: WHO classification of tuberculosis. Basic methods of diagnosis, treatment and prevention of tuberculosis».

2 hours

- Determination of treatment outcomes according to WHO. 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 3.

Additional literature:

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

Key questions of the practical class 10: «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.
- Diagnostics. The value of tuberculin tests in the diagnosis of latent tuberculosis infection.
- 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 11: «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 12: «Primary tuberculosis complex, features of pathogenesis, pathomorphology, clinic, diagnostics, differential diagnostics».

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.
- 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 13: «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 5.
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 5.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 15: «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.
Module 2: «Tuberculosis in children and adolescents»».
2 hours

- The most common complications of tuberculosis in children: tuberculous pleurisy, atelectasis, generalization of tuberculosis infection; pathogenesis, clinical manifestations, features of diagnosis and treatment.
- 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 4-5.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 16: «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 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 6.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 17: «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 6.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 18: «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 6.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 19: «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 7.

Additional literature:

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

Key questions of the practical class 20: «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».

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 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.
- 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 7.

Additional literature:

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

Key questions of the practical class 21: «Extrapulmonary tuberculosis: tuberculosis of peripheral lymph nodes, tuberculosis of the musculoskeletal system, abdominal tuberculosis, clinical forms, pathogenesis, pathomorphology, clinic, diagnosis, differential diagnosis, treatment features, possible complications, prognosis. Indications for surgical treatment».

2 hours

- 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.
- 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.
- 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 7.

Additional literature:

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

Key questions of the practical class 22: «Other localizations of extrapulmonary tuberculosis, general principles of diagnosis in accordance with the WHO algorithm. General recommendations for the treatment of extrapulmonary tuberculosis, indications for surgical treatment in extrapulmonary tuberculosis.

Module 3: «Tuberculosis in adults and the elderly. The main forms of pulmonary and extrapulmonary tuberculosis. Drug-resistant tuberculosis».

2 hours

- 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.
- 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 6-7.

Additional literature:

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

Key questions of the practical class 23: «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.
- 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 8.

Additional literature:

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

Key questions of the practical class 24: «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 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

Key questions of the practical class 25: «Infection control of tuberculosis in healthcare facilities. Administrative, engineering and individual infection control measures. Infection control of tuberculosis in healthcare facilities».

2 hours

- Infection control, definition.
- 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.
- 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 9.

Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 26: «Infection control of tuberculosis in households.
Module 4: «HIV/TB co-infection. Infection control of tuberculosis»».
2 hours

- 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 TB control measures in households.
- Solving clinical cases.
- 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 9.
Additional literature:
1. Palomino J.C. Tuberculosis. – 2007. – 687 p.

Key questions of the practical class 27: «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 8-9.
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

8. Methodological instructions for the implementation of independent work on the discipline, indicating the deadlines for submission

Key questions of the independent work class 1: «Situation of tuberculosis in the world and Southeast Asian region. WHO Strategic Plan «To Eliminate Tuberculosis» in India for the 2017-2025».
2 hours

- Situation of tuberculosis in the world and the WHO South-East Asian Region.
- Factors influencing the tuberculosis epidemic: socio-economic development of countries, BCG vaccination, treatment, HIV epidemic.
- The urgency of the problem of tuberculosis in India.
- End TB Strategic Plan in India 2017-2025.

- Vision.
- Goals.
- Tasks.

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/

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 class 2: «Modern methods of immunological diagnosis of tuberculosis. IGRA».

2 hours

- Modern methods of immunological diagnosis of tuberculosis.
- IGRA for the diagnosis of tuberculosis.
- ELISPOT analysis.
- T SPOT-TB analysis.
- QuantiFERON-TB analysis.
- The essence of the methods, the main advantages and disadvantages.

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

Work with literature: "Immunological aspects of tuberculosis pathogenesis, immunopathology. New vaccines against tuberculosis. Perspectives".

2 hours

- Immunological aspects of tuberculosis pathogenesis, immunopathology. [10; 15]
- New vaccines against tuberculosis. Perspectives. [10; 15]

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

Key questions of the independent work class 3: «Glucocorticosteroids as one of the pathogenetic methods of treating tuberculosis».

2 hours

- Glucocorticosteroids as one of the pathogenetic methods of treating tuberculosis.
- Mechanism of action of Glucocorticosteroids.
- Indications.
- Dosages.
- Modes.
- Duration.
- Monitoring efficiency and safety.

Recommended reading for the class:

Basic literature:

1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
2. Guidelines for treatment of drug-susceptible tuberculosis and patients' care. – WHO, 2017. – 80 p.

Work with literature: "Genomics and proteomics of M. Tuberculosis. Molecular genetic technologies in the diagnosis of tuberculosis".

1 hour

- Genomics and proteomics of M. Tuberculosis.
- Molecular genetic technologies in the diagnosis of tuberculosis.
- Xpert MTB/RIF (method principle, advantages, disadvantages).
- Xpert MTB/RIF Ultra assay (method principle, advantages, disadvantages).
- 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).

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 class 4: «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.

Recommended reading for the class:

Basic literature:

1. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
2. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.
3. Guidelines for treatment of drug-susceptible tuberculosis and patients' care. – WHO, 2017. – 80 p.

Work with literature: "Tuberculosis caused by M. Bovis, M. Africanum. Mycobacteriosis. Features of clinical manifestations, diagnostics and treatment".

2 hours

- Tuberculosis caused by M. Bovis, M. Africanum. Mycobacteriosis.
- Features of clinical manifestations of forms of tuberculosis caused by M. Bovis, M. Africanum. Mycobacteriosis.
- Diagnostics of forms of tuberculosis caused by M. Bovis, M. Africanum. Mycobacteriosis.
- Treatment of forms of tuberculosis caused by M. Bovis, M. Africanum. Mycobacteriosis.

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 class 5: «Features of the procedure for collecting sputum for microbiological research in tuberculosis in children until 5 years old».

2 hours

- Aspiration of gastric lavage water in small children for the purpose of bacteriological studies on the office.
- Procedure technique, indications and contraindications.

Recommended reading for the class:

Basic literature:

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

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Work with literature: "Prognosis and natural pathway of tuberculosis infection in the human body".

2 hours

- Pathogenesis of primary tuberculosis in vaccinated children.
- Prognosis of primary tuberculosis in vaccinated children.
- Pathogenesis of primary tuberculosis in unvaccinated children.
- Prognosis of primary tuberculosis in unvaccinated children.

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 class 6: «Differential diagnosis of tuberculosis of the intrathoracic lymph nodes».

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.
- Pericardial coelomic cyst.
- Esophageal diverticulum.
- Hernia of the esophageal opening of the diaphragm.
- Aneurysms of large vessels.

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.

Work with literature: "Factors contributing to the progression of latent tuberculosis infection into 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.

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.
2. 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 class 7: «Differential diagnosis of PTC in children».

2 hours

- Differential diagnosis of PTC in children, adolescents and young people with:
- Bacterial pneumonia
- Viral pneumonia
- Pneumocystis pneumonia
- Bronchiectasis and other diseases.

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.

Work with literature: "Tuberculosis in newborns. Breastfeeding in newborns with tuberculosis. Congenital tuberculosis".

2 hours

- Features of the pathogenesis and course of tuberculosis in newborns.
- Indications and features of breastfeeding of newborns with tuberculosis.
- Congenital tuberculosis.

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 5: Management of tuberculosis in children and adolescents. – WHO, 2022. – 264 p.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. – WHO, 2021. – 11 p.
3. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.
4. 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 class 8: «Differential diagnosis of disseminated forms of tuberculosis».

2 hours

- Differential diagnosis of disseminated forms of tuberculosis with:
- Oncological diseases
- Occupational diseases
- Sarcoidosis
- Connective tissue diseases

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.

Work with literature: "Complications of tuberculosis in children".

2 hours

- Complications of primary TB caused by mediastinal lymph node:
- atelectasis,
- bronchonodular fistula,

- TB bronchitis,
- lymphohematogenous dissemination, generalized tuberculosis,
- mediastinal or interlobar pleuritic
- Complications of primary TB caused by pulmonary component:
- costal or diafragmatic pleuritis,
- primary cavity,
- primary tuberculoma,
- primary caseous pneumonia

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 class 9: «Features of the treatment of tuberculosis in children».

2 hours

- Principles of tuberculosis treatment in children.
- Recommended doses and treatment regimens.
- Monitoring the effectiveness of treatment in children.
- Adherence to treatment in children.
- Pathogenetic methods of treatment in children.
- Monitoring the safety of treatment in children.

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 5: Management of tuberculosis in children and adolescents. – WHO, 2022. – 264 p.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. – WHO, 2021. – 11 p.

Work with literature: "Prevention of tuberculosis in children in the presence of contact with drug-resistant forms of the disease".

2 hours

- Methods of prevention of tuberculosis in children who had contact with patients with drug-resistant tuberculosis.
- Features of prevention of tuberculosis in children who had contact with patients with drug-resistant tuberculosis.

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 5: Management of tuberculosis in children and adolescents. – WHO, 2022. – 264 p.
2. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents. – WHO, 2021. – 11 p.
3. Tuberculosis. Practical guide for clinicians, nurses, laboratory technicians, medical auxiliaries. – WHO, 2013. – 298 p.

Key questions of the independent work class 10: «Differential diagnosis of pulmonary tuberculosis».

2 hours

- Differential diagnosis of pulmonary tuberculosis with bacterial pneumonia, pulmonary abscess, bronchiectasis, lung cancer, echinoccal cyst and other diseases.
- Application of the WHO diagnostic algorithms in the differential diagnosis of pulmonary tuberculosis.
- Differential diagnosis criteria.

Recommended reading for the class:

Basic literature:

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

Work with literature: "Volume and indications for additional studies in pulmonary tuberculosis: nasopharyngeal swabs, gastric lavage, bronchoscopy, biopsy of bronchi and lung tissue".

2 hours

- Volume and indications for additional studies in pulmonary tuberculosis:
- nasopharyngeal swabs,
- gastric lavage,

- bronchoscopy,
- biopsy of bronchi and lung tissue

Recommended reading for the class:

Basic literature:

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

Key questions of the independent work class 11: «Complications of pulmonary tuberculosis requiring urgent medical care: pulmonary hemoptysis and bleeding».

2 hours

- Pulmonary hemoptysis and bleeding, definition, causes and mechanisms. Classification.
- The clinical picture of pulmonary hemoptysis and bleeding.
- Diagnostics and differential diagnosis of pulmonary hemoptysis and bleeding.
- Emergency care for pulmonary hemorrhage at the prehospital and hospital stages.

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.

Work with literature: "Complications of pulmonary tuberculosis: pleural empyema, cor pulmonale, aspergillosis. Clinic, diagnostics, treatment".

2 hours

- Pleural empyema, cor pulmonale, aspergillosis, definition, causes and mechanisms. Classification.
- The clinical picture of pleural empyema, cor pulmonale, aspergillosis.
- Diagnostics and differential diagnosis of pleural empyema, cor pulmonale, aspergillosis.

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 class 12: «Complications of pulmonary tuberculosis requiring urgent medical care: spontaneous pneumothorax».

2 hours

- Spontaneous pneumothorax, definition, causes, development. Pathogenesis, classification.
- Clinic for various types of pneumothorax.
- Diagnostics of the closed, open and valve pneumothorax.
- Differential diagnosis of spontaneous pneumothorax.
- Emergency medical care at the prehospital stage.
- Providing emergency care at the hospital stage: passive drainage according to Belau, active drainage (three-ampoule system, water-jet pump).

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.

Work with literature: "Biopsy as a method for diagnosing tuberculosis".

2 hours

- Biopsy methods.
- Indications for permanent biopsy.
- Transbronchial puncture biopsy, features of the procedure.
- Biopsy of the pleura, features of the procedures.

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 class 13: «Differential diagnosis of tuberculous meningitis».
2 hours

- Differential diagnosis of tuberculous meningitis with:
- Syphilitic meningitis
- Viral meningitis
- Fungal diseases of the c.n.s.
- Oncological diseases of the c.n.s.
- Ischemic stroke and other diseases of the c.n.s.

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.

Work with literature: "Tuberculous polyserositis as one of the most severe forms of extrapulmonary tuberculosis".
2 hours

- Tuberculous polyserositis, definition, causes and pathogenesis. Classification.
- The clinical picture of tuberculous polyserositis.
- Diagnostics and differential diagnosis of tuberculous polyserositis.

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 class 14: «TB cases management to improve adherence to treatment».
2 hours

- Organization of anti-tuberculosis treatment.
- Management to prevent premature interruption and interruption of treatment.
- Staff selection.
- Personal problems of patients.

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.

Work with literature: "Rare localizations of extrapulmonary tuberculosis: tuberculosis of the skin, eyes, heart and large vessels, tongue, etc".
2 hours

- Tuberculosis of the skin, eyes, heart and large vessels, tongue, definition, causes and pathogenesis. Classification.
- The clinical picture of tuberculosis of the skin, eyes, heart and large vessels, tongue.
- Diagnostics and differential diagnosis of tuberculosis of the skin, eyes, heart and large vessels, tongue.

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 class 15: «Failed TB cases management and palliative care».
2 hours

- Management of tuberculosis cases with poor chemotherapy outcomes.

- Determination of an unfavorable outcome of treatment.
- Identification of probable drug resistance in case of treatment failure.
- Palliative care.

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.

Work with literature: "Prospects for the treatment of drug-resistant tuberculosis".

1 hour

- Prospects for the treatment of drug-resistant tuberculosis.
- New anti-tuberculosis drugs for the treatment of drug-resistant tuberculosis.
- New treatment regimens for drug-resistant tuberculosis.

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 class 16: «Lipoarabinomannan test (LAM test) for the diagnosis of tuberculosis in HIV-infected individuals».

2 hours

- Lipoarabinomannan test (LAM test) for the diagnosis of tuberculosis in HIV-infected persons, the essence of the method, the main advantages and disadvantages.

Recommended reading for the class:

Additional literature:

1. https://www.cochrane.org/CD011420/INFECTN_lateral-flow-urine-lipoarabinomannan-assay-detecting-active-tuberculosis-people-living-hiv

Work with literature: "Drug interactions of anti-tuberculosis drugs".

2 hours

- Types of drug interactions of anti-tuberculosis drugs. [6; 7]
- Side effects that develop as a result of drug interactions of anti-tuberculosis drugs. [6; 7]

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.
2. Guidelines for treatment of drug-susceptible tuberculosis and patients' care. – WHO, 2017. – 80 p.

Key questions of the independent work class 17: «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.

Work with literature: "Infection control of tuberculosis in the households".

2 hours

- Infection control measures for tuberculosis in households.
- Types of ventilation used in households.
- Types of UV lamps recommended for use in households.
- Personal protective measures against TB infection recommended for use households.

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 class 18: «Drug-resistant tuberculosis in people living with HIV».

2 hours

- Causes and consequences of co-infection with HIV and DR-TB.
- Typical, atypical clinical manifestations and diagnosis of DR-TB in PLWHA.
- Management of HIV (+) DR-TB patients.
- Combined treatment problems.
- The presence of other opportunistic diseases.

Recommended reading for the class:

Basic literature:

1. WHO operational handbook on tuberculosis. Module 4: Treatment. Drug resistant tuberculosis. – WHO, 2020. – 120 p.

Work with literature: "Differential diagnosis of tuberculosis and opportunistic infections in HIV-infected".

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.
- Pneumocystis pneumonia.

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 class 19: Work with literature: "Infection control in congregate settings".

2 hours

- Infection control in congregate settings: particularly in medical institutions.
- Types of ventilation used in crowded places.
- Types of UV lamps recommended for use in crowded places.
- Personal protective measures against TB infection recommended for use in crowded places.

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.