MINISTRY OF EDUCATION AND SCIENCE OF THE KYRGYZ REPUBLIC

Government-run Educational Institution of Higher Professional Education
Kyrgyz-Russian Slavic University named after B.N.Yeltcin

ENDORSED BY VICE RECTOR
Prof Anes Zarifyan
«__28__» «__02__» 2023 year

IMMUNOLOGY

Course Outline (Module)

Assigned to **Epidemiology and Immunology**
Academic Curriculum 560001_23_1LDi.pli.xml
560001 KR General Medicine (for foreign student)

Qualification specialist

Mode of Study **Intramural**
Total Credit Value **3 credit points**

Course Hours 108
including:
in-class learning 54
individual work 54

Scope of Testing Semesters:
exams
credits

Course Hours Scheduling (per semester)						
Semester Academic Year	1 (1.1)		2 (1.2)		Total	
Weeks	18,7		18			
Type of Traning	AC	CO	AC	CO	AC	CO
Lectures	18	18			18	18
Practical Session	36	36			36	36
Including Interactive Session	3	3			3	3
Total In-class Session	54	54			54	54
Face-to-face Learning	54	54			54	54
Individual Work	54	54			54	54
Total	108	108			108	108

The Course outline developed by:
PhD, MD, Associate Professor of the Department of Epidemiology and Immunology: Mainazarova E.S._____

Reviewers:
Doctor of Medical Sciences, Professor of the Department of Hygiene, Kyrgyz-Russian Slavic University named after B.N.Yeltcin, Kasymova R.O. _____

PhD, MD, Associate Professor of the Department of Microbiology, Virology and Immunology, Kyrgyz state medical academy named after I.K. Akhunbaev, Niyazalieva M.S._____

The Course Outline
EPIDEMIOLOGY AND IMMUNOLOGY

in accordance with Academic Curriculum:
Specialty 560001 – KR – General Medicine (for foreign students)
Confirmed by KRSU Board of Academics in 28.02.2023 y. record №7.

The Course Outline endorsed by Epidemiology and Immunology Department Meeting

Record of 20.02. 2023 г. №8
Valid for: 2023 – 27 academic years
The Head of Department of Epidemiology and immunology, professor Orozbekova B.T. _____

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
20 09 2024.
The course outline has been reserved, considered and endorsed for implementation
In 2024 – 2025 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ____ 2024. № 2
The Head of Department Orozbekova B.T., professor, DMS

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
30 09 2025.
The course outline has been reserved, considered and endorsed for implementation
In 2025 – 2026 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ____ 2025. № 2
The Head of Department Orozbekova B.T., professor, DMS

Approval of RPD for execution in the next academic year

Chairman of UMS
_____2026

The work program has been revised, discussed and approved for implementation in the 2026-2027 academic year at the department meeting

Minutes of ____2026 No. _
Head of the Department Head of the Department, Doctor of Medical Sciences, Prof. Orozbekova Bubusaira Tolobaevna

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Approval of RPD for execution in the next academic year

Chairman of UMS
_____2027

The work program has been revised, discussed and approved for implementation in the 2027-2028 academic year at the department meeting

Minutes of ____2027 No. _
Head of the Department Head of the Department, Doctor of Medical Sciences, Prof. Orozbekova Bubusaira Tolobaevna

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Approval of RPD for execution in the next academic year

Chairman of UMS
_____2028

1. COURSE OUTLINE OBJECTIVES
The course objective is to acquire the theoretical knowledge and practical skills epidemiology of infection diseases

2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM	
Educational Program Units:	
2.1	**Students' Preliminary Training Requirements:**
2.1.1.	Microbiology, virusology
2.1.2	Immunology
2.2	**Course Units and Practical Sessions imposing the prior Proficiency**

3. STUDENTS' COMPETENCIES RESULTING FROM THE COURCE UNIT (MODULE)	
PC-1: ability and readiness to implement a set of measures aimed at preserving and strengthening health and including the formation of a healthy lifestyle, preventing the occurrence and (or) spread of diseases, their early diagnosis, identifying the causes and conditions of their occurrence and development, and also aimed at eliminating harmful effects on human health of environmental factors	
Knowledge:	
Level 1	Causes, conditions and development of diseases, as well as elimination of harmful factors impact on human health
Level 2	Organization of a set of measures aimed at the preservation and promotion of health and elimination of harmful factors
Level 3	Principles of the organization and carrying out preventive and anti-epidemic actions at different groups of infectious diseases of bottom factors
Skills:	
Level 1	Identify the causes and conditions of communicable and non-communicable diseases
Level 2	To carry out a set of measures aimed at early detection of the causes and conditions of occurrence actual infectious diseases
Level 3	Make a plan of preventive and anti-epidemic measures in relation to specific infectious pathology taking into account the environment
Expertise:	
Level 1	A complex of measures to maintain a healthy lifestyle
Level 2	Make a plan of preventive and antiepidemic measures against specific infectious disease
Level 3	Assessment of the quality and effectiveness of preventive and anti-epidemic measures actual diseases
PC-3: ability and readiness to carry out anti-epidemic measures, organization of protection of the population in the centers of high dangerous infections, with a deterioration of the radiation situation, natural disasters and other emergency situations	
Knowledge:	
Level 1	The concept of particularly dangerous infections and emergencies (natural disasters), especially preventive and anti-epidemic measures
Level 2	Fundamentals of legislation on sanitary and epidemiological welfare of the population, the main official documents regulating the anti-epidemic service of the population at infectious and parasitic diseases, international health regulations, epidemiology infectious and parasitic diseases, implementation of anti-epidemic measures, protection population in the centers of particularly dangerous infections, natural disasters
Level 3	Epidemiological features of the separate nosological forms relating to especially dangerous infections, legislative documents regulating preventive and anti-pandemic measures in case of particularly dangerous infections, features of protection of state borders from importation of particularly dangerous infections
Skills:	
Level 1	To define an infection source, the mechanism, ways and factors of transfer of particularly dangerous infections
Level 2	Apply this knowledge to develop of the plan of preventive and anti-epidemic measures for protection of the population from the spread of infectious and mass non-infectious diseases in the emergency zone
Level 3	To organize preventive and anti-epidemic measures in case of the threat of and distribution of particularly dangerous infections on the regulated territory
Expertise:	
Level 1	Inspection of the epidemic center of particularly dangerous infections, definition of its spatial and temporary borders
Level 2	Prompt collection of information on morbidity and environmental and social objects, which can contribute to the spread of infectious and mass non - communicable diseases
Level 3	Analysis of completeness, quality and effectiveness of preventive and anti-epidemic events'
PC-16: willingness to educate on the elimination of risk factors and the formation of skills for a healthy lifestyle	

Knowledge:	
Level 1	Major factors of risk
Level 2	Riskfactors and skills to form a healthy lifestyle
Level 3	A complex of measures aimed at the preservation and promotion of health, the formation of healthy lifestyle and factors affecting human health
Skills:	
Level 1	To eliminate risk factors and to form skills of a healthy lifestyle
Level 2	To form and eliminate social risk factors affecting human health
Level 3	To estimate the quality of forming skills of healthy lifestyle and eliminate risk factors
Expertise:	
Level 1	Fundamental sofeducational activities
Level 2	Educational activities for formation of skills of a healthy lifestyle and elimination of risk factors on health of the person
Level 3	Educational activities for elimination of risk factors and skills of a healthy lifestyle

FinalStudents' Competences

3.1	**Knowledge:**
3.1.1.	purposes and problems of discipline;
3.1.2.	regularities of spread of infectious diseases among the population;
3.1.3	fundamental laws of development of epidemic process;
3.1.4	anti-epidemic and preventive actions for prevention and localization of the centers infectious diseases;
3.1.5	methods of the epidemiological analysis of infectious incidence;
	epidemiological features of infections of airways, digestive tract, blood and external covers and also antroponoz, zoonoz, and sapronoz;
3.1.7	Features of anti-epidemic providing the population at emergency situations and military time.
3.2	**Skills:**
3.2.1	to analyze infectious incidence for establishment "territories, time and the contingent risk" and identification of "risk factors";
3.2.2	to plan anti-epidemic actions in the centers of infectious diseases;
3.2.3.	to carry out sanitary - educational work among the population;
3.2.4	to estimate a sanitary and epidemiologic situation of the area at threat possible application bacteriological weapon and at emergency situations.
3.3	**Expertise:**
3.3.1	methods of epidemiological analysis of infectious diseases;
3.3.2.	system of measures for the prevention and control of infectious diseases;
3.3.3	ability to work with the population on the prevention of diseases and instilling sanitary - hygienic skills
3.3.4.	methods for assessing the epidemiological situation in the use of bacteriological weapons and emergency situation;
3.3.5	methods of carrying out anti-epidemic measures in the foci of infection.

4. COURSE (MODULE) STRUCTURE AND CONTENT							
Class Code	**Subject Name /Type of Class/**	**Semester / Academic Year**	**Hours**	**Competencies**	**Literature**	**Interactive Sessions**	**Notes**
	Section 1. General epidemiology						
1.1.	History of development and place of Epidemiology in modern structure of medical science. Structure and the maintenance of epidemiological method of research. Classification of infection diseases./Lec/	7	2				
1.2	Epidemiology as medical science and science about epidemic process. Role of the family doctor in carrying out preventive and epidemics actions. /Pr/	7	3				
1.3	Bases the doctrine about epidemic process. /Lec/	7	2				
1.4	Role of vaccination in struggle against	7	2				

	infectious diseases. Place and role of medical service in its realization./Lec /						
1.5	The active and passive immunoprophylaxis. /Pr/	7	3				
1.6	Organization of vaccination / Pr/	7	3				
1.7	Conception about disinfection, disinsection, deratization and sterilization. / Pr/	7	3				
1.8	Unit 1	7	2				
2.1	**Section 1. Private epidemiology**						
2.2	Epidemiological features of aerosol infections, system of epidemiological control. /Lec /	7	2				
2.3	Epidemiological features of intestinal infections, system of epidemiological control. /Lec /	7	2				
2.4	Epidemiological features of bloodborne infections group and infection of external covers, system of epidemiological control. /Lec /	7	2				
2.5	Epidemiological features of helminthiasis and zoonosis, system of epidemiological control. /Lec /	7	2				
2.6	Epidemiology and prophylaxis of aerosol vaccine-preventable infections (diphtheria, mumps, measles, rubella, flu ext.). / Pr/	7	3				
2.7	Epidemiology and prophylaxis of aerosol vaccine-no preventable infections (MM, scarlet fever, chicken pox ext.). / Pr/	7	3				
2.8	Epidemiology and prophylaxis of intestinal infections (typhoid fever, viral hepatitis A and E, salmonellosis, shigellosis, poliomyelitis ext.). / Pr/	7	6				
2.9	Unit 2/ Pr/		2				
2.10	Epidemiology and prophylaxis of helminthiasis (ascariasis, enterobiasis, echinococcosis. amebiasis) / Pr/	7	3				
2.11	Epidemiology and prophylaxis of zoonosis (rabies, anthrax, brucellosis). / Pr/	7	3				
2.12	Epidemiology and prophylaxis of AIDS and malaria. / Pr/	7	3				
2.13	Unit 3/ Pr/	7	2				
2.14	Epidemiology of chronic non-communicable diseases (Coronary heart disease, hypertension, rheumatic fever, cancers, obesity, blindness)	7	3				
	Section 3. Clinical epidemiology.						
3.1.	Epidemiologic methods. Descriptive Epidemiology. Analytical study. Experimental Epidemiology. /Lec /	7	2				
3.2	Clinical epidemiology. Effectiveness of treatment. Prevention in clinical practice. /Lec /	7	2				
3.3	Basic measurements in Epidemiology. Tools of measurement. / Pr/	7	2				
3.4	Epidemiologic methods. Descriptive Epidemiology. Distribution in time, place and person. / Pr/	7	2				
3.5	Analytical study. Case control study. Cohort study. / Pr/	7	2				

3.6	Experimental Epidemiology. Animal studies. Human experiments. Randomized controlled trials. Non-randomized trials. / Pr/	7	2				
3.7	Association and causation. Indirect association. Direct (causal) association. Investigation of an epidemic. / Pr/	7	2				
3.8	Clinical epidemiology. Definitions of normality and abnormality. Effectiveness of treatment. Prevention in clinical practice.Screening for disease / Pr/	7	2				
3.9	Diff. offset / Pr/	7	2				
3.10	Periods of development of epidemiology as medical science / Iw/	7	2				
3.11	Epidemiological analysis infectious incidence	7	2				
3.12	System of preventive and control measures in struggle against infectious diseases.	7	2				
3.13	The estimation of quality and efficiency of carried preventive actions/ Iw/	7	2				
3.14	Bases of epidemiological diagnostics and its value in fight infectious diseases. / Iw/	7	2				
3.15	Preventive use of vaccines and anatoxins /Iw//	7	2				
3.16	Preventive use of gamma globulins and immune serums /Iw/	7	2				
3.17	Disinfection mode in organizations of different profile/Iw/	7	2				
3.18	Nonspecific prevention infectious diseases/Iw/	7	2				
3.19	Epidemiology of antroponoz with fecal and oral mechanism transfers/Iw/	7	2				
3.20	Epidemiology of antroponoz with aerosol mechanism transfers/Iw/	7	2				
3.21	Epidemiology of zoonosis and sapronozis/Iw/	7	2				
3.22	The doctrine about epidemic process.Anti-epidemic measures/Iw/	7	2				
3.23	Epidemiology of HIV infection and parenteral virushepatitises/Iw/	7	2				
3.24	Epidemiological control for hospital infection/ Iw/	7	2				
3.25	Epidemiological control of parasitic disease/ Iw/	7	2				
3.26	Militaryepidemiology. Bioterrorism/Iw/	7	4				

5. ASSESSMENT FUND

5.1. AdvancementQuestionsandAssignments

Questions to check the level of training knowledge:

1. Definition of Epidemiology infectious diseases
2. Definition of Epidemiology noninfectious diseases
3. A subject of Epidemiology
4. Classification of infectious diseases

5. Definition of epidemic process
6. Three links of epidemic process.
7. Three units of epidemic process
8. Biological factor of epidemic process
9. Natural factor of epidemic process
10. Social factor of epidemic process
11. The epidemic focus
12. The natural focus
13. Antiepidemic actions
14. A role of the doctor in carrying out of preventive actions in the epidemic focus
15. Concept about epidemiological diagnostics.
16. Sections of epidemiological diagnostics
17. Extensive parameters of disease
18. Intensive parameters of disease
19. Ways of drawing up of graphic representations and diagrams
20. Studying disease in long-term dynamics
21. Studying disease in annual dynamics
22. Definition of a level and structure of disease
23. Immunity and its kinds, types of immunoprophylaxis
24. Active immunization, means of active immunization (a vaccine, toxoid)
25. Passive immunization, means of passive immunization (antibodies, wheys, bacteriophages, interferon)
26. Ways of immunization
27. Revaccination, its ways
28. Contra-indications to vaccination (relative and absolute)
29. Postvaccinal complications and reactions, their classification.
30. A calendar of obligatory preventive inoculations
31. A calendar of preventive inoculations on epidemic situations, indications.
32. The expanded immunization programme of WHO, periods, tasks.
33. The account of the population
34. Maintenance public health organizations with vaccinal preparations
35. Observance of a temperature mode of storage and transportation of vaccinal preparations
36. Forms of registration of inoculations
37. An estimation of efficiency immunoprophylaxis
38. Epidemiological supervision by immunoprophylaxis
39. Disinfection, kinds, ways
40. Classification of agents of disinfection
41. Forms of application of agents of disinfection
42. The basic requirements to agents of disinfection
43. Concept about disinsection, its kinds, ways
44. The characteristic insecticides
45. Requirements to insecticides
46. Forms of application of insecticides
47. Methods of biological disinsection
48. Deratization, kinds, ways
49. Rodenticydes, the characteristic and requirements
50. Sterilization. Clearing, methods, means and a mode. Quality assurance of presterilizing clearing.
51. The control of sterility of instruments
52. Epidemiological features of group of intestinal infections; - epidemiological characteristic of concretenozoforma (typhoid, shigelleza, viral hepatitis A, cholera), factors, mechanism of development and manifestation epidemic process; - content of epidemiological surveillance and system preventive and anti-epidemic actions.
53. Epidemiological features of group of drop infections; - epidemiological characteristic of concretenozoforma (diphtheria, flu, measles, whooping cough and other children's drop infections), factors, mechanism of development and manifestations of epidemic process; content of epidemiological surveillance and system preventive and anti-epidemic actions
54. Epidemiological features of group of infections with the contact mechanism of transfer; - epidemiologicalcharacteristic of a concrete nozoforma (VGV, S, D, HIV-infection), factors, mechanism of development and manifestation of the EDS; content of epidemiological surveillance and system of preventive and anti-epidemic actions.
55. Epidemiological features of group of drop infections; epidemiological characteristic of VBI, factors,mechanism of development and manifestation of epidemic process; content of epidemiological surveillance and system preventive and anti-epidemic actions.
56. Epidemiological features of group of helminthoses and protozoan infections; epidemiologicalcharacteristic of a concrete nozoforma (enterobiosis, ascariasis, toxocariasis, giardiasis, etc.), factors, development mechanism and manifestations; content of epidemiological surveillance and system preventive and anti-epidemic actions.

Tasks for checking the level of training "knowledge/skills/expertise":

1. to use in daily activity the instructive and methodical documents regulatingpreventive and anti-epidemic work;
2. own techniques of epidemiological diagnosis priority nozological forms and use of diagnostic results inpractical activity;
3. carry out primary preventive and anti-epidemic measures in the foci of the most commoninfectious disease;
4. to maintain the system of sanitary and anti-epidemic regime in hospitals of various profiles.
5. to apply an epidemiological approach to the study of the actual (infectious and non-infectious) pathology of children withthe purpose of its prevention;
6. to describe the incidence;
7. to find out the causes, mechanism of development and spread of diseases;
8. to predict the incidence of,
9. to evaluate the quality and effectiveness of therapeutic, preventive and anti-epidemic measures for the purpose of itspreventions.
10. ..to carry out primary activities in epidemic outbreaks
11. choose the right methods of disinfection and disinfectants, depending on the nature of the infection, the type of epidemic
12. focus, characteristics of the treated objects;
13. calculate the required amount of disinfectants;
14. carry out disinfection quality control;
15. choose the right sterilization methods depending on the characteristics of the material or object to be treated;
16. ..use specific drugs and technical equipment for sterilization;
17. ..carry out sterilization quality control.
18. make plans for preventive vaccinations;
19. organize vaccinations carried out according to epidemic indications;
20. calculate the number of IBP required for immunization of contingents;
21. fill in accounting documents and prepare quarterly and annual reports;
22. monitor the storage conditions of the IBP ("cold chain»);
23. to identify contraindications and to choose the tactics of immunization if available; - to evaluate adverse events,related to vaccination;
24. perform diagnostics, treatment, monitoring and investigation of air defense;
25. to arrange vaccinations in accordance with the results of seromonitoring;
26. to evaluate the cost-effectiveness of immunization.
27. to analyze the manifestations of the epidemic process of infections with the fecal-oral transmission mechanism;
28. plan a set of preventive measures and carry out primary activities in the hearth with fecalmechanism of transmission;
29. to analyze the manifestations of the epidemic process of infections with aerosol transmission mechanism;
30. plan a set of preventive measures and carry out primary measures in the hearth with aerosolmechanism of transmission;
31. to analyze the manifestations of the epidemic process of zoonotic infections;
32. plan a set of preventive measures and carry out primary activities in the focus of zoonoticinfections';
33. ..to analyze the manifestations of the epidemic process of hemocontact infections;
34. plan a set of preventive measures and carry out primary activities in the focus of hemocontactinfections';
35. to analyze the manifestations of the epidemic process of nosocomial infections;
36. plan a set of preventive measures and carry out primary activities in the hospitalinfections';
37. to analyze the manifestations of the epidemic process of parasitic diseases;
38. plan a set of preventive measures and carry out primary activities in the focus of parasitic diseases;
39. describe each of the specific groups of activities, including the use of bacteriological weapons by the enemy.

5.2. CoursePapersThemes

Course paper is not required for this discipline

5.3. AssessmentFund

The test (the list of test questions in appendix 2)

Questions of 1 module on epidemiology according to the section "General Epidemiology"

1) Definition of Epidemiology infectious diseases
2) Definition of Epidemiology noninfectious diseases
3) A subject of Epidemiology
4) Classification of infectious diseases
5) Definition of epidemic process
6) Three links of epidemic process.
7) Three units of epidemic process
8) Biological factor of epidemic process
9) Natural factor of epidemic process
10) Social factor of epidemic process
11) The epidemic focus
12) The natural focus
13) Antiepidemic actions
14) A role of the doctor in carrying out of preventive actions in the epidemic focus

15) Concept about epidemiological diagnostics.
16) Sections of epidemiological diagnostics
17) Extensive parameters of disease
18) Intensive parameters of disease
19) Ways of drawing up of graphic representations and diagrams
20) Studying disease in long-term dynamics
21) Studying disease in annual dynamics
22) Definition of a level and structure of disease
23) Immunity and its kinds, types of immunoprophylaxis
24) Active immunization, means of active immunization (a vaccine, toxoid)
25) Passive immunization, means of passive immunization (antibodies, whey's, bacteriophages, interferon)
26) Ways of immunization
27) Revaccination, its ways
28) Contra-indications to vaccination (relative and absolute)
29) Postvaccinal complications and reactions, their classification.
30) A calendar of obligatory preventive inoculations
31) A calendar of preventive inoculations on epidemic situations, indications.
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39) Disinfection, kinds, ways
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41) Forms of application of agents of disinfection
42) The basic requirements to agents of disinfection
43) Concept about disinsection, its kinds, ways
44) The characteristic insecticides
45) Requirements to insecticides
46) Forms of application of insecticides
47) Methods of biological disinsection
48) Deratization, kinds, ways
49) Rodenticydes, the characteristic and requirements
50) Sterilization. Clearing, methods, means and a mode. Quality assurance of presterilizing clearing.
51) The control of sterility of instruments

Questions of 2 and 3 module on epidemiology according to the section "Private Epidemiology"

Control questions:

1) A general characteristic of infections with the aerosol mechanism of transfer.
2) Structure and levels of disease of infections of the given group.
3) Classification of infectious diseases with the aerosol mechanism of transfer.
4) Sources of infections, the period of the greatest epidemiological danger of the patient for associates.
5) The mechanism and ways, factors of transfer.
6) Stages of realization of the aerosol mechanism of transfer.
7) The characteristic of long-term and annual dynamics of disease of the given group of an infection.
8) Antiepidemic actions directed on a source of infections and the mechanism of transfer;
9) Prevention of aerosol infections (general and specific).

10) Epidemiology and prevention of diphtheria.

- Definition of diphtheria.
- The microbiological characteristic of the infectious agent of a diphtheria (morphology serological variants, property of producing toxin, stability to adverse factors of an environment and agents of disinfection and their accumulation in laboratory conditions).
- Duration of the incubatory period and the period of the greatest epidemiological danger of the patient for associates.
- The recovering period, formation of carrier status the infectious agent.
- Intensity of postinfectious immunity.
- Features of display of epidemic process: prevalence of an infection
- Susceptibility of the population and seasonal display.
- Source of an infection, the mechanism, ways and factors of transfer of the infectious agent of an infection.
- The basic ways, factors of transfer of the infectious agent of an infection
- Actions in the epidemic focus: preventive measures concerning the patient, contact, mechanism of transfer.
- Isolation or hospitalization of the patient
- Establishment of quarantine, medical supervision for contact

- Carrying out дезинфекционных actions
- Prevention of diphtheria: general and specific prevention.
- Characteristic DPT vaccine, contra-indications to vaccination.

11. Epidemiology and prevention of whooping cough.

- Definition of whooping cough.
- The microbiological characteristic of the infectious agent (morphology, serovariants, stability to factors of an environment, ability of preservation and duplication on artificial nutrient mediums).
- Duration of the incubatory period and the period of the greatest epidemiological danger to associates.
- The period of recovering and formation of carrier status the infectious agent.
- Intensity of postinfectious immunity.
- Features of display of epidemic process (prevalence of an infection, a susceptibility of the population and seasonal displays).
- Sources of an infection; including the basic sources of an infection, the mechanism, ways and factors of transfer.
- Antiepidemic actions in the focus: concerning a source of an infection, the mechanism of transfer and factors of transfer of an infection
- Antiepidemic actions concerning contact persons: revealing, medical supervision over them, an establishment of quarantine action
- The organization and carrying out of vaccinal prevention and emergency prevention under epidemiological indications
- Specific prevention of whooping cough.

12. Epidemiology and prevention of a scarlet fever.

- Definition of a scarlet fever.
- The microbiological characteristic of the infectious agent.
- Duration of the incubatory period and the period of the most epidemiological danger of the patient for associates.
- The period of recovering, process of formation of carrier status the infectious agent.
- Intensity of postinfectious immunity.
- Features of display of epidemic process at a scarlet fever (prevalence, a susceptibility of the population, the characteristic of annual dynamics of disease).
- The sources of an infection conducting a source, epidemiological value of medical workers, пищевиков and children of younger age in distribution of an infection, seasonal display of epidemic process.
- The mechanism, ways and factors of transfer of an infection, the basic mechanism and a way of transfer of the infectious agent
- Preventive actions in the focus concerning a source of an infection, medical workers, and workers of children's establishments
- Preventive actions concerning contact persons: children visiting kinder garden and first two classes of school, the medical personnel working in obstetrical establishments and surgical branches, working in dairy and food manufacturers.
- Prevention of a scarlet fever.

13. Meningococcal infection (MI).

- Definition.
- The characteristic of the infectious agent (stability to antibiotics, to adverse factors of an environment, action of disinfectants serological landscape of infectious agents, including most frequently meeting serological variant, its sensitivity antibiotics)
- Duration of the incubatory period and the period of the greatest epidemiological danger of the patient.
- Postinfectious immunity and its intensity.
- Prevalence MI and forms of display of epidemic process among various age and professional groups of the population.
- Susceptibility of the population
- Features long-term and annual dynamics of MI.
- Sources of an infection.
- The mechanism and ways of transfer of an infection
- Features of the epidemic focus of MI, categories of the epidemic focus with different forms of infection, delimitation of the focus, an establishment of quarantine and its duration.
- Major factor of distribution of an infection
- Preventive measures in the focus of an infection.
- Antiepidemic actions concerning a source of an infection with located and generalized forms, indications to hospitalization and isolation of the patient, a condition of an extract of the patient from a hospital
- Antiepidemic actions concerning contact persons and a condition of their admission in children's collectives, term of medical supervision for contact in the epidemic focus
- General and specific prevention, category of persons subject to emergency prevention. Indications to vaccination, frequency rate of vaccination, the characteristic of vaccines.

14. A flu and ARD (acute respiratory diseases).

- Definition.
- The characteristic of the infectious agent to kinds, serological variants, a degree of virulence various serological variants, antigenic structure of the infectious agent, stability to adverse factors of an environment variability of the infectious agent)

- Duration of the incubatory period and the period of the greatest infectious the patient for associates.
- Intensity and kind of postinfectious process.
- Features of display of epidemic process (prevalence, a susceptibility among various groups of the population, seasonal display of epidemic process in annual dynamics of flu).
- Preventive measures in the focus (concerning sources of an infection revealing and isolation treatment)
- Antiepidemic actions concerning contact persons. An establishment of quarantine, carrying out disinfective actions in the epidemic focus.
- General and specific prevention of a flu and ARD (the characteristic of vaccines).

15. A general characteristic of intestinal infections.

- Structure and level of disease of intestinal infections.
- Classification of intestinal infections.
- Sources of infections, the mechanism, ways and factors of distribution of intestinal infections.
- Forms of display of epidemic process depending on factors of distribution (food, water and subjects of use).
- The measures directed on prevention of intestinal infections.
- The measures directed on struggle against intestinal infections.

16. A typhoid fever.

- Definition.
- The brief microbiological characteristic of the infectious agent (morphology, antigenic structure, serological types, the optimum conditions necessary for cultivation of the infectious agent in laboratory on artificial nutrient mediums, stability to factors of an environment, antibiotics, agents of disinfection). Laboratory diagnostics.
- Duration of the incubatory period of the greatest epidemiological danger of the patient for associates.
- The period of recovering and formation of carrier status the infectious agent.
- Types of carrier status and their epidemiological value in distribution of an infection.
- Intensity of postinfectious immunity.
- Laboratory diagnostics (the basic and auxiliary methods of research, materials of research for laboratory diagnostics)
- Prevalence of a typhoid fever (worldwide, the CAR and in KR), forms of display of epidemic process. Features of display of epidemic process depending on climatic and socially economic conditions, a level of sanitary culture of the population
- Susceptibility of the population to a typhoid fever (a contingent of risk).
- Preventive measures in the focus of infection:
- Source of an infection (revealing, isolation, diagnostics etc.). Conditions of an extract of the had been ill risk concerning to a contingent and the persons who are not concerning to this category;
- The mode of transmission. Contact persons (revealing, inspection, discharge from work and collective, conditions of the admission of this category of persons to work and collective).
- Preventive actions. The list of the general actions;
- Specific (a contingent subject to inoculations, the indication to vaccination the characteristic of vaccines)

17. Prevention of salmonellosis.

- Definition.
- Etiology. The microbiological characteristic of infectious agents.
- Duration of the incubatory period and the period of epidemiological danger of the patient for associates.
- Features of the recovering period. Formation and types of carrier status.
- Intensity of post infectious immunity.
- Prevalence of an infection in the countries of the world.
- Susceptibility of the population to salmonellosis.
- Feature of annual dynamics of disease.
- Features of display of a salmonellosis in conditions of city and a countryside
- The mechanism and ways of transfer of an infection.
- Features of food and water factors in distribution of salmonellosis.
- Modes of transmission of an infection
- Preventive actions in the focus of an infection and in conditions of village and city.
- Prevention of salmonellosis.

18. Classification of helminthiasis.

- Sources of invasion.
- Mechanisms and ways, factors of transfer of helminthiasis.
- Actions on decrease and prevention of helminthiasis.

19. Epidemiology and prevention of ascariasis.

- Definition.
- The characteristic of the infectious agent (type, the form, the size and development of helmints).
- Duration of the incubatory period and the period of the most epidemiological danger of the patient.
- Laboratory diagnostics.
- Prevalence of ascariasis.
- Sources of invasion, the mechanism, ways and factors of its transfer (a contingent of risk, time of risk and territory

of risk).
- Preventive actions in the focus of invasion.
- Prevention ofascariasis.

20 Epidemiology and prevention of echinococcosis
- Definition
- Etiology. The characteristic of the infectious agent
- Duration of the incubatory period. A role of an organism of the person in distribution of echinococcosis
- Diagnostics (laboratory)
- Prevalence of echinococcosis in KR
- Natural and synantropic the focus of echinococcosis
- Final and intermediate owners in whom there is a growth and development of helmints
- A place of localization ofhelmints in an organism of final and intermediate owners
- A susceptibility of the population. A contingent of risk
- The mechanism, ways and factors of transfer of the infectious agent
- Preventive actions

21. Epidemiology and prevention of enterobiosis
- Definition
- Etiology (type, the form, the size, life expectancy of the agent in an organism of the person, allocation of eggs, term of maturing and the optimum conditions necessary for eggs, stability to factors of an environment and agents of disinfection)
- Duration of the incubatory period
- Duration of the period of the patient for associates
- Laboratory diagnostics
- Prevalence of enterobiosis in KR
- A source of invasion. A susceptibility of the population (a contingent of risk)
- The mechanism and ways of transfer of enterobiosis. Antiepidemic actions in the focus (the notice about fallen ill, sanitary epidemiological inspection, improvement of the revealed patients, laboratory inspection)
- Preventive actions

22. Concept about zoo infections.
- Classification of zoonosis
- Structure, levels of disease of zoonosis in KR
- A role agricultural and pets in Epidemiology of zoonosis
- The basic ways of decrease of zoonosis
- Prevention of zoonosis (general and specific)

23. Epidemiological features and prevention of brucellosis.
- Definition.
- Etiology (morphological and serological variants, virulence infectious agents and their stability to factors of an environment)
- Duration of incubatory process (duration, the beginning of illness, a body - target)
- Laboratory diagnostics
- Prevalence in the world, the CAR, KR
- A susceptibility of the population (a contingent of risk)
- Seasonal display of epidemic process in conditions of city and countryside
- A source of an infection
- The basic sources
- Mechanisms of transfer
- The reasons unsuccessful epidemic situations in KR
- Antiepidemic actions in the focus
- Prevention brucellosis: communicating, specific (character of postvaccinal immunity)
- Prophylactic medical examination had been ill

23. Epidemiological features and prevention of the anthrax
- Definition.
- Etiology (vegetative both sporous forms of the infectious agent and mechanisms,
- Conditions of their formation, stability to factors of an environment, duration of preservation in an environment, virulence of the infectious agent).
- Pathogenesis (an entrance gate, process of formation of pathological changes at introduction of the infectious agent of the sporous form, the factors causing pathological process).
- Duration of the incubatory period and epidemiological danger of animals and the person.
- Intensity of postinfectious immunity. Laboratory diagnostics.
- Prevalence of the anthrax (in the countries of the world, the CAR, KR).
- A susceptibility of the population (a contingent of risk); seasonal prevalence.

- Epidemiological value of the soil focus. Classification of the soil focus.
- Sources of infections. Value of the person - as source of an infection.
- Mechanisms, ways, factors of infection of the person and animals.
- Types of disease (depending on a condition of infection).
- Antiepidemic actions in the attitude: the patient skin, lung and intestinal forms; the mechanism of transfer.
- Preventive actions: the general and specific (vaccination, emergency prevention), the characteristic of vaccines.

24. Epidemiological features and prevention of furiousness

- Definition.
- Etiology. The infectious agent, kinds of the infectious agent their pathogenicity, stability to factors of an environment.
- Localization of infectious process, allocation of the infectious agent from an organism of a source and the sick person.
- Duration of the incubatory period. The epidemiological importance of the person for associates.
- The periods of illness and an outcome.
- Prevalence (in the countries of the world, the CAR, KR).
- Types of epidemic focus.
- A susceptibility of the population (a contingent of risk).
- Mechanisms, ways of transfer of infections.
- Antiepidemic actions in the attitude: the missed person (rendering of the first medical aid, supervision); the mechanism of transfer.
- Prevention. General (veterinary) and specific (medical) vaccination, kinds of vaccines, ways of vaccination; emergency prevention.

25. Epidemiological features and prevention of a malaria and AIDS.

- Definition.
- Etiology. The agent, kinds of the infectious agent their pathogenicity, stability to factors of an environment.
- Localization of infectious process, allocation of the infectious agent from an organism of a source and the sick person.
- Duration of the incubatory period. The epidemiological importance of the person for associates.
- The periods of illness and an outcome.
- Prevalence (in the countries of the world, the CAR, KR).
- A susceptibility of the population (a contingent of risk).
- Mechanisms, ways of transfer of infections.
- Antiepidemic actions in the attitude: the patient and contact persons; the mechanism of transfer.
- Prevention. Nonspecific and specific (medical).

Credit - class

5.4. ListofAssessmentTools

Module
Frontal poll in the form of the test
Graded credit.
(Estimation scales by all types of estimated means in appendix 3)

6. COURSE (MODULE) METHODOLOGICAL AND INFORMATIONAL SUPPORT

6.1 RecommendedReading

6.1.1 RequiredReadingList

	Authors, Compliers	Title	Bookpublisher, Year

6.1.2 AdvancedReading

	Authors, Compliers	Title	Bookpublisher, Year

6.1.3 GuidancePapers

	Authors, Compliers	Title	Bookpublisher, Year

6.2 OnlineResources

6.3. List of Information and Education Technologies

6.3.1 Competence-basedEducationalTechnologies

6.3.3.1. Traditional educational technologies are lectures, a practical training, and consultations, focused on the message of knowledge imparted to students in finished form.

6.3.3.2. Innovative educational technology classes in an interactive form, what form of system thinking and the ability to generate ideas in solving various problems. These include electronic texts of lectures with presentations.

6.3.3.3. Information educational technologies - independent use by the student computer equipment and Internet resources for practical tasks and independent work.
6.3.2 List of Information Reference Systems and Software
6.3.2.1.http://meduniver.com/Medical/Book/28.html

7. COURSE (MODULE) LOGISTICS
7.1. The department is located on the territory of the Ilbirs LLC - address: Bishkek, 77 Kievskaya St.,
7.2. Classroom №1 for 24 seats, for practical training, individual work (multimedia, video, visual aids - stands, board, sets of tables and diagrams).
7.3. Classroom №.2 for 24 seats, for practical training, individual work and viewing multimedia, video materials, visual aids - stands, board, sets of tables and diagrams).
7.4. Classroom №3 (small lecture hall) for 50 seats, for conducting practical exercises and individual work (multimedia, video materials, visual aids - stands, board, sets of slides, tables, multimedia visual materials on various sections of the discipline).
7.5. Classroom №4 for 12 seats for practical training.
7.6. Classroom №5 for 12 seats, for practical training.
7.7. Information sources: - library - 80 copies;
7.8. Computer
7.9. Projector
7.10. Printer
7.11. Scanner
7.11. Netbook

8. COURSE (MODULE) PROFICIENCY METHODICAL GLUIDELINES (FOR STUDENT)
Discipline planning sheet (appendix 3). Recommendations about use of RPD: - RPD materials course guidelines contains all main tendencies of the current state of of epidemiology issues; - when studying a subject concepts of epidemiology fundamentals discussins of the main approaches of some problems of public health care; - a practical part of a subject is based on the of situational tasks, determination of of self-testing results, analysis of infectious incidence, studying of standard and directive documentation. Recommendations to study the discipline: - 1 section "General Epidemiology" studying of the main laws of development epidemic is necessary process, planning and holding anti-epidemic and preventive actions for prevention andlocalizations of the centers of infectious diseases; - 2 sections "Private Epidemiology" are necessary development of epidemiological features separate relevant infectious diseases and bases of epidemiological surveillance behind them; - The 3rd section "Military Epidemiology" studying of features of anti-epidemic providing the population is necessaryat emergency situations and wartime. Recommendations regarding work with the educational materials / readings: - large number of publications on epidemiology issues are available on the website -www.epidemiolog.ru. Testing: - test questions reflect a basic course of a subject; - represent subject material fixing. Recommendations for discussion on some epidemiology problems: - the teacher and students express their opinion regarding the main problematic and debatable issues. The teacher and students express their opinion on the most critical issues directed to population epidemiological wellbeing. Recommendations to the solution of situational tasks: - the situational tasks prepared on all subjects of discipline; - at the solution of situational tasks the student has to seize theoretical knowledge of a subject and logical thinking. Recommendations to the work with the test system of disciplines: - tests are made on modular questions; - 5 answer available for each question, one of them is true/correct. Recommendations to the prepare for to graded credit: - it is recommended to refer to the set of discipline questions ; - if the assessment is positive.

ANNEX 1

PROBLEM №1

In chamber branch disinfection stations have arrived things from the focus typhoid fever and epidemic typhus. In branch there is Krupin's steam chamber, hot-air and steam-formalin chambers.

It is required to specify:

In what chamber it is possible to carry out disinfection of things from those and other focus?

What should be a mode and the operating procedure of the chamber?

To describe the device of the chosen chamber.

PROBLEM №2

At check of preparations, there were frozen 200 dozes vaccines against plaque, 60 ml. Ig, 50 ml of a chemical vaccine and 20 ampoules with vaccine BCG. How to use these vaccines?

a - to destroy all preparations as lost the validity.

b - to resolve application of all preparations.

c - to resolve selectively use of separate preparations.

PROBLEM №3

In the beginning of the working day the medical assistant of a health focus has opened and has dissolved an ampoule (20 dozes) measles and a bottle polio vaccines. Within 6 hours on an inoculation against reproach also a poliomyelitis were on 10 person. How to act with the dissolved vaccine?

a - to keep it in a refrigerator till next day.

b - to destroy.

PROBLEM №4

At check of intensity of immunity at school №15 (1000 person) by reaction of straight hemagglutination it is revealed: seronegative - 110 person, antibodies against measles virus 1:10 - 1:20 - 260, 1:40 and 630 person with higher parameters.

1) Whether probably distribution reproach in case of its drift in the given collective? The answer prove.

2) Give the recommendation on increase of collective immunity among schoolboys.

3) What laboratory methods of an estimation of efficiency of the carried out actions are expedient for carrying out, and in what terms?

PROBLEM №5

On reception in Center of family medicine 12.XII.05г.the doctor has diagnosed "laryngotracheitis" the boy 9 years old which coughs within 7-8 days. The boy is released from employment for 3 days, thermal procedures are appointed. On December, 15 at repeated visiting a polyclinic at the child it is marked fit of cough with reddening the person. The diagnosis is «Whooping cough». It is released from employment up to 25. XII.05г. The boy has vaccinated and revaccinated by the DPT-vaccine.

At epidemiological inspection of school, that patients with whooping cough it is not registered, however in a class where studies the boy, diseases with long cough are marked from the end of October.

At the moment of inspection in group three children coughed. The family of the patient lives in a separate apartment, mother the medical sister of a kindergarden. The sister of 6 years visits the same kinder garden. At the moment of inspection she is healthy, vaccinated and revaccinated the DPT-vaccine, last inoculation was 4 years ago.

Specify: 1) whether all is correctly made by the family doctor at an establishment of the diagnosis;

2) Possible source of an infection;

3) What actions still are necessary for carrying out?

PROBLEM №6

In trauma department is delivered the boy of 13 years bitten by the wolf in area of a head and the bottom jaw. The boy has been hospitalized in infectious hospital. Introduced Ig against rabies on 0,25 ml / kg and 3 booster doses for 10, 20, 35 day.

At epizootological-epidemiological inspection it is established, that the same day the wolf has been killed by shepherds, it have skinned, have cut off paws, have withdrawn from the wolf a gallbladder and teeth, and the everything else have thrown out. The father of the boy, the head of the wolf has been delivered for laboratory inspection. At carrying out of laboratory inspection of a brain of the wolf are found out Babeshi-Negri's bodies.

1) Whether define the rate of antirabic treatment is correctly appointed.

2) Make the plan of the further work of the epidemiologist in the focus.

PROBLEM №7

The doctor caused to the patient of 5 years, has established the diagnosis of a scarlet fever on April, 5. The boy visits a kindergarden. Last visiting on April, 4. This day by the evening he has been transferred in isolator in connection with rise in temperature up to 38,5ºC and vomiting. In group of 18 children, 5 from them earlier were sick a scarlet fever, and within last 2 months of infectious diseases it was not marked. On April, 5 it is established, that 3 days prior to disease of the boy in group after 5-day's absence concerning quinsy other child has come back. The sister of the patient, 8 years, a scarlet fever was not sick. Mother is the midwife of a maternity hospital, father - the driver. At flatmates children 3 and 6 years visiting kinder garden, were not suffer from a scarlet fever.

Specify: 1) Possible source of an infection;
2) What actions are necessary for carrying out?

PROBLEM №8

At the operated patient in surgical branch the case of a virus hepatites B. The patient of 5 years old is registered, there were in branch 24 days during which he received blood transfusion twice, once native plasma. Donors are known. Three months ago was on treatment in therapeutic branch of same hospital.

1) Define where he was infected with a virus hepatites B? The answer prove.
2) Define actions on liquidation of the focus of a virus hepatites in a surgical hospital.

PROBLEM №9

At night November 20, 21 in 3 daily groups of kindergarden 8 children - were ill. Complaints: pains in a stomach, an often chair with slime, high temperature (37, 9-38, 7ºC) at two children were marked spasms. The doctor has diagnosed "dysentery". Children are hospitalized. To evening of November 21 in the same groups 15 more patients have been revealed. 22.11. 9 more children, 23.11, 24.11 - on 3 children were ill. To all children have diagnosed "dysentery"; at the majority fallen ill dysenteric bacteria Sonnei have been allocated.

1) Define character of group disease
2) Make the plan of investigation of the reasons of flash and organize antiepidemic actions on its liquidation.

PROBLEM №10.

At the girl of 6 years old who are not visiting kindergarden, the diagnosis a scarlet fever it is established in first day of illness. Her brother, 1 year of 6 months a scarlet fever not ill, does not visit kindergarden. Mother does not work. The father - engineer. In family of flatmates at the schoolgirl of first class the peeling on palms is revealed.
What measures on liquidation of the focus?

PROBLEM №11.

In group kindergarden revealed case of sick scarlet fever. The group is completely isolated from other groups, totals 18 children. At survey 2 more patients (at one quinsy, at another an otitis) are revealed. In connection with detection in group of the patient with hepatites A of 15 days ago all children enters immunoglobulin.
Define actions on liquidation of the created situation.

PROBLEM №12

In trauma branch 2 persons were. One of them has a superficial sting of the right shin. Damages are put by a neighbour's dog. The dog is adhered and healthy. At the forearm second a laceration, put by the wolf.

1) To define necessity of purpose antirabic inoculations.
2) The scheme of its carrying out.
3) What preparations are necessary for using?

PROBLEM №9.

At inspection of a kindergarden on enterobiosis it is revealed infection 37 % of children. Eggs of worms from washouts of pots, hands of children and toys are found.

1) List actions on liquidation of the focus of enterobiosis in kindergarden.
2) Specify methods of inspection on enterobiosis, a contingent subject to inspection.

PROBLEM №10.

The pediatrist has diagnosed a virus hepatites to the girl of 4 years old which are not visiting kindergarden. The family occupies a room in a hostel with hall system. Water from kolodes, a toilet in outside. In family of 4 persons: mother - the worker of a dining room, father - the mechanic, the sister - the factory worker, now in a maternity leave, the husband of the sister - техник. In other 5 rooms, 12 more adults and 6 children from 2 till 9 years old live. Three of them visit a kindergarden where on contact to the patient with measles they one and a half months ago were inoculated by immunoglobulin. How carry out necessary antiepidemic actions.

PROBLEM №11

At the pensioner 65 years old (December, 3, 2005) the diagnosis: Virus hepatites B. Since, June, 21 – July, 22, 2004 the patient was treated in trauma branch where repeatedly received donor’s blood. Water supply centralized. In family 6 persons.

What infringements antiepidemic mode could lead to infection with a virus hepatites of B?

PROBLEM №12

To the teenager of 14 years, 10.02.05 on the basis of the clinical data the diagnosis has been put: Virus hepatites B. He is schoolboy. 26.09.04 it addressed in a stomatologic polyclinic where to him have removed a tooth with anesthesia

At check by Center of sanitary epidemiological supervision of this stomatologic polyclinic infringements in rules of sterilizing of instruments have been revealed. Boy lives in a separate apartment with parents. Mother is the engineer. Father is the worker. Carry out necessary antiepidemic actions and give instruction to stomatologic polyclinic on elimination of infringements of sterilization of medical instruments.

PROBLEM №13

On November, 17 in a kindergarden at the child (Sasha, 3 years) was unitary vomiting, the temperature has raised up to 37,5ºС. According to mother, the child is not absolutely healthy with 15.11.05, but continued to visit a kindergarden. 21.11.05 the doctor the pediatrist diagnosed a virus hepatites. The kindergarden is located in a typical room, groups are isolated. In group of 20 children. Family of Sasha lives in a separate apartment. Mother with 12.11.05 up to 22.11.05 was at home concerning disease of respiratory ways. Specify a possible source of an infection and carry out necessary antiepidemic actions.

PROBLEM №14

On the natural focus of a plague, the doctor at visiting cattle breeders in one of yurt has found out the patient which suspected disease by a plague. In family 4 persons (2 adults, 2 children). During visiting the doctor in yurt there was mother of the patient.

1) Make the plan of primary actions which the doctor should carry out.
2) State reasons about circumstances of infection.
3) Make the plan antiepidemic actions in the focus.

PROBLEM №15

7 cases of acute intestinal disease have been registered in one of groups of kinder garden during September. The first (3.09) the child who has come to group 1.09 was ill, having returned after rest with parents. At the child the liquid stool has appeared, and in a children's polyclinic have diagnosed "gastroenteritis". The following diseases have arisen in group 7.09, 3.09, 12.09, 13.09, 15.09, 17.09. Fallen ill children have sent on houses. In a polyclinic have put them diagnoses “enteritis”, “toxicoinfection”, “gastroenteritis”.In two cases have diagnosed ARD. Any other actions in group did not carry out.

1) Give the analysis to flash.
2) Estimate validity of the put diagnoses.
3) Carry out antiepidemic actions.

PROBLEM №16

In the plane of flight Deli - Bishkek 2 passengers were ill. There was a suspicion on a cholera that has been transferred to airport "Manas ".

What also organize actions among passengers of this plane?
What document regulates measures under the prevention of drift and distribution of cholera in republic?
What measures are necessary for accepting in relation to patients with cholera and contacting?
What measures are carried out on break of ways of transfer of the infectious agent?

PROBLEM №17

On October, 5 in average group of kinder garden it is revealed by sick scarlet fever Peter.

From September, 20 till September, 24, 2005 in group was absent Tom.

A kinder garden are placed in specially built building, all groups are completely isolated.

Mother of the sick child works in children's dairy kitchen, the brother of 4 years old visits to kinder garden and doesn’t ill scarlet fever. Lead all necessary preventive actions.

ANNEX 2

1. **The immunizing agents classified as:**
a) Ig M, IgG, IgE, IgD, IgA
b) killed live attenuated vaccines
c) normal & specific human Ig
d) vaccines, Ig& antisera
e) natural killer lymphocytes, lysozime, phagocytes

2. **The transmission of infection agent through some agency:**
a) vector – borne
b) air - borne
c) vehicle – borne
d) fomite – borne
e) biological transmission

3. **EPIDEMIOLOGY is:**
a) study of distribution & determinants of health related states & events in specified population & application of this study to the control of health problems
b) study of distribution & determinants of health related states & events animals & application of this study to the control of health problems
c) study about immunization, immunizing agents, types of immunity & causes of failure of vaccination
d) study about relation between disease & social conditions
e) a scientific field that death with the collection, classification, description, analysis, interpretation & presentation of data

4. **The reservoir of influenza:**
a) man
b) swine
c) horses
d) birds
e) all

5. **Toxoids are produces for:**
a) active immunization
b) passive immunization
c) innate immunization
d) antisera immunization
e) herd immunization

6. **Immunity by transfer of maternal antibodies across the placenta is:**
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity
e) transplacental

7. **Major Ig of serum, comprising about 75% of total serum Ig:**
a) Ig M
b) IgG
c) IgE
d) IgD
e) IgA

8. **Equipment that does not penetrate the skin or sterile areas of the body but is in contact with intact mucous membranes or non – intact skin:**
a) low risk
b) high risk
c) intermediate risk

9. Chemical agent of disinfection:

a) 2% glutaraldehyde, 6% hydrogen peroxide, 0.3% per acetic acid
b) moist heat, hot water
c) 0.5% diazinon, 2% dimehoate, 1% runnel
d) 2.5% chlordane, 0.5% lindane
e) malathion&fenitrothion

10. DDT, dieldrin, methoxychlor are:

a) organochlorine compounds
b) organophosphorous compounds
c) carbamates
d) residual sprays
e) space sprays

11. Direct transmission of infectious agent possible by ways:

a) contact with soil, bite of animal, droplet infection, transplacental
b) via food, water, blood & organs
c) by handkerchief, glass, spoon, googlesect.
d) unclean hands & fingers
e) biological or mechanical vector, dust

12. The unusual occurrence of a disease in a population in excess of its expeted frequency & if disease is not prevalent then presence of at least two cases of that disease at same place is called:

a) pandemic
b) epidemic
c) endemic
d) sporadic
e) exotic

13. The host in which sexual cycle of agent occurs:

a) intermediate host
b) definite host
c) source of infection
d) carrier
e) patient

14. The immunizing agents classified as:

a) Ig M, IgG, IgE, IgD, IgA
b) killed live attenuated vaccines
c) normal & specific human Ig
d) vaccines, Ig& antisera
e) natural killer lymphocytes, lysozime, phagocytes

15. Ig which responsible for immediate allergic anaphylactic reaction:

a) Ig M
b) IgG
c) IgE
d) IgD
e) IgA

16. Items that penetrate sterile tissues, including body cavities and the vascular system, e.g. surgical instruments, intra – uterine devices, vascular catheters:

d) low risk
e) high risk
f) intermediate risk

17. The dependable, non toxic, inexpensive, sporicidal, with rapid heating and good penetration of fabrics method is:

a) ethylene oxide gas
b) chemical disinfection
c) high – level disinfection
d) steam sterilization
e) thermal disinfection

18. Fleas control measures:
a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, repellents, rodent control

19. Transmission of arthropod – borne diseases:
a) direct contact
b) mechanical
c) biological
d) all correct
e) all non – correct

20. If non – living thing is reservoir, disease called:
a) anthroponozis
b) zoonozis
c) sapronosis

21. Types of reservoir:
a) human being, animal & non living
b) obligative, definitive & intermediate
c) zoonozis, anthroponozis, sapronosis
d) endemic, pandemic, sporadic & vector
e) clinical & subclinical

22. When preformed antibodies in one body (human or animal) are transferred to another it produced:
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity
e) antitoxin immunity

23. Cleaning is a process:
a) that reduces the number of pathogenic microorganisms
b) that removes foreign material (e.g. soil, organic material, microorganisms from an objects)
c) that destroys all microorganisms including bacterial spores
d) that kills larvae & pupae within short period of time
e) that reduces the number of non - of pathogenic microorganisms

24. To kill Mycobacterium tuberculosis is often used:
a) sterilization
b) disinsection
c) deratization
d) high – level disinfection
e) cleaning

25. The thermal & chemical are methods of:
a) sterilization
b) disinfection
c) disinsection
d) cleaning

e) deratization

26. The mechanical vector is:
a) when arthropods acts only as a passive carrier of the disease agents
b) arthropod can cause hypersensitive due to bites, stings, hairs ect.
c) when the pathogenic depend on them for completing their cycle within the body of arthropods
d) when animals acts only as a passive carrier of the disease agents
e) when the arthropods depend on them for completing their cycle within the body of man

27. Sand flies control measures:
a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, sanitation

28. Insecticides classified into types:
a) defensive, offensive
b) contact poisons, stomach poisons, fumigants
c) residual sprays, space sprays, pyrethrum extract
d) larvicides, repellents, disinfectant, baits
e) fly papers, cords, ribbons

29. Live attenuated vaccines:
a) typhoid, cholera, pertussis
b) measles, poliomyelitis
c) rubella, measles, mumps
d) yellow fever, tuberculosis
e) anthrax, brucellosis

30. Most dangerous carriers are:
a) incubatory carrier
b) convalescent carrier
c) chronic carrier
d) healthy carrier
e) temporary carrier

31. The host in which sexual cycle of agent occurs:
a) intermediate host
b) definite host
c) source of infection
d) carrier
e) patient

32. Type of Ig has high agglutinating & complement fixing ability:
a) Ig M
b) IgG
c) IgE
d) IgD
e) IgA

33. Cleaning methods are:
a) by hot water
b) by lower temperature
c) thermal, chemical
d) manual, environmental
e) high, intermediate, low

34. The methods which preferred for reusable glass syringes & ointments, powders, oils ect. is:
a) dry heat
b) moist heat
c) boiling
d) autoclaving
e) ethylene oxide gas

35. Anti - adult measures:
a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) disinfection, sterilization

36. The anti – larval insecticides are:
a) mineral oils, Paris green, synthetic insecticides
b) residual sprays, space sprays, genetic control
c) DDT, malathion, propoxur
d) solid or liquid baits
e) fumigants & repellents

37. Pandemic –
a) is a diseases spread over a very large geographical area & effects a major portion of world
b) the habitual occurrence of a disease in population
c) cases occur irregularly, haphazardly from time to time & generally infrequent
d) infection diseases primarily of animals, transmissible to human beings under natural conditions
e) transmissible from one generation to other generation by genetic code

38. Types of acquired immunity:
a) innate immunity
b) herd immunity
c) specific & non – specific immunity
d) active, passive immunity
e) antitoxin, antisera immunity

39. Duration of protection is long lasting, severe reactions are rare, cheaper and efficacy approaches 100%:
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity
e) immediate allergic reaction

40. Normal human Ig are used for:
a) post – exposure prophylaxis of Hepatitis B, rabies, tetanus
b) temporary protection against hepatitis A for travelers to endemic areas
c) against gas gangrene, tuberculosis, measles, mumps
d) rubella, yellow fever
e) pertussis, brucellosis

41. Can be contaminated soil, faeces, urine, contaminated food, milk, water a source of infection:
a) yes
b) no

41. The mode of transmission of tick – borne relapsing fever:
a) vector – borne
b) air - borne
c) faeco - oral route
d) fomite – borne

e) direct contact

43. An immunobiological substance designed to produce resistance against a specific disease:

a) immunoglobulin's
b) antisera
c) antoibodies
d) vaccines
e) exotoxin

44. Type of Ig has high agglutinating & complement fixing ability:

a) Ig M
b) IgG
c) IgE
d) IgD
e) IgA

45. Killed vaccines are:

a) typhoid, cholera, pertussis
b) measles, poliomyelitis
c) rubella, measles, mumps
d) yellow fever, tuberculosis
e) anthrax, brucellosis

46. Environmental control of anti - adult measures is:

a) eliminate their breeding places i.e. source eradication
b) using small fishes (Gambusiaaffinits, Lebisterretieulatus)
c) using chemical larvivides
d) screening of houses, hospitals, food markets, restaurants
e) disinfection & sterilization

47. Anti – adults insecticides are:

a) mineral oils, Paris green, synthetic insecticides
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) DDT, malathion, propoxur
d) solid or liquid baits
e) fumigants & repellents

48. Fly control insecticides are:

a) mineral oils, Paris green, synthetic insecticides
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) malathion, propoxur
d) DDT, 0.5% lindane, 2.5% chlordane
e) fumigants & repellents

49. The Paris green & sodium fluoride are:

a) contact poisons
b) stomach poisons
c) fumigants
d) residual sprays
e) space sprays

50. Pyrethrum, DDT are:

a) contact poisons
b) stomach poisons
c) fumigants
d) residual sprays
e) space sprays

51. EPIDEMIOLOGY is:

a) the study of man & his environment
b) study of health, health behavior & medical institution
c) study of the physical, social & cultural history of man
d) study about acute communicable diseases have been brought under control & good medical care is available to more people than ever before
e) the study of the distribution & determinants of health related states or events in specified population & the application of this study to the control of health problems

52. Normal human Igare used for:

a) typhoid, measles
b) rubella, yellow fever
c) tetanus, diphtheria, gas gangrene, botulism, snake bite
d) tuberculosis, polyomielitis
e) Hepatitis B, mumps

53. Disinfection is a process:

a) that reduces the number of pathogenic microorganisms
b) that removes foreign material (e.g. soil, organic material, microorganisms from an objects)
c) that destroys all microorganisms including bacterial spores
d) that kills larvae & pupae within short period of time
e) that reduces the number of non - of pathogenic microorganisms

54. Sterilization is a process:

a) that reduces the number of pathogenic microorganisms
b) that removes foreign material (e.g. soil, organic material, microorganisms from an objects)
c) that destroys all microorganisms including bacterial spores
d) that kills larvae & pupae within short period of time
e) that reduces the number of non - of pathogenic microorganisms

55. Elimination of reservoir is not possible in:

a) anthroponozis
b) zoonozis
c) sapronosis

56. It is substance which when introduced into body stimulates specific immune response:
a) haptens
b) antibody
c) antigen
d) phagocytus
e) polypeptide

57. For heat – labile equipments using:
a) disinfection by hot water
b) disinfection at lower temperature
c) chemical method
d) moist heat
e) autoclaving

58. The larvicides are:

a) 2% glutaraldehyde, 6% hydrogen peroxide, 0.3% per acetic acid
b) moist heat, hot water

c) 0.5% diazinon, 2% dimehoate, 1% runnel
d) 2.5% chlordane, 0.5% lindane
e) malathion&fenitrothion

59. Equipment that does not penetrate the skin or sterile areas of the body but is in contact with intact mucous membranes or non – intact skin:

a) low risk
b) high risk
c) intermediate risk

60. Biological vector is:

a) when arthropods acts only as a passive carrier of the disease agents
b) arthropod can cause hypersensitive due to bites, stings, hairs ect.
c) when the pathogenic depend on them for completing their cycle within the body of arthropods
d) when animals acts only as a passive carrier of the disease agents
e) when the arthropods depend on them for completing their cycle within the body of man

61. The host in which sexual cycle of agent occurs:

a) intermediate host
b) definite host
c) source of infection
d) carrier
e) patient

62.The methods which preferred for reusable glass syringes & ointments, powders, oils ect. is:

a) dry heat
b) moist heat
c) boiling
d) autoclaving
e) ethylene oxide gas

63. Anti - adult measures:

a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) disinfection, sterilization

64. The anti – adults insecticides are:

a) mineral oils, Paris green, synthetic insecticides
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) DDT, malathion, propoxur
d) solid or liquid baits
e) fumigants & repellents

65. Type of Ig has high agglutinating & complement fixing ability:

a) Ig M
b) IgG
c) IgE
d) IgD
e) IgA

66. EPIDEMIOLOGY is:

a) the study of man & his environment

b) study of health, health behavior & medical institution
c) study of the physical, social & cultural history of man
d) study about acute communicable diseases have been brought under control & good medical care is available to more people than ever before
e) the study of the distribution & determinants of health related states or events in specified population & the application of this study to the control of health problems

67. If non – living is reservoir, disease called:

a) anthroponozis
b) zoonozis
c) sapronosis

68. Non – susceptibility to a given disease or a given organism:

a) tolerance
b) immunity
c) resistance
d) susceptibility
e) responsibility

69. The immunizing agents classified as:

a) Ig M, IgG, IgE, IgD, IgA
b) killed live attenuated vaccines
c) normal & specific human Ig
d) vaccines, Ig& antisera
e) natural killer lymphocytes, lysozime, phagocytes

70. Normal human Igare used for:

a) post – exposure prophylaxis of Hepatitis B, rabies, tetanus
b) temporary protection against hepatitis A for travelers to endemic areas
c) against gas gangrene, tuberculosis, measles, mumps
d) rubella, yellow fever
e) pertussis, brucellosis

71. EPIDEMIOLOGY is:

a) study of distribution & determinants of health related states & events in specified population & application of this study to the control of health problems
b) study of distribution & determinants of health related states & events animals & application of this study to the control of health problems
c) study about immunization, immunizing agents, types of immunity & causes of failure of vaccination
d) study about relation between disease & social conditions
e) a scientific field that death with the collection, classification, description, analysis, interpretation & presentation of data

72. When preformed antibodies in one body (human or animal) are transferred to another it produced:
1. active immunity
2. passive immunity
3. innate immunity
4. herd immunity
5. antitoxin immunity

73. Duration of protection is long lasting, severe reactions are rare, cheaper and efficacy approaches 100%:
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity

e) immediate allergic reaction

74. Normal human Ig are used for:
a) post – exposure prophylaxis of Hepatitis B, rabies, tetanus
b) temporary protection against hepatitis A for travelers to endemic areas
c) against gas gangrene, tuberculosis, measles, mumps
d) rubella, yellow fever
e) pertussis, brucellosis

75. Cleaning methods are:
a) by hot water
b) by lower temperature
c) thermal, chemical
d) manual, environmental
e) high, intermediate, low

76. The methods which preferred for reusable glass syringes & ointments, powders, oils ect. is:
a) dry heat
b) moist heat
c) boiling
d) autoclaving
e) ethylene oxide gas

77. Anti - adult measures:

a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) disinfection, sterilization

78. The anti – larval insecticides are:

a) mineral oils, Paris green, synthetic insecticides
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) DDT, malathion, propoxur
d) solid or liquid baits
e) fumigants & repellents

79. Sporadic –

a) is a diseases spread over a very large geographical area & effects a major portion of world
b) the habitual occurrence of a disease in population
c) cases occur irregularly, haphazardly from time to time & generally infrequent
d) infection diseases primarily of animals, transmissible to human beings under natural conditions
e) transmissible from one generation to other generation by genetic code

80. Types of acquired immunity:

a) innate immunity
b) herd immunity
c) specific & non – specific immunity
d) active, passive immunity
e) antitoxin, antisera immunity

81. Malathion, Fenthion are:
a) organochlorine compounds
b) organophosphorous compounds
c) carbamates

d) residual sprays
e) space sprays

82. Classification of infection risk from equipment or environment:
a) high – level disinfection
b) thermal, chemical, manual
c) low, intermediate, high

83. Items in contact with normal and intact skin or the inanimate environment not in contact with the patient:

a) low risk
b) high risk
c) intermediate risk

84. The preferred methods employed for sterilization of all items that penetrate the skin & mucosa is:

a) dry heat
b) moist heat
c) boiling
d) autoclaving
e) ethylene oxide gas

85. Protection against mosquito:

a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, repellents, rodent control

86. Sulphur dioxide is:

a) contact poisons
b) stomach poisons
c) fumigants
d) residual sprays
e) space sprays

87. Non – susceptibility to a given disease or a given organism:
a) tolerance
b) immunity
c) resistance
d) susceptibility
e) responsibility

88. Elimination of reservoir is not possible in:

a) anthroponozis
b) zoonozis
c) sapronosis

89. Immunity produced is only temporary till antibody is eliminated from body is:
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity
e) antitoxin immunity

90. Endemic –

a) is a diseases spread over a very large geographical area & effects a major portion of world
b) the habitual occurrence of a disease in population
c) cases occur irregularly, haphazardly from time to time & generally infrequent
d) infection diseases primarily of animals, transmissible to human beings under natural conditions
e) transmissible from one generation to other generation by genetic code

91. Equipment that does not penetrate the skin or enter sterile areas of the body but is in contact with intact mucous membranes or non – intact skin:

a) low risk
b) high risk
c) intermediate risk

92. The dependable, non toxic, inexpensive, sporicidal, with rapid heating and good penetration of fabrics method is:

a) ethylene oxide gas
b) chemical disinfection
c) high – level disinfection
d) steam sterilization
e) thermal disinfection

93. Transmission of arthropod – borne diseases:

a) direct contact
b) mechanical
c) biological
d) all correct
e) all non – correct

94. Fleas control measures:

a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, repellents, rodent control

95. Malathion, Fenthion are:

a) organochlorine compounds
b) organophosphorous compounds
c) carbamates
d) residual sprays
e) space sprays

96. Most dangerous carriers are:

a) incubatory carrier
b) convalescent carrier
c) chronic carrier
d) healthy carrier
e) temporary carrier

97. Sporadic –

a) is a diseases spread over a very large geographical area & effects a major portion of world
b) the habitual occurrence of a disease in population

c) cases occur irregularly, haphazardly from time to time & generally infrequent
d) infection diseases primarily of animals, transmissible to human beings under natural conditions
e) transmissible from one generation to other generation by genetic code

98. If carrier shed infectious agent for short period time (during acute illness), he called:

a) incubatory carrier
b) convalescent carrier
c) chronic carrier
d) healthy carrier
e) temporary carrier

99. Non – susceptibility to a given disease or a given organism:
a) tolerance
b) immunity
c) resistance
d) susceptibility
e) responsibility

100. The immunity of a group of people where the proportion of non – susceptible is greater than susceptible:
a) active immunity
b) passive immunity
c) innate immunity
d) herd immunity
e) antitoxin immunity

101. Anti – larval measures includes:
a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, repellents, rodent control

102. A person of animal including birds & arthropods where infecting agents can be present under natural conditins:
a) carrier
b) vector
c) host
d) reservoir
e) vehicle

103. If non – living thing is reservoir, disease called:

a) anthroponozis
b) zoonozis
c) sapronosis

104. Normal human Igare used for:

a) Diphteria, tetanus
b) Typhoid fever, rabies
c) Cholera, anthrax
d) Pertussis, measles, poliomyelitis
e) Brucellosis, mumps, tuberculosis

105. Specific humanIg are used for:

a) post – exposure prophylaxis of Hepatitis B, rabies, tetanus
b) temporary protection against hepatitis A for travelers to endemic areas

c) against gas gangrene, tuberculosis, measles, mumps
d) rubella, yellow fever
e) pertussis, brucellosis

106. The steam under pressure, dry heat, by ethylene oxide gas or low temperature steam & formaldehyde are methods of:

a) cleaning
b) chemical disinfection
c) sterilization
d) disinsection
e) high – level disinfection

107. The bronchoscopes require:

a) dry heat
b) moist heat
c) boiling
d) autoclaving
e) ethylene oxide gas

108. Medical entomology is:

a) since which dealth with the study of those arthropods, which carry or transmit the pathogenic organisms to human beings
b) since which dealth with the study of those arthropods, which carry or transmit the pathogenic organisms to animals
c) the study of man & his environment
d) study of health, health behavior & medical institution
e) study of the physical, social & cultural history of man

109. Proporux, carbaryl are:

a) organochlorine compounds
b) organophosphorous compounds
c) carbamates
d) residual sprays
e) space sprays

110. Fly control measures:

a) environmental, chemical, biological control
b) residual sprays, space sprays, pyrethrum extract, genetic control
c) mosquito net, screening, repellents
d) environmental, insecticidal control, fly papers, health education
e) insecticides, repellents, rodent control

Questions for 2 unite (EPIDEMIOLOGY)

1. Epidemiology of infectious diseases is:
Specific prevention of infectious diseases consists of:
a) Hand washing
b) Healthy food
c) Physical activities
d) Vaccination

2. Which of mentioned diseases has vesicula
a) Typhoid fever
b) Meningococcal infection
c) Chickenpox
d) Measles

3. Positive Schick test indicate
a) Immunity to diphtheria
b) Susceptibility to diphtheria
c) Hypersensitivity to diphtheria
d) Infection with diphtheria

4. Carriers are important in all of the following except
a) Polio
b) Typhoid
c) Measles
d) Diphtheria

5. True about meningococcal meningitides is
a) Causative agent is a gram – ve diplococcic
b) Cases are a most important source of infection
c) Treatment with penicillin eradicates carrier state
d) Vaccine can be in pregnancy

6. National Tuberculosis institute is located at
a) New Delhi
b) Chingelput
c) Bangalore
d) Chennai

7. All of the following are blood - borne infections except
a) Hepatitis B
b) Hepatitis C
c) Heiatitis D
d) Hepatitis E

8. Salmonellas are producing?
a) Endotoxins
b) Enterotoxins
c) Exotoxins
d) Endotoxins, enterotoxins

9. Incubation period for whooping cough is commonly:
a) 12 h
b) 7- 10 days
c) 15 days
d) 1 month

10. What is the reservoir for salmonella typhi?
A) Humans
B) Cattle
C) Humans and cattle
D) Rodents

11. New cases of patients with Variola (smallpox) are registered:
a) Globally
b) Only in Africa
c) Only in South-east Asia
d) Not registered

12. Influenza vaccine
a) The content of vaccine remains the same every year
b) Every season vaccine is different
c) Is not available
d) It is alive vaccine

13. The only known reservoir of Corynebacterium diphtheria?
A) Moskitos
B) Rats
C) Humans

D) Chimpanzees

14. Agent of Tuberculosis is:
a) Mycobacterium africanum
b) Mycobacterium bovis
c) Mycobacterium tuberculosis
d) All of the above mentioned

15. Typhoid is first week of illness is best diagnosed by
a) Serum Widal test
b) Stool culture
c) Urine test
d) Blood culture

16. Hepatitis E virus is transmitted by
a) Sexual route
b) Blood and blood products
c) Needles and syringes
d) Faecal-oral route

17. Period of infectivity for Measles is
a) 5 days prior to appearance of rash till 4 days afterwards
b) 4 days prior to appearance of rash till 5 days afterwards
c) 4 days prior to appearance of rash till 1 days afterwards
d) 1 days prior to appearance of rash till 4 days afterwards

18. The main preventive measure against polio is
a) planned and additional mass vaccination of children of the decreed age
b) detection of patients with polio and acute flaccid paralysis (AFP)
c) high-quality water supply, communal landscaping
d) health promotion among the population about the prevention of polio

19. The mode of transmission of varicella:
a) Air-borne
b) Fecal – oral route
c) vector-borne
d) sexual transmission

20. Specify the most effective measures for shigellosis
a) sanitary-and-hygienic
b) specific prevention
c) measures aimed at the source of infection
d) disinfection

21. Seasonality in measles
a) not observed
b) mild spring
c) pronounced winter-spring
d) summer-autumn

22. Which of the mentioned allegations of typhoid fever is not correct?
a) Characterized by virusemia
b) Characterized by systematic damage of intestinal lymphatic system
c) Infectious source and carrier is diseased person
d) Incubation period is up to 2 weeks

23. Which of mentioned diseases has vesicula?
a) Typhoid fever
b)Chickenpox
c) Meningococcus infection
d) Measles

24. What is the source of infection in case of salmonellosis?
a) Wild and domestic animals

b) Humans
c) Birds
d) A+b

25. Airborne/aeroegnic diseases are caused by:
a) Virus
b) Bacteria
c) Mycoplasma
d) All of the above

27. Which of infectious diseases WHO considers as the most important now?
a) Malaria, HIV/AIDS, tuberculosis
b) Pertussis, mumps, measles
c) Chickenpox, virus hepatitis A, virus hepatitis E
d) Diptheria, salmonellosis, helicobacteriosis

28. «Hundred day cough» is the name of
a) Cough due to Bordetella pertussis
b) Cough due to Hemophylus influenza
c) Cough due to Adenovirus
d) Cough due to Respiratory syncytial virus

29.. Which of the following pairs of Rickettsial Diseases - Insect vectors is wrongly matched
a) Epidemic typhus - Louse
b) Scrub typhus - Flea
c) Rocky Mountain spotted fever - Tick
d) Rickettsialpox - Mite

30. The most appropriate test to assess the prevalence of tuberculosis infection in community is
a) Mass Miniature Radiography
b) Sputum examination
c) Tuberculin test
d) Clinical examination

31. The usual incubation period for pertussis is
a) 7-14 days
b) 3-5 days
c) 21-25 days
d) Less than 3 days

32. Risk of the damage of fetus by maternal rubella is maximum if mother gets infected is
a) 6-12 weeks of pregnancy
b) 20-24 weeks of pregnancy
c) 24-28 weeks of pregnancy
d) 32-36 weeks of pregnancy

33. The usual incubation period for typhoid fever is
a) 10-14 days
b) 3-5 days
c) 21-25 days
d) Less than 3 days

34. Chicken Pox is characterized by all except
a) Scabs are infective
b) Pleomorphic stages
c) Rashes symmetrical centripetal dew-drop like
d) Palms and soles not affected by rash

35. Period of infectivity for Measles is
a) 5 days prior to appearance of rash till 4 days afterwards
b) 4 days prior to appearance of rash till 5 days afterwards
c) 4 days prior to appearance of rash till 1 days afterwards
d) 1 days prior to appearance of rash till 4 days afterwards

36. Hepatitis which spreads by faecal – oral route is
a) Hepatitis A
b) Hepatitis B
c) Hepatitis C
d) Hepatitis D

37. Prophylactic prevention of contact with measles case is necessary up to how many days after appearances of rash:
a) 2 days
b) 5 days
c) 7 days
d) 9 days

38. Which of the following is not true about influenza virus
a) Influenza virus A is subject to frequent antigenic variation
b) Antigenic drift is a gradual antigenic change over a period of time
c) Antigenic shift is due to genetic recombination of virus
d) Major epidemics are due to antigenic drift

39. Iceberg phenomenon is not seen in
a) AIDS
b) TB
c) Poliomyelitis
d) Measles

40. BCG vaccination
a) Recommended for all healthy newborns
b) Prevent anybody from TB infections
c) Revaccination is done at the age of 17
d) Post-vaccination immunity is active for the rest of the live

41. Rash on the skin in case of smallpox
a) Shows immediately and remains same in development stage
b) Develops step by step and in different development stages
c) Not different from chickenpox
d) Will not leave scars on the skin

42. Influenza virus enters the human organism through:
a) Skin
b) Upper respiratory tract mucosa
c) Digestive tract mucosa
d) Eyes' mucosa

43. The primary modes of spread of *diphtheriae*consist of :
a) Direct or via airborne droplet
b) Fecal – oral
c) Sexual transmission
d) Through medical equipment

44. Lists biotypes of Corynebacteriumdiphtheriae:
a) gravis, intermedius, mitis, belfanti
b) gravis, intermedius,
c) mitis, belfanti
d) intermedius, mitis

45. The source of infection in chickenpox is:
a) contaminated air
b) chicken pox cases
c) insect
d) water

46. Susceptible to influenza a virus
a) only human
b) man, ducks, geese, dogs
c) man, horses, chickens, geese, ducks, pigs

d) man, pigs, dogs, chickens and others

47. Time of risk in scarlet fever
a) summer
b) the first weeks of forming teams
c) spring period of the year
d) morbidity per year is distributed

48. Epidemiologic control of infectious diseases:
a) Continuous and dynamic observation of disease
b) Systemic collection and analysis of epidemiological data
c) Preventive activities
d) all of the above

49.Incubation period for measles is ranges from:
a) 7 - 21 days
b) 30 - 35 days
c) few hours to 3 days
d) 20 – 25 days

50.Definition of measlesis:

a) An acute highly contagious viral disease with fever, runny nose, cough, red eyes, and a spreading skin rash
b) Communicable disease marked especially by fever, diarrhea, prostration, headache, and intestinal inflammation
c) An infectious disease characterized by intense vomiting and profuse watery diarrhea and that rapidly leads to dehydration and often death
d) An acute infectious upper respiratory tract disease that affects the throat

51. Koplik Spots are seen in which diseases
a) Measles b) Mumps c) Rubella d) Enteric fever

52. Pathogenesis of airborne/aerogenic infections is characterized by?
a) Cause of infection in URT
b) Primary replication
c) Viremia, bacteaemia
d) All of the above

53. Definition of diphtheria is:
a) An acute highly contagious viral disease with fever, runny nose, cough, red eyes, and a spreading skin rash
b) Communicable disease marked especially by fever, diarrhea, prostration, headache, and intestinal inflammation
c) An infectious disease characterized by intense vomiting and profuse watery diarrhea and that rapidly leads to dehydration and often death
d) An acute infectious upper respiratory tract disease that affects the throat

54. Period of infectivity for Chicken pox is
a) 5 days prior to appearance of rash till 4 days afterwards
b) 4 days prior to appearance of rash till 5 days afterwards
c) 4 days prior to appearance of rash till 1 days afterwards
d) 1 days prior to appearance of rash till 4 days afterwards

55. Chinese letter arrangement of bacilli under microscopy in shown by
a) Mycobacterium tuberculosis
b) Mycobacterium leprae
c) Clostridium tetani
d) Corynobacterium diphtheria

56. Orchitis without of epidydimitis is manifestation of
a) Measles
b) Mumps
c) Rubella
d) Tuberculosis

57. Koplik Spots are seen in which diseases
b) Measles
c) Mumps
d) Rubella
e) Enteric fever

58. Sub-acute Sclerosis Pan Encephalitis (SSPE) is a complication of
a) Measles
b) Mumps
c) Rubella
d) Chicken pox

59. 23.Incubation period for cholera is ranges from:
a) 7 - 21 days
b) few hours to 5 days
c) 7-10 days
d) 2 - 3 days

60. Measures for the influenza patient
a) isolation at home, hospitalization only for clinical and epidemiological indications
b) compulsory hospitalization in health facilities
c) hospitalization of sick children under 3 years
d) hospitalization of elderly patients

61. Who is mostly infected of measles
a) children under 7 years
b) age does not matter
c) only children under 1 year
d) male persons

62. The period of the greatest contagion of the patient with measles
a) from the beginning of the prodromal period and the first 4 days of rash
b) from the last day of incubation until the end of the inflammatory process
c) from 8 days of incubation until the end of the rash period
d) since the beginning of the period of the rash till normalization of the temperature

63. Immunity after suffering whooping cough
a) resistant for life
b) short-term unstrained
c) relatively resistant
d) persistent, type-specific

64. The main measure of prevention of whooping cough
a) vaccination
b) decompression, isolating groups of kindergarten and schools
c) identification and isolation of patients
d) active health promotion

65. The main measures of prevention of typhoid fever are
a) identification of patients and bacterial carriers
b) timely isolation and treatment of patients
c) vaccination of the population
d) provision of good-quality water

66. Types of carriage in typhoid and paratyphoid:
a) acute and chronic
b) short-term
c) short-term, prolonged
d) acute, short-term

67. Maximum incubation period for polio
a) 3-7 days
b) 8 days
c) 12 days
d) 20 days

68. The main sources of polio are
a) cases with paralytic form of disease
b) healthy virus carriers
c) bacterial carriers
d) convalescents

69. Specific prophylaxis (vaccination) is possible against following disease:
a) Cytomegalovirus infection
b) Parainfluenza
c) Mycoplasma pneumonia
d) Influenza

70. Influenza epidemics means that there are:
a) 100 patients
b) 1000 patients
c) 100 patients from 100 000 inhabitants during 1 week
d) 100 patients children

71. The incubation period for shigellosis
a) 2-10 days
b) 8-17 days
c) 10-21 days
d) from several hours to 7 days

72. Definition of typhoid fever is:
a) An acute highly contagious viral disease with fever, runny nose, cough, red eyes, and a spreading skin rash
b) Communicable disease marked especially by fever, diarrhea, prostration, headache, and intestinal inflammation
c) An infectious disease characterized by intense vomiting and profuse watery diarrhea and that rapidly leads to dehydration and often death
d) An acute infectious upper respiratory tract disease that affects the throat

73. The main factor of transmission of the causative agent of HAV is:
a) water
b) food
c) household items
d) Flies

74. Who mostly infected HAV?
a) children under 3 years
b) children of preschool and primary school age
c) adults
d) elderly persons

75. Manifestations of HVE:
a) sporadic morbidity
b) epidemic
c) endemic
d) all of the above

76. Source of cholera infection:
a) Infective person
b) Infective animal
c) Soil
d) Mosquito's

77. Typhoid is first week of illness is best diagnosed by
a) Serum Widal test
b) Stool culture
c) Urine test
d) Blood culture

78. Hepatitis E virus is transmitted by
a) Sexual route

b) Blood and blood products
c) Needles and syringes
d) Faecal-oral route

79. Period of infectivity for Measles is
a) 5 days prior to appearance of rash till 4 days afterwards
b) 4 days prior to appearance of rash till 5 days afterwards
c) 4 days prior to appearance of rash till 1 days afterwards
d) 1 days prior to appearance of rash till 4 days afterwards

80. Hepatitis which spreads by faecal – oral route is
a) Hepatitis A
b) Hepatitis B
c) Hepatitis C
d) Hepatitis D

81. Prophylactic prevention of contact with measles case is necessary up to how many days after appearances of rash
a) 2 days
b) b) 5 days
c) c) 7 days
d) d) 9 days

82. Definition of cholera is:
a) An acute highly contagious viral disease with fever, runny nose, cough, red eyes, and a spreading skin rash
b) Communicable disease marked especially by fever, diarrhea, prostration, headache, and intestinal inflammation
c) An infectious disease characterized by intense vomiting and profuse watery diarrhea and that rapidly leads to dehydration and often death
d) An acute infectious upper respiratory tract disease that affects the throat

83. Which of the following modes of transmission is typical for cholera:
a) Direct contact through droplet infection
b) Fecal - oral
c) Sexual transmission
d) Through medical equipment

84. The leading role in the prevention of salmonellosis belongs to
a) sanitary and veterinary supervision
b) creation of collective immunity
c) detection and isolation of sick people
d) identification of bacterial carriers

85. Susceptible to measles disease:
a) children only
b) everyone, regardless of age
c) only organized children
d) men are more receptive

86. Manifestations of influenza:
a) sporadic morbidity
b) epidemic
c) pandemic
d) all of the above

87. After suffering a meningococcal infection immunity is formed:
a) lifelong
b) not formed
c) short
d) long-lasting, type-group-specific

88. The source of the causative agent of meningococcal infection is contagious with
a) the beginning of the incubation period
b) the end of the incubation period until recovery
c) 2 days from the start of nasopharyngitis clinic
d) end of the first week of the disease

89. What is the reservoir for salmonella typhi?
a) Humans
b) Cattle
c) Humans and cattle
d) Birds

90. Infectious diseases cannot be caused by:
a) Virus
b) Bacteria
c) Rat
d) Rickettsia

91. Measles virus enters the human organism through:
a) Skin
b) Upper respiratory tract mucosa
c) Digestive tract mucosa
d) Eyes' mucosa

92. Which of the following modes of transmission is typical for shigellosis:
a) Direct contact through droplet infection
b)Fecal - oral
c) Contact with skin surfaces
d) Through medical equipment

93. Variants of influenza a virus antigenic structure
a) H0N1, H1N1, H2N2, H3N2
b) H0N1, H2N1, H3N2 H2N2
c) H1N1, H0N1, H1N2, H3N2
d) H1N1, H0N2, H2N3, H3N2

94. Transmission pathway in chickenpox
a) airborne
b) vector-borne
c) household contact
d) water –borne

95. Which of the following toxins is the most important in the pathogenesis of cholera?
a) Endotoxin
b) Enterotoxin
c) Hemolysin
d) Neuraminidase

96. For the active prevention of polio is used:
a) live oral polio vaccine (OPV)
b) inactivated polio vaccine (IPV)
c) OPV and IPV
d) OPV and genetically engineered vaccine

97. Preventive measures in chickenpox
a) vaccination
b) communal improvement
c) prevention of contact cases with chickenpox
d) not conducted

98. The source of mumps is
a) sick person
b) convalescent carrier
c) healthy carrier
d) convalescents

99. Timing of immunization against mumps
a) once in the first days of life
b) three times, in 2 - 3.5 - 5 months
c) twice, in 12 months and 6 years
d) once, in 15 months

e)

100.Causative agents of tuberculosis in the external environment

a) stable
b) unstable
c) weakly resistant
d) long-term resistant

101. The main source of human tuberculosis is

a) sick animal(cattle)
b) sick birds
c) sick person
d) sick animal and human

ANNEX 3

Assessment scale

Examination (theoretical questions) (midterm)
«85-100%» • deep and durable learning themes of the module;
• complete, consistent, competent and logically presented answers to questions;
• reproduction of educational material on the themes of the module with the desired high degree of accuracy.
«75-84%»
• the presence of minor errors in the presentation of the material of the module;
• demonstration of the students knowledge of the completed the program;
• clear presentation of training material.
«60-74%»
• the presence of significant errors in the responses on module;
• demonstration to students is not enough knowledge on the program;
• not a clear presentation of educational material in the answer.

«less than 60%»
• absence of knowledge;
• a serious mistakes in answers.

Control work of «General epidemiology module test / review work »
0-59% - 0-4 points rating of "poor»
60-74% - 5-6 points rating of "satisfactory»
75-84% - 7-8 points rating of "good»
85-100% - 9-10 points rating of "excellent»

PRESENTATION RUBICS (the formative assessment)

№ p/p	Name of the indicator	Mark (in %)
PRESENTATION		70
1	Cover sheet with title	0-4
2	Design of slides and use of additional effects (slide transitions, sound, drawings)	0-10
3	The text of the presentation write a short, well-formed and ideas are clear and structured 0-40	0-40
4	Slides presented in a logical sequence	0-10
5	Slides printed	0-06
REPORT		30
1	The correctness and accuracy of speech while protecting	0-12
2	Breadth of vision (answers to questions)	0-10
3	The implementation of the rules	0-8

During the presentation
0-59% - 0-7 points, a rating of "poor»
60-74% - 8-9 points, a rating of "satisfactory»
75-84% - 10-11 points, a rating of "good»
85-100% - 12-13 points, a rating of "excellent»

OF FRONTAL SURVEY ASSESSMENT SCALE (the formative assessment)

1. Test consist of 20 questions.
2. The ready-made answers are given to choose from, one correct and the others are wrong.
3. For each correct answer – 5%.
4. Overall rating is defined as the amount of accumulated interest.
5. Scoring % is translated into points.

At testing: 0-59% - (0-11 correct answers), it is 0-7 points, a rating of "poor»
60-74% - (12 to 14 correct answers), it is 8-9 a rating of "satisfactory»
75-84% - (15-17 correct answers), it is 10-11 a rating of "good»

85-100% - (18-20 correct answers), it is 12-13 a rating of "excellent»

VERBAL TEST ASSESSMENT SCALE

(Intermediate control – "knowledge»)

(assessment in the VII semester) Assessing the oral answers of knowledge used the following criteria are used:

1. Knowledge of the basic processes of the studied subject area, depth and completeness of disclosure of the issue.
2. Ability to solve of situational problems, making inferences and generalizations, to give reasoned answers.
3. Ability of a monological speech, the consistency of the answer, ability to answer questions, to express their opinion on the problem.

SCALE OF ASSESSMENT AN ORAL TEST "TO KNOWELEDGE»

(credit in VII semester)

Assessing the oral responses to test the level of to knowledge following criterion:

1. Knowledge of the main processes of the studied subject area, depth and completeness of disclosure question's.
2. Ability to solve the situational problems, to draw conclusions and generalizations, to give reasonable answers.
3. Possession of monologic speech, logic and sequence of the answer, ability to answer on the questions posed, to express their opinion on the problem under discussion.

85-100% (16-20 points) estimated answer that shows solid knowledge the content of the subject of epidemiology; patterns of spread of infectious diseases among the population; the basic laws of the epidemic process; anti-epidemic and preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases.

75-84% (10-15 points) estimated response, revealing a strong knowledge of the content the subject of epidemiology; the legal framework of public health; biomedical statistics; regularities of the spread of infectious diseases among population; the basic laws of the epidemic process; anti-epidemic and preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases; consistency and consistency answer's. However, one or two inaccuracies in the answer are allowed.

60-74% (5-10 points) evaluates the response, indicating mainly about the basic knowledge of the subject of epidemiology; patterns of the spread of infectious diseases among population; the basic laws of the epidemic process; anti-epidemic and preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases. Several errors are allowed in the content of the answer.

0-59% (1-4 points) estimated response, detecting ignorance of the subject of epidemiology; regularities of the spread of infectious diseases among the population; basic laws development of the epidemic process; anti-epidemic and preventive measures prevention and localization of foci of infectious diseases; epidemiological features anthroponoses, zoonoses and sapronoses; inability to give reasoned answers, weak possession of monologue speech, lack of logic and consistency. Allowserious errors in the content of the answer.

EXPERTISE ASSESSMENT SCALE (credit in VII semester)

When assessing the answers to the test of the level of training are taken into accountfollowing criterion:

85-100% (8-10 points) estimated response in which the student is able to plan andcarry out anti-epidemic measures in the foci of infectious diseases; sanitary and educational work among the population; analyze infectious diseasesto establish the "territory, time and risk contingent" and to identify the "risk factors";

methods of epidemiological analysis of infectious diseases; ability to work withthe population on the prevention of diseases and instilling sanitary and hygienic skills.Demonstrates full understanding of the problem.All requirements for the taskdone.

75-84% (4-7 points) estimated response in which the student is able to plan andconduct student anti-epidemic measures in the foci of infectious diseases;to carry out sanitary and educational work among the population; to analyze infectious diseases. morbidity to establish "territory, time and risk profile" and to identify " factorsrisk"; has the technique of epidemiological analysis of infectious diseases; ability work with the population on the prevention of diseases and instilling sanitary and hygienicskills'.

Demonstrates a significant understanding of the problem. Most of the requirements,presented to the task completed.

60-74% (1-3 points) estimated response in which the student is not able to plan andthe student is able to plan and carry out anti-epidemic actions in the centersinfectious diseases; carry out sanitary and educational work among the population;to analyze the incidence of infectious disease to establish "territory, time and contingentrisk" and identifying "risk factors"; not sufficiently good command of the techniqueepidemiological analysis of infectious diseases; not well-versedwork with the population on the prevention of diseases and instilling sanitary and hygienicskills proficient in.Demonstrates partial or small understanding of the problem. Many of the requirements, the requirements for assignment are not met.
0-59% (0 points) is estimated the answer at which the student demonstrates misunderstandingproblems or no answer and there was not even an attempt to solve the problem

ANNEX 4

The planning sheet of discipline

Discipline Epidemiology
Field of study/specialization Graded credit
Course/semester 4 / 7
Credit units (CU) 3

Title of module according to WPD	Type of control	Forms of control	Minimal credit points	Maximal credit points	Week of control
Module 1					
Module 1.	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks	8	13	3 weeks
	Midterm examination	Evaluation test	5	10	
Module 2					
Module 2.	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks, writing of reports	8	13	5 weeks
	Midterm examination	Evaluation test	5	10	
Module 3					
Module 3.	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks, reports	8	13	7 weeks
	Midterm examination	Tests	6	11	
Module 4					
Total			40	70	9 weeks
Midpoint assessment			20	30	
Summative assessment			60	100	

MINISTRY OF EDUCATION AND SCIENCE OF THE KYRGYZ REPUBLIC

Government-run Educational Institution of Higher Professional Education
Kyrgyz-Russian Slavic University named after B.N.Yeltcin

ENDORSED BY VICE RECTOR
Prof Anes Zarifyan
«__28__» «__02__» 2023 year

IMMUNOLOGY

Course Outline (Module)

Assigned to **Epidemiology and Immunology**
Academic Curriculum 560001_23_1LDi.pli.xml
560001 KR General Medicine (for foreign student)

Qualification specialist

Mode of Study **Intramural**
Total Credit Value **3 credit points**

Course Hours 108
including:
in-class learning 54
individual work 54

Scope of Testing Semesters:
exams
credits

Course Hours Scheduling (per semester)						
Semester Academic Year	1 (1.1)		2 (1.2)		Total	
Weeks	18,7		18			
Type of Traning	AC	CO	AC	CO	AC	CO
Lectures	18	18			18	18
Practical Session	36	36			36	36
Including Interactive Session	3	3			3	3
Total In-class Session	54	54			54	54
Face-to-face Learning	54	54			54	54
Individual Work	54	54			54	54
Total	108	108			108	108

The Course outline developed by:
PhD, MD, Associate Professor of the Department of Epidemiology and Immunology: Mainazarova E.S._____

Reviewers:
Doctor of Medical Sciences, Professor of the Department of Hygiene, Kyrgyz-Russian Slavic University named after B.N.Yeltcin, Kasymova R.O. _____

PhD, MD, Associate Professor of the Department of Microbiology, Virology and Immunology, Kyrgyz state medical academy named after I.K. Akhunbaev, Niyazalieva M.S._____

The Course Outline
EPIDEMIOLOGY AND IMMUNOLOGY

in accordance with Academic Curriculum:
Specialty 560001 – KR – General Medicine (for foreign students)
Confirmed by KRSU Board of Academics in 28.02.2023 y. record №7.

The Course Outline endorsed by Epidemiology and Immunology Department Meeting

Record of 20.02. 2023 г. №8
Valid for: 2023 – 27 academic years
The Head of Department of Epidemiology and immunology, professor Orozbekova B.T. _____

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
__ _____ 2023.

The course outline has been revised, considered and endorsed for implementation
in 2023 - 2024 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ___ _____ 2023. № __
The Head of Department Orozbekova B.T., professor, DMS

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
__ _____ 2024.

The course outline has been revised, considered and endorsed for implementation
in 2024 - 2025 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ___ _____ 2024. № __
The Head of Department Orozbekova B.T., professor, DMS

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
__ _____ 2025.

The course outline has been revised, considered and endorsed for implementation
in 2025 - 2026 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ___ _____ 2025. № __
The Head of Department Orozbekova B.T., professor, DMS

The course outline endorsed for the following academic year

Chairman of the Educational and Methodological Board
__ _____ 2026.

The course outline has been revised, considered and endorsed for implementation
in 2026 - 2027 Academic Year at the Staff Meeting of **Epidemiology and Immunology** Department

Record of ___ _____ 2026. № __
The Head of Department Orozbekova B.T., professor, DMS

1. COURSE OUTLINE OBJECTIVES
Prepare students for independent work on the clinical diagnosis of syndromes based on immunopathological mechanisms.

2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM	
Educational Program Units:	
2.1	**Students' Preliminary Training Requirements:**
	2.1.1. General immunology 2.1.2. Clinical Immunology
2.2	**Course Units and Practical Sessions imposing the prior Proficiency**
	2.2.1. Biochemistry 2.2.2. Histology, embryology, cytology 2.2.3. Normal physiology 2.2.4. Microbiology, virology

3. STUDENTS' COMPETENCIES RESULTING FROM THE COURCE UNIT (MODULE)	
GPC-6: readiness for the introduction of medical documentation	
Knowledge:	
Level 1	Anatomical and physiological, age-sex and individual characteristics of the structure and development of a healthy and sick body
Level 2	Safety regulations and work in laboratories with reagents and instruments.
Level 3	Principles of organization of the service of allergology and immunology
Skills:	
Level 1	To justify the need for clinical and immunological examination of the patient
Level 2	Interpret the results of assessing the immune status of the tests of the I-th level
Level 3	Give the patient a preliminary diagnosis and indicate the number of additional studies to clarify the diagnosis.
Expertise:	
Level 1	Physical examination of the immune system organs (condition of the tonsils, skin, mucous membranes, lymph nodes, spleen)
Level 2	Selection of material for immunological studies at the organism, cellular and molecular levels using modern laboratory equipment
Level 3	Basic technologies of information transformation and technology work on the Internet for professional activities
GPC-9: the ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	
Knowledge:	
Level 1	The structure and function of the human immune system, cellular and molecular mechanisms of development and functioning of the immune system
Level 2	Types of immune pathologies, their classification, diagnosis and differential diagnosis, etiology and pathogenesis
Level 3	Modern methods of treatment, prevention of immunopathologies and drugs used in immunological and allergic practice
Skills:	
Level 1	To characterize and assess the levels of organization of the human immune system
Level 2	To take the clinical record and prescribe a clinical examination of a patient with immune pathology
Level 3	To justify the need for immunocorrective therapy
Expertise:	
Level 1	Algorithm of statement of the preliminary immunological diagnosis with the subsequent referral to the doctor to the allergist-immunologist
Level 2	Fundamentals of medical diagnostic and therapeutic measures to provide first medical aid in emergency and life-threatening conditions with immune disorders
Level 3	Skills in the use of drugs in the treatment, rehabilitation and prevention of diseases based on disorders in the immune system

PC-15: readiness to educate patients and their relatives on basic hygienic measures of a health-improving nature, skills of self-monitoring of basic physiological indicators that contribute to the preservation and promotion of health, and the prevention of diseases.	
Knowledge:	
Level 1	The main methods of immunodiagnostics
Level 2	Basics of functioning of medical equipment, device and purpose of medical equipment for immunodiagnostics
Level 3	Basic concepts of immune status and clinical assessment of the immune system
Skills:	
Level 1	To conduct immunological and serological diagnostics
Level 2	To use computer technology in their work to interpret immunological methods
Level 3	To characterize the age features of the immune status and the principles of its assessment
Expertise:	
Level 1	Analyze the algorithm for making a preliminary immunological diagnosis
Level 2	Interpretation of the results of the laboratory, instrumental diagnostic methods in patients of different ages
Level 3	Simulate immune responses at the organism and cellular levels

Final Students' Competences

3.1	**Knowledge:**
	- principles of organization of the service of allergology and immunology; – structure and functions of the human immune system, its age characteristics, cellular and molecular mechanisms of development and functioning of the immune system, the main stages, types, genetic control of the immune response, methods of immunodiagnostics; - types of immune pathologies, their classification, diagnosis and differential diagnosis, etiology and pathogenesis; - modern methods of treatment and prevention of immunopathologies, drugs used in immunological and allergic practice; -safety regulations and work in laboratories with reagents, instruments; - basic concepts and problems of the biosphere and ecology; the phenomenon of parasitism and bioecological diseases; - classification, morphology and physiology of microorganisms and viruses, their impact on human health, methods of microbiological diagnosis; use of basic antibacterial, antiviral and biological products; - anatomical, physiological, age-sex and individual characteristics of the structure and development of a healthy and sick body.
3.2	**Skills:**
	- take anamnesis and prescribe a clinical examination of a patient with immune pathology; - conduct a physical examination of the immune system organs (condition of the tonsils, skin, mucous membranes, lymph nodes, spleen); - interpret the results of the main diagnostic allergological tests; - justify the need for clinical and immunological examination of the patient, to interpret the results of the assessment of the immune status of tests of the 1st level; -characterize and assess the levels of organization of the human immune system, evaluate the mediator role of cytokines; - analyze the effect of drugs on the basis of their pharmacological properties and the possibility of their use for therapeutic treatment, justify the need for the use of immunocorrective therapy; - keep medical records. - conduct immunological and serological diagnostics.
3.3	**Expertise:**
	-an algorithm for making a preliminary immunological diagnosis, followed by referral to a doctor, an allergist-immunologist; - basics of medical diagnostic and therapeutic measures for the provision of first medical aid in emergency and life-threatening conditions with immune disorders; - drug use skills in the treatment, rehabilitation and prevention of diseases based on disorders in the immune system.

4. COURSE (MODULE) STRUCTURE AND CONTENT							
Class Code	**Subject Name /Type of Class/**	**Semester / Academic Year**	**Hours**	**Competencies**	**Literature**	**Interactive Sessions**	**Notes**
	Section 1. Basics of Immunology						
1.1.	The organs of the immune system. Natural resistance. Cellular and humoral components of the human immune system. The formation and implementation of cellular and humoral immune response. Regulation of the immune response, the genetic basis of the immune response (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.2.	Innate immunity. Acquired immunity: active, passive. Innate and acquired immunity factors. Nonspecific resistance. Complement, phagocytosis and macrophages, natural killers. Cytokines: interferons, interleukins (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.3.	Antigens. Properties of antigens. Antigens of bacteria, viruses. Human antigens MHC I class, MHC II class. Antibodies. The structure and function of immunoglobulins (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.4.	Innate immunity. Acquired immunity: active, passive. Innate and acquired immunity factors. Nonspecific resistance. Complement, phagocytosis and macrophages, natural killers. Cytokines: interferons, interleukins (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.5	The organs of the immune system are central, peripheral. T-lymphocytes, B-lymphocytes. Immune response: humoral, cellular. Cell co-operation in the immune response (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.6.	Assessment of the functional state of phagocytes, the main methods for the detection of antibodies and antigens, the definition of complement. Reactions of CFR, RPGA and CIC (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.7.	Antigens. Properties of antigens. Antigens of bacteria, viruses, human antigens. MHC I class, MHC II class, their	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	

	role in the immune response (Pr. L.).						
1.8.	Antibodies, structure and function of immunoglobulins. Immunodiagnostic reactions and therapeutic and prophylactic and immunobiological preparations (Pr.L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.9.	Innate immunity. Acquired immunity: active, passive. Innate and acquired immunity factors. Nonspecific resistance. Complement, phagocytosis and macrophages, natural killers. Cytokines: interferons, interleukins (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.10.	The organs of the immune system are central, peripheral. T-lymphocytes, B-lymphocytes. Immune response: humoral, cellular. Cell co-operation in the immune response (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.11.	Assessment of the functional state of phagocytes, the main methods for the detection of antibodies and antigens, the definition of complement. Reactions of CFR, RPGA and CIC (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.12.	Antigens. Properties of antigens. Antigens of bacteria, viruses, human antigens. MHC I and II classes, their role in the immune response (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
1.13.	Antibodies, structure and function of immunoglobulins. Immunodiagnostic reactions and therapeutic and prophylactic and immunobiological preparations (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
	Section 2. Assessing the Immune System Conditions						
2.1.	The collection of immunological history and characteristics of the main immunopathological syndromes (infectious, allergic, autoimmune, lymphoproliferative, primary and secondary immunodeficiency). Immune status and principles of its evaluation. Age features of the immune status. Methods for the study of lymphocytes, evaluation of the functional	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	

	state of phagocytes. Tests of the first and second level, their clinical interpretation (Lecture).						
2.2.	Collect immunological history. Methods for studying the immune status and principles of its clinical evaluation. Evaluation of T-cell system immunity (cellular immunity). Evaluation of the B-cell system of immunity (humoral immunity). Assessment of the functional state of phagocytes, the main methods for measuring antibodies and antigens, the definition of complement, tests of the first and second levels, their clinical interpretation (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
2.3.	Differential diagnosis of major immunopathological syndromes (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
2.4.	Collect immunological history. Methods for studying the immune status and principles of its clinical evaluation. Evaluation of T-cell system immunity (cellular immunity). Evaluation of the B-cell system of immunity (humoral immunity). Assessment of the functional state of phagocytes, the main methods for measuring antibodies and antigens, the definition of complement, tests of the first and second levels, their clinical interpretation (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1.L1.2. L1.3.L2.2. L2.3.L3.1.	0	
2.5.	Differential diagnosis of major immunopathological syndromes (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L2.2. L2.3. L3.1.	0	
	Section 3. Allergology						
3.1.	Definition of allergies, stages of an allergic reaction, true and pseudo-allergic reactions, types of allergic reactions according to the classification of P. Gell and R. Coombs. Anaphylactic shock etiology, pathogenesis, clinic, diagnosis, treatment (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.2.	Atopic dermatitis - etiology, pathogenesis, clinic, diagnosis, treatment. Allergic rhinitis seasonal and year-round. Urticaria and angioedema - etiology, pathogenesis,	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	

	classification, diagnosis, treatment and prevention. Bronchial asthma. Drug allergies (etiology, clinical presentation, diagnosis, treatment and prevention). Food allergies. The most important food allergens, especially food allergies in children and adults, clinic, diagnosis, treatment and prevention (Lecture).						
3.3.	Allergy. Immediate and delayed hypersensitivity. Types of allergen-low olecular proteins or heptenes that cause allergies. Allergens: inhalation, food, medicinal, infectious, industrial. Classification according to Jelle and Coombs. Types and mechanisms of allergic reactions: anaphylactic, cytotoxic, immunocomplex, cell-mediated (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.4.	Drug and food allergies. Clinical options, diagnosis, treatment, prevention (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.5.	Atopic dermatitis. Allergic rhinitis. Bronchial asthma, urticaria, angioedema, etiology, pathogenesis, diagnosis, treatment, prevention (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.6.	Allergy. Immediate and delayed hypersensitivity. Types of allergen-low olecular proteins or heptenes that cause allergies. Allergens: inhalation, food, medicinal, infectious, industrial. Classification according to Jelle and Coombs. Types and mechanisms of allergic reactions: anaphylactic, cytotoxic, immunocomplex, cell-mediated (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.7.	Drug and food allergies. Clinical options, diagnosis, treatment, prevention (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
3.8.	Atopic dermatitis. Allergic rhinitis. Bronchial asthma, urticaria, angioedema, etiology, pathogenesis, diagnosis, treatment, prevention (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
	Section 4. Immunodeficiency						

4.1.	Genetics of immunodeficiency, features of inheritance. Congenital immunodeficiencies (classification, clinical options, diagnosis, treatment tactics). Congenital immunodeficiency in adults. Acquired immunodeficiency (AIDS) - classification, etiology, clinical variants, diagnosis and treatment. The role of AIDS in the pathogenesis of various human diseases (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.2.	Primary (congenital) immunodeficiency with B-lymphocyte defects. Classification, clinical options, diagnosis, treatment tactics (Pr. L.)	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.3.	Primary (congenital) immunodeficiencies with T-lymphocyte defects. Classification, clinical options, diagnosis, treatment tactics. Congenital immunodeficiency in adults (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.4.	Secondary (acquired) immunological deficiency (SID) - classification, etiology, clinical options, diagnosis and treatment. The role of SID in the pathogenesis of various human diseases. Acquired Immunodeficiency Syndrome.	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.5.	Primary (congenital) immunodeficiency with B-lymphocyte defects. Classification, clinical options, diagnosis, treatment tactics (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.6.	Primary (congenital) immunodeficiencies with T-lymphocyte defects. Classification, clinical options, diagnosis, treatment tactics. Congenital immunodeficiency in adults (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
4.7.	Secondary (acquired) immunological deficiency (SID) - classification, etiology, clinical options, diagnosis and treatment. The role of SID in the pathogenesis of various human diseases. Acquired Immunodeficiency Syndrome (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
	Section 5. Immunotropic Therapy						

5.1	Classification of immunotropic drugs. Immunosuppressants - classification and mechanisms of action, indications for use, contraindications, side effects. Glucocorticosteroid drugs - mechanisms of action, indications for use, complications, tactics of choice of treatment regimens. Immunostimulants - classification and mechanisms of action, indications for use, contraindications, side effects. Immunocorrectors - mechanisms of action, indications for use, tactics of choice of treatment regimens. Vaccines (Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
5.2.	Principles of immunotherapy, classification of immunotropic drugs. Modern immunocorrective drugs. Applications, treatment regimens (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
5.3.	Principles of immunotherapy, classification of immunotropic drugs. Modern immunocorrective drugs. Applications, treatment regimens (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
	Section 6. Autoimmune Pathology						
6.1.	Classification of autoimmune diseases. Systemic lupus erythematosus, immunopathogenesis, main clinical manifestations, immunodiagnostics, treatment. Rheumatoid arthritis, immunopathogenesis, immunodiagnostics, main clinical manifestations, treatment. Systemic vasculitis, classification, pathogenesis, clinical forms, diagnosis, treatment. Autoimmune aspects of endocrine pathology(Lecture).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.2.	Immunological tolerance and autoimmunity. Mechanisms for the development of auto-aggression. Classification of autoimmune diseases (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.3.	Systemic vasculitis. Immunopathogenesis and clinical options. Systemic lupus erythematosus. Immunopathogenesis and	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	

	clinical options (Pr. L.).						
6.4.	Rheumatoid arthritis, immunopathogenesis, main clinical manifestations, immunodiagnostics, treatment (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.5.	Autoimmune aspects of endocrine pathology. Antiphospholipid syndrome - clinic, diagnosis, treatment (Pr. L.).	3	2	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.6.	Immunological tolerance and autoimmunity. Mechanisms for the development of auto-aggression. Classification of autoimmune diseases (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.7.	Systemic vasculitis. Immunopathogenesis and clinical options. Systemic lupus erythematosus. Immunopathogenesis and clinical options (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.8.	Rheumatoid arthritis, immunopathogenesis, main clinical manifestations, immunodiagnostics, treatment (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	
6.9.	Autoimmune aspects of endocrine pathology. Antiphospholipid syndrome - clinic, diagnosis, treatment (Ind.w.).	3	3	GPC-6, GPC-9, PC-15	L1.1. L1.2. L1.3. L1.4. L2.1. L2.2. L2.3. L3.1.	0	

5. ASSESSMENT FUND

5.1. Advancement Questions and Assignments

Questions to test the level of KNOWLEDGE:

1. The subject and objectives of immunology. Sections of immunology (general and private).
2. The concept of immunity. Types of immunity (innate and acquired). Innate and acquired immunity factors.;
3. Nonspecific resistance. Types (humoral and cellular factors).
4. Complement. Ways of activation of a complement (Classical, alternative and lectin-dependent).
5. What is a membrane-attack complex and the complement system.
6. Phagocytosis. Chemotaxis. Chemoattractants. Opsonins.
7. Macrophage, types and functions of macrophages, TOLL and PATTERN receptors.
8. Natural killers - localization and functions.
9. APC cells. Types and functions. Dendritic cells - function and localization.
10. Cytokines: proinflammatory and anti-inflammatory.
11. Interferons and interleukins.
12. Organs of the immune system: central and peripheral.
13. Structure and function of the thymus and thymic hormones.
14. The structure and function of the bone marrow, the concept of polypotent stem cells.
15. Structure and function of the spleen as a peripheral organ of the immune system.
16. The structure and function of the lymph node, the localization of lymphatic follicles.
17. The structure and function of the tonsils, Peyer's patches and appendix.
18. Immune competent cells. Ways of migration and recycling of cells of the immune system.
19. Functions of T-lymphocytes. Receptors and subpopulations of T-lymphocytes.
20. Major differentiation antigens (CD antigens) on the surface: T-cytotoxic and T-helper cells.
21. B-lymphocytes, receptors and functions. Plasma cells.

22. Immune response: cellular and humoral.
23. Cell co-operation in the immune response.
24. Hormones and mediators of the immune system.
25. The main methods for the detection of antibodies and antigens.
26. Assessment of the functional state of phagocytes.
27. Methods for determining complement.
28. Principles of assignment of the reaction of CFR, RPGA and the CIC.
29. ELISA. The principle of ELISA.
30. Immunochromatography. The principle of the method.
31. Statement of the reaction of agglutination and precipitation.
32. Methods for the determination of immunoglobulins - the method of radial immunodiffusion (method Manchini) ;.
33. Antigen, the concept of antigens. Classification of antigens.
34. Structure and properties of antigens.
35. Antigens of bacteria and viruses.
36. Human antigens. MHC class I and II, their role in the immune response.
37. Haptens, their difference from antigens. Cross-reactive antigens. (examples).
38. The concept of adjuvants, antigenic mimicry and superantigens.
39. Autoantigens concept and classification.
40. Definition of the concept and principles of classification of antibodies.
41. The structure and function of immunoglobulins.
42. Class IgG and its subclasses, structure and function of IgG.
43. IgM structure, function and rate in serum.
44. IgE and IgD structure, functions. Difference from other classes of immunoglobulins.
45. IgA types, structure, function and norm in serum.
46. Methods for producing monoclonal antibodies and scope.
47. The role of the main classes of Ig in immunological reactions.
48. The structure and function of Fab and Fc fragments.
49. The definition of the concept of immune status. Collect immunological history.
50. Age features of the immune status and principles of its evaluation.
51. Tests of the first and second level, their clinical interpretation.
52. Evaluation of the T-cell system of immunity (cellular immunity).
53. Evaluation of the B-cell system of immunity (humoral immunity).
54. Assessment of the functional state of phagocytes.
55. The concept of immunopathological syndromes and classification.
56. Allergic syndrome.
57. Infectious syndrome.
58. Autoimmune syndrome.
59. Immunoproliferative syndrome.
60. Immunodeficiency syndrome (primary and secondary).
61. The definition of the concept of allergy and the principles of classification of allergens: (endo and exogenous allergens).
62. The concept of true and pseudo-allergies. The mechanism of development stages of allergic reactions.
63. Classification of allergic reactions according to Jelle and Coombs and Ado.
64. Hypersensitivity I type, cause, mechanism of development and manifestation.
65. Hypersensitivity type II, the cause, mechanism of development and manifestation.
66. Hypersensitivity type III, the cause, mechanism of development and manifestation.
67. Hypersensitivity type IV, the cause, mechanism of development and manifestation.
68. Types and methods of allergy tests for allergens.
69. Anaphylactic shock. Etiology, pathogenesis, diagnosis, treatment, prevention.
70. Drug allergies. Etiology, pathogenesis, diagnosis, treatment, prevention.
70. Drug allergies. Etiology, pathogenesis, diagnosis, treatment, prevention.
71. Food allergies. Etiology, pathogenesis, diagnosis, treatment, prevention.
72. Quincke edema. Etiology, pathogenesis, diagnosis, treatment, prevention.
73. Bronchial asthma. Etiology, pathogenesis, diagnosis, treatment, prevention.
74. Urticaria. Etiology, pathogenesis, diagnosis, treatment, prevention.
75. Atopic dermatitis. Etiology, pathogenesis, diagnosis, treatment and prevention.
76. Allergic rhinitis. Etiology, pathogenesis, diagnosis, treatment and prevention.
77. What is the immunodeficiency state.

78. Classification of immunodeficiencies.
79. Primary (congenital) immunodeficiencies with B-lymphocyte defects.
80. Causes of defects of the humoral link.
81. Classification, clinical options, diagnosis, treatment tactics of humoral defects.
82. Primary (congenital) immunodeficiencies with T-lymphocyte defects.
83. The causes of the defect cell link.
84. Classification of T-cell immunodeficiencies.
85. Congenital immunodeficiency in adults.
86. Clinical options, diagnosis, treatment tactics.
87. Secondary (acquired) immunological deficiency.
88. Classification of Secondary (acquired) immunodeficiency.
89. Etiology, clinical variants, diagnosis, treatment of Secondary immunodeficiency.
90. The role of the Secondary immunodeficiency in the pathogenesis of various human diseases.
91. The structure and structure of HIV.
92. Ways of HIV transmission.
93. AIDS, etiology, pathogenesis, clinic, diagnosis and treatment.
94. Principles of immunotherapy.
95. Classification of immunotropic drugs, modern immunocorrective drugs.
96. Immunomodulators of thymic and bone marrow origin, mechanism of action and indications for use.
97. Immunomodulators of microbial and plant origin, mechanism of action and indications for use.
98. Immunomodulators of synthetic origin, mechanism of action and indications for use.
99. Immunomodulators based on interferon (IFN) and interleukins (IL). Applications, treatment regimens.
100. Classification of immunosuppressants, mechanism of action and indications for use.
101. Immunological tolerance, types of immunological tolerance. Immunological memory.
102. Autoantigens and autoantibodies. Mechanisms for the development of auto-aggression.
103. Classification of autoimmune diseases. Target organs in autoimmune diseases.
104. Diabetes mellitus type I: etiology, pathogenesis, clinic, diagnosis and treatment.
105. Diseases of the thyroid gland: Graves disease, etiology, pathogenesis, clinic diagnosis and treatment.
106. Rheumatoid arthritis: etiology, pathogenesis, clinic, diagnosis and treatment.
107. Systemic lupus erythematosus. Etiology, pathogenesis, clinic, diagnosis and treatment.
108. Antiphospholipid syndrome. Etiology, pathogenesis, clinic, diagnosis and treatment.
109. Vasculitis, etiology, pathogenesis, clinic, diagnosis and treatment.
110. To which organs and tissues does not develop natural immunological tolerance.

Tasks for testing the level of learning to SKILLS and EXPERTISE:

1. To characterize and assess the levels of organization of the human immune system.
2. To evaluate the mediator role of cytokines.
3. Jjustify the need for clinical and immunological examination of the patient.
4. To collect an immunological history and prescribe a clinical examination of a patient with immune pathology.
5. To interpret the results of the assessment of the immune status of the tests of the first level.
6. To interpret the results of the assessment of the immune status of the tests of the II level.
7. Interpret the results of the main diagnostic allergological tests.
8. To conduct immunological analysis.
9. Select materials for immunological studies at the organism, cellular and molecular levels using modern laboratory equipment.
10. To characterize the main methods for the detection of antibodies and antigens.
11. To evaluate immunological reactions.
12. Clinical interpretation of the evaluation of the T-cell system of immunity (cellular immunity).
13. Clinical interpretation of the assessment of the B-cell immune system (humoral immunity).
14. To assess the functional state of phagocytes.
15. To characterize methods for the determination of complement.
16. Describe the principles for the assignment of the response of the CFR, RPGA and the CIC.
17. Describe the principle of the ELISA method.
18. Describe the principle of the method of immunochromatography.
19. To carry out the formulation of the reaction of agglutination and precipitation and their clinical interpretation.
20. Describe the methods for the determination of immunoglobulins - the method of radial immunodiffusion (the Manchini method).
21. To use computer technology in their activities for the interpretation of immunological methods.
22. To assess the immune status.

23. Describe the methods for assessing the immune status.
24. Describe the age characteristics of the immune status and the principles of its evaluation.
25. Describe the main immunopathological syndromes.
26. Apply skills to study the functions of organs and immune systems in the clinic.
27. To develop skills in laboratory equipment.
28. To evaluate the in vivo allergic tests and their interpretation.
29. To conduct an evaluation of in vitro allergy tests and their interpretation.
30. To conduct methods of observing immunological reactions in the experiment.
31. Describe the main methods of experimental immunologists.
32. To characterize the main methods of experimental immunology.
33. Simulate immune responses at the organic and cellular levels.
34. Apply knowledge of the mechanisms of development of immune disorders in the clinic.
35. To characterize the diagnostic methods of immunopathologies.
36. Predict the development of immune-related diseases.
37. Aalyze the mechanism of action of immunocorrective agents.
38. Substantiate the need for the use of immunocorrective therapy.
39. Analyze the algorithm for making a preliminary immunological diagnosis.

5.2. Course Papers Themes

Discipline is not provided for the implementation of term papers (projects).

5.3. Assessment Fund

Presentation. Subject:

1. Age-related features of the development of the immune system.
2. Immunology of reproduction
3. Anti-infective immunity
4. Features of the immune response in fungal diseases.
5. Immune transplantation, the response during transplantation of various organs.
6. Ways to overcome immune rejection
7. Immunology of the tumor process. Causes of tumor escaping from immune surveillance.
8. Immunoecology. The influence of environmental factors on the immune system
9. Immunodeficiency diseases. Primary immunodeficiencies.
10. Secondary immunodeficiencies. HIV and AIDS.
1. Autoimmune diseases, autoaggression mechanism.
12. Modern problems of immunodiagnostics.
13. The phenomenon of immune memory. Formation mechanisms.
14. "Naive cells" and memory cells, their characteristics.
15. Phylogenesis of immunity
16. Ontogenesis of immunity.
17. Human isoantigens (system of antigens of erythrocytes, leukocytes, platelets and other cells).
18. Phylogenesis and ontogenesis of antibodies.
19. Scheme of immunopoesis. Lymphoid and myeloid progenitor cells, pathways of development.
20. Stem cell. The origin, characteristics, markers, circulation in the body.
21. Bone marrow peptides (myelopeptides). Classification, characterization, mechanisms of action on the cells of the immune system.
22. Immunity and stress.

Test:

Examination "Introduction to immunology. Types of immunity and non-specific factors of the immune reactivity of the body ":

1. Introduction to immunology.
2. The subject and objectives of immunology.
3. The history of the development of immunology.
4. Tasks and prospects of modern immunology.
5. The doctrine of immunity.
6. Definition and types of immunity.
7. Innate immunity.
8. Constitutional, species immunity.
9. Adaptive immunity. Specific mechanisms of immunity.
10. The concept of the immune and lymphoid system.
11. Immune homeostasis. Immunological supervision and maintenance of antigenic constancy of the internal

environment of the body.
12. Nonspecific factors of immune reactivity of an organism.
13. Cellular and humoral non-specific protective factors.
14. Cellular factors of resistance.
15. The MFS system of mononuclear phagocytes.
16. Monocytes, granulocytes, mast cells, large granular lymphocytes.
17. APC cells. Types and functions. Dendritic cells - function and localization.
18. Humoral factors of resistance.
19. Protein acute phase.
20. Mediators of inflammation.
34. The complement system.
35. Alternative and classical pathway of activation of the complement system.
36. Other nonspecific immunity factors. Lysozyme. Interferon.

Test:
Examination "The organization and function of the immune system. Evaluation of the states of the immune system ":
1. Ontogenesis and phylogenesis of the immune system.
2. Organs of the immune system: central and peripheral.
3. Structure and function of the lymphoid system. Bone marrow as an organ of lymphopoiesis.
4. Structure and function of the central organ of the immune system - the thymus.
5. The structure and function of the peripheral organs of the immune system - lymph nodes.
6. Spleen, structure and function.
7. Peyer's Patches, structure and function.
8. Immunobiological activity of primary, secondary and tertiary organs of the lymphoid system.
9. Leukocytes, their types.
10. Tissue and circulating macrophages.
11. T-cell immune system.
12. Cellular immunity, meaning and induction.
13. Effectors of cellular immunity (CCI).
14. T-cell receptor.
15. Mediators of cellular immunity.
16. Cell cytotoxicity.
17. The mechanisms of activation of T and B cells.
18. Cooperative mechanisms of intercellular interactions.
19. Lymphokines.
20. T-helpers and T-suppressors are regulatory cells of the immune system.
21. The system of human B-lymphocytes.
22. Humoral immunity, meaning and induction.
23. B-cell receptor.
24. Mediators of humoral immunity.
25. Immunocompetent cells. Ways of migration and recycling of cells of the immune system.
26. Hormones and mediators of the immune system.
27. Immunological memory. Definition Forms of manifestation.
28. The mechanism of immunological memory.
29. Methods of induction of immunological memory. T-and B-cell memory.
30. Features of the development of immunological memory in cellular and humoral immune response.
31. The role of immunological memory in protecting the body against infection.
32. The use of the phenomenon of immunological memory in the diagnosis and prevention of infectious diseases.
33. Antigen, the concept of antigens. Classification of antigens.
34. Structure and properties of antigens.
35. Types of antigens: full-fledged antigens, haptens, half-haptens.
36. Immunogenic activity of antigens.
37. Antigens of bacteria and viruses.
38. Human antigens. MHC class I and II, their role in the immune response.
39. Haptens, their difference from antigens.
40. Cross-reactive antigens.
41. The concept of adjuvants, antigenic mimicry and superantigens.

42. Autoantigens concept and classification.
43. Definition of the concept and principles of classification of antibodies.
44. The structure and function of immunoglobulins.
45. Molecular structure, classes of immunoglobulins, properties of immunoglobulins (IgG, IgM, IgA. IgD. IgE).
46. Avidity and affinity of antibodies.
47. The concept of the valence of antibodies.
48. Antigenic structure of immunoglobulins: isotypic, allotypic. idiotypical determinants.
49. Theories of synthesis and diversity of antibodies.
50. Genetics of antibody formation.
51. The mechanism of interaction of antibodies with antigen. Immune complex.
52. The study of cellular and humoral factors of the immune system and their clinical significance.
53. The clinical significance of the study of the content and functional activity of blood granulocytes, blood monocytes, natural killer cells.
54. The clinical significance of the study of the content and functional activity of non-specific humoral factors.
55. The clinical significance of the study of the content and functional activity of T-lymphocytes and their subpopulations.
56. The clinical significance of the study of the content and functional activity of B-lymphocytes and their subpopulations.
57. The clinical significance of the study of the content and functional activity of immunoglobulins of different classes and subclasses.
58. Immune system during infection.
59. Viral infections, bacterial infections, parasitic infections.
60. Principles of immunodiagnostics of infectious diseases.
61. Transplantation immunity. Types of transplants.
62. Genetic basis of donor and recipient compatibility.
63. Cellular and humoral factors of transplant immunity.
64. Clinical manifestations of tissue incompatibility.
65. The definition of the concept of immune status. Collect immunological history.
66. Methods for assessing the immune status.
67. Age features of immune status and principles of its evaluation.
68. Tests of the first and second level, their clinical interpretation.
69. The main methods for the detection of antibodies and antigens.
70. Methods for the determination of immune complexes.
71. Methods for the quantitative and qualitative determination of immunoglobulins.
72. Evaluation of the functional state of phagocytes.
73. Methods for the determination of complement.
74. Principles of assignment of the reaction of CFR, RPGA and CIC.
75. The principle of formulation of reactions using chemical and physical labels of antibodies and antigens (ELISA, immunofluorescence, radioimmunoassay, flow cytometry) and their variants and diagnostic value.
76. Modern immunochromatographic tests, the principle of the method.
77. Phenomena of specific agglutination and precipitation, staging options, use in medicine.
78. Reactions using labeled antigens and antibodies.
79. Immunoelectron microscopy (using antibodies labeled with ferritin, colloidal gold, isotopes).
80. Methods for producing monoclonal antibodies and scope.
81. The concept of immunopathological syndromes and their classification.
82. Differential diagnosis of major immunopathological syndromes.

Test:

Examination "Clinical Immunology":

1. Definition of the concept of allergy and principles of classification of allergens.
2. Characteristics of allergens.
3. The concept of true and pseudo-allergies.
4. The mechanism of development of allergic reactions.
5. Classification of allergic reactions according to Jelle and Coombs.
6. Hypersensitivity type I, the cause, the mechanism of development and manifestation.
7. Hypersensitivity type II, the cause, mechanism of development and manifestation.
8. Hypersensitivity type III, the cause, mechanism of development and manifestation.
9. Hypersensitivity IV type, the cause, mechanism of development and manifestation.
10. Immunological mechanisms of allergy. .

11. Immunological mechanisms of allergy. Immediate type of hypersensitivity.
12. The concept of sensitization.
13. Desensitization.
14. Signs of the difference between humoral and cellular allergic reactions.
15. Diagnostic tests for the detection of humoral type allergies.
16. Skin allergy tests, their diagnostic value.
17. Anaphylactic shock. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
18. Drug allergies. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
19. Food allergies. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
20. Angioedema. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
21. Bronchial asthma. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
22. Urticaria. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
23. Atopic dermatitis. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
24. Allergic rhinitis. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
25. Immunodeficiency states.
26. Classification of immunodeficiencies.
27. Immunogenetic mechanisms of congenital immunodeficiency formation.
28. Primary (congenital) immunodeficiencies with B-lymphocyte defects.
29. Causes of defects of the humoral link.
30. Classification, clinical options, diagnosis, treatment tactics.
31. Primary (congenital) immunodeficiencies with T-lymphocyte defects.
32. The causes of the defect cell link.
33. Classification, clinical options, diagnosis, treatment tactics of T-cell immunodeficiency.
34. Protein deficiency of the complement system and their clinical manifestations.
35. Deficiencies of the mononuclear phagocyte system and their clinical manifestations.
36. Secondary (acquired) immunological deficiency.
37. Classification of Secondary immunological deficiency (SID) .
38. Etiology, clinical variants, diagnosis, treatment of the SID.
39. The role of the (SID) in the pathogenesis of various human diseases.
40. The structure and texture of HIV.
41. Ways of HIV transmission.
42. AIDS, etiology, pathogenesis, clinic, diagnosis and treatment.
43. The basic principles of the appointment of immunotherapy.
44. Classification of immunotropic drugs.
45. Modern immunocorrective drugs.
46. Immunomodulators of thymic and bone marrow origin, mechanism of action and indications for use.
47. Immunomodulators of microbial and plant origin, mechanism of action and indications for use.
48. Immunomodulators of synthetic origin, mechanism of action and indications for use.
49. Immunomodulators based on interferon (IFN) and interleukins (IL). Applications, treatment regimens.
50. Classification of immunosuppressants, mechanism of action and indications for use.
51. Immunological tolerance, types of immunological tolerance.
52. Immunological memory. The mechanism of immunological memory.
53. Autoantigens and autoantibodies. Mechanisms for the development of auto-aggression.
54. Classification of autoimmune diseases. Target organs in autoimmune diseases.
55. Diabetes mellitus type I: etiology, pathogenesis, clinical manifestations, diagnosis and treatment.
56. Diseases of the thyroid gland: Graves disease, etiology, pathogenesis, clinic diagnosis and treatment.
57. Rheumatoid arthritis: etiology, pathogenesis, clinic diagnosis and treatment.
58. Systemic lupus erythematosus. Etiology, pathogenesis, clinic, diagnosis and treatment.
59. Antiphospholipid syndrome. Etiology, pathogenesis, clinic, diagnosis and treatment.
60. Vasculitis, etiology, pathogenesis, clinic, diagnosis and treatment.
61. To which organs and tissues does not develop natural immunological tolerance.

Topics of essays for Individual Work :

1. Works of eminent researchers, founders of modern immunology (E. Jenner, L. Pasteur, R. Koch, P. Erlich, II Mechnikov, and others).
2. The theory of immunity - features of ideas about the protective mechanisms of the body in different historical periods.
3. Modern ideas about the system of resistance of living organisms.
4. Leukocytes - features of the structure and functions.

5. Inflammation - flow mechanisms and biological role.
6. The most important antigens and haptens in the world around man.
7. Features of the population composition, structure and functions of lymphocytes.
8. Humoral immune response - the structure and diversity of antibodies. Mechanisms of functioning of immunoglobulins.
9. Cellular immune response - T-killers, structural features and mechanisms of functioning.
10. Immunological memory.
11. Cytokines - structure, classification, biological role.
12. Comparative characteristics of mechanisms of innate and adaptive immunity.
13. Evolutionary value of the immune system.
14. The evolution of cellular immunity.
15. The history of the formation of immunology as a science.
16. The definition of "immune system".
17. Primary and secondary lymphoid organs.
18. Cells of the immune system: structure, function, origin and maturation.
19. Lymphocyte circulation, mobility and leukocyte lifetime.
20. Innate immunity. Constitutional, species immunity.
21. Cellular and humoral non-specific protective factors.
22. Phagocytosis. Oxygen-dependent and oxygen-independent mechanisms for the destruction of foreign antigens.
23. Cellular factors of resistance. MFS- system of mononuclear phagocytes. Monocytes, granulocytes, mast cells, large granular lymphocytes.
24. Humoral factors of resistance. Acute phase proteins. Complement system. Mediators of inflammation. Anafilotoxins.
25. Alternative, classical and lectin-dependent pathways of activating the complement system.
26. Acquired immunity. Specific mechanisms of immunity. Population composition of lymphocytes.
27. Antigens. Basic concepts and concepts. Classification of antigens. Immunogenicity The specificity of the antigen. Examples of some antigens.
28. Antibodies. The structure of immunoglobulins.
29. Molecular structure, classes of immunoglobulins, properties of immunoglobulins (IgG, IgM, IgA. IgD. IgE).
30. Genetics of antibody formation.
31. Cellular immunity, meaning and induction. Effects of cellular immunity (CI).
32. Mediators of cellular immunity. Cell cytotoxicity.
33. The mechanisms of activation of T and B cells. Cooperative mechanisms of intercellular interactions. Lymphokines.
34. Natural and acquired tolerance.
35. Cytokines. Principles of functioning of the cytokine system.
36. Ontogenesis of the immune system.
37. Antigens of the cluster of differentiation.
38. Evolution and phylogenesis of the immune response.
39. Anti-infective immunity.
40. Immunodeficiency and its prevention.
41. Vaccination. Vaccination based on killed and attenuated microorganisms.
42. Classical and modern methods of attenuation.
43. Use of purified antigens.
44. Molecular cloning, synthetic peptides.
45. Idiotypical vaccines.
46. Primary immunodeficiencies.
47. Secondary immunodeficiencies.
48. AIDS.
49. Allergic reactions: Immediate type of hypersensitivity and Cellular type of hypersensitivity.
50. Hypersensitivity. Reactions of hypersensitivity I-IV types.
51. Etiology, manifestations and mechanisms of autoimmune diseases.
52. Transplant immunology.

5.4. List of Assessment Tools

Presentation
Test
Essays for Individual Work
Situational tasks

Frontal survey in the form of a test
Differentiated credit
(Grading scales for all types of evaluation tools in Appendix 3)

6. COURSE (MODULE) METHODOLOGICAL AND INFORMATIONAL SUPPORT

6.1 Recommended Reading

6.1.1 Required Reading List

	Authors, Compliers	Title	Book publisher, Year
L1.1.	Male D., Brostoff J., Roth D., Roitt I.	Immunology	ISBN: 978-0-702-04548-6 Elsevier, 2013 – 590p.
L1.2.			
L1.3.	Peter J. Delves [et al.].	Roitt's essential immunology	12th ed. – 2011 – 546 p.
L1.4.	Robert R. Rich, Thomas A. Fleisher, William T. Shearer, Harry W. Schroeder Jr., Anthony J. Frew, and Cornelia M.	Clinical Immunology: Principles and Practice	2010 – 1578 p.

6.1.2 Advanced Reading

	Authors, Compliers	Title	Book publisher, Year
L2.1.	Stephen T. Holgate, Martin K. Church, David H. Broide, and Fernando D. Martinez.	Allergy	4th ed. / – 4th ed. – 2012. – 399 p.
L2.2.	Lauren Sompayrac.	How the immune system works	4th ed. – 2012. – 141 p.
L2.3.	Raif Geha, Luigi Notarangelo.	Case studies in immunology: a clinical companion	6th ed. – 2011. – 363 p.

6.1.3 Guidance Papers

	Authors, Compliers	Title	Book publisher, Year
L3.1.	I Kenneth Murphy with acknowledgment to Paul Travers, Mark Walport; with contributions by Allan Mowat, Casey T. Weaver.	Janeway's immunobiology	8th ed. – 2012 – 868 p.

6.2 Online Resources

6.3.2.1 Allimmunologi.org - a site dedicated to immunology, immunity, immunization. [El. resource]. Access mode: http://allimmunology.org/ On this site you can freely find immunological journals, links to various websites on immunology
6.3.2.2 http://www.biblioclub.ru
6.3.2.3 Immunology in Russia On-Line »- [El. resource]. Access mode: http://www.rji.ru/ruimmr.htm - electronic journal
6.3.2.4 Scientific electronic library. [El. resource]. Access Mode: elibrary.ru.
6.3.2.5 http://www.nature.ru - site for all sections of biology, medicine, genetics, physiology
6.3.2.6 Russian National Library http://www.nlr.ru

6.3. List of Information and Education Technologies

6.3.1 Competence-based Educational Technologies

6.3.1.1 Traditional educational technologies - lectures, practical exercises, consultations focused on the communication of knowledge transferred to students in finished form.
6.3.1.2 Innovative educational technologies - classes in an interactive form, which form systems thinking and the ability to generate ideas in solving various problems. These include electronic texts of lectures with presentations.
6.3.1.3 Information educational technologies - independent use by a student of computer equipment and Internet resources for carrying out practical tasks and independent work.

6.3.2 List of Information Reference Systems and Software

6.3.2.1 Allimmunologi.org - a site dedicated to immunology, immunity, immunization. [El. resource]. Access mode: http://allimmunology.org/ On this site you can freely find immunological journals, links to various websites on immunology
6.3.2.2 http://www.biblioclub.ru
6.3.2.3 Immunology in Russia On-Line »- [El. resource]. Access mode: http://www.rji.ru/ruimmr.htm -

electronic journal
6.3.2.4 Scientific electronic library. [El. resource]. Access Mode: elibrary.ru.
6.3.2.5 http://www.nature.ru - site for all sections of biology, medicine, genetics, physiology
6.3.2.6 Russian National Library http://www.nlr.ru

7. COURSE (MODULE) LOGISTICS

7.1. The department is located on the territory of the Ilbirs LLC - at the address: Bishkek, Kiev st., 77
7.2. Classroom №1 for 24 seats, for practical training, individual work and watching multimedia, video, visual aids - stands, board, sets of tables and diagrams.
7.3. Classroom №.2 for 24 seats, for practical training, individual work and viewing multimedia, video materials, visual aids - stands, board, sets of tables and diagrams.
7.4. Classroom №3 (small lecture hall) for 50 seats, for conducting practical exercises, performing individual work and watching multimedia, video materials, visual aids - stands, board, sets of slides, tables, multimedia visual materials on various sections of the discipline.
7.5. Classroom №4 for 12 seats for practical training.
7.6. Classroom №5 for 12 seats, for practical training.
7.7. Information sources: - library - 80 copies;
7.8. Computer
7.9. Projector
7.10. Printer
7.11. Scanner
7.11. Netbook
7.12. Modern instrumental base for demonstration of immunological methods of research in the immunological laboratory of the Research Institute of Molecular Biology and Medicine.

8. COURSE (MODULE) PROFICIENCY METHODICAL GLUIDELINES (FOR STUDENT)

Starting to study the discipline, the student should carefully read the thematic lesson plan, a list of recommended literature. Should understand the sequence of individual learning tasks. Independent work of a student involves working with scientific and educational literature, the ability to create texts. The level and depth of mastering the discipline depends on the active and systematic work at the lectures, the study of the recommended literature, the performance of written control tasks.
When studying the discipline, students perform the following tasks:
- study the recommended scientific-practical and educational literature;
- perform the tasks provided for independent work;
The course program is based on the principles of consistency and continuity of the content of the topics studied. Learning technology is focused on the use of traditional forms.
The main types of classroom work of students are lectures and practical exercises.
During the lectures, the teacher sets out and explains the basic, most complex concepts of the topic, as well as the theoretical and practical problems associated with it, gives recommendations for the seminar lesson and instructions for individual work.
Practical classes complete the study of the most important topics of the academic discipline. They serve to consolidate the material studied, develop the skills and abilities to prepare reports, reports, gain experience of oral public speaking, lead discussions, argue and defend put forward positions, and also control the teacher's degree of students' readiness in the discipline.

Practical classes

Topic 1. Tasks and history of the development of immunology.

Plan: The emergence and formation of immunology as a science, the stages of formation of immunology. The role of domestic and foreign scientists in the development of immunology. The main directions of modern immunology: cellular, molecular, clinical, transplantation.
Questions for self-control:
1. Tell us about the emergence and formation of immunology as a science. 2. What is the role of domestic and foreign scientists in the development of immunology? 3. List the main directions of modern immunology.
Questions for self-study: environmental immunology; immunogenetics, immunopathology, allergology, immunomorphology, immunochemistry, immunohematology. immunology of reproduction, etc. The role of immunology in the development of medicine and biology, its relationship with other sciences.

Topic 2. The modern definition of the term "immunity".

Plan: Immunity as the main function of the immune system, aimed at maintaining the genetic constancy of the

internal environment of the body. Formation of human immunity. The role of the immune system in humans. The main directions of development of modern immunology.
Questions for self-control: 1. Describe the immune system as the main function of the immune system, aimed at maintaining the genetic constancy of the internal environment of the body. 2. How is the formation of human immunity? 3. List the main directions of development of modern immunology.
Questions for self-study: Types of immunity (innate, acquired, natural, artificial, active, passive, sterile, non-sterile, local, etc.). Immunity in ontogeny and phylogenesis. Immunity theory.

Topic 3. Nonspecific factors of protection of the human body.
Plan: The concept of mechanical, physico-chemical biological barriers. Mechanical protective reactions of the skin, mucous membranes. Physical and chemical protection of the body: pH, pepsin enzymatic activity, etc. Biological factors are protected. Nonspecific protection factors (barrier structures of the skin and mucous membranes, liver, acute phase proteins, secretions and biological fluids of the body, enzymes, lysozyme, properdin, inflammatory reactions, the organism's microflora), their role in the body's resistance to infections, a fundamental difference from specific immune factors. The main stages and mechanisms of phagocytosis.
Questions for self-control: 1. Expand the concept of mechanical, physico-chemical biological barriers. 2. Name the mechanical protective reactions of the skin, mucous membranes. 3. List the main stages and mechanisms of phagocytosis.
Questions for self-study: The complement system and its role in protective and regulatory reactions. Classic and alternative pathways to activate complement. The system of natural cytotoxicity (natural killer, interferons). Natural killers, their role in protecting the body. Humoral non-specific protection factors. Complement system, lysines, interferons, leukins, antiviral serum inhibitors, lysozyme, plaquins, properdin, fibronecty, etc. Interferons. Interferon classification, inductors, mechanism of formation and action of interferons. Immunobiological value of interferons (antiviral, immunomodulatory, anti-proliferative), their production and practical use.

Topic 4. The immune system of the human body and its main functions. Organs and cells of the human immune system.
Plan: The immune system as a set of organs, tissues and cells that perform immunological functions. Central organs of the immune system: bone marrow, thymus. Peripheral organs of the immune system: spleen, lymph nodes and follicles. Age features of the immune system. Modern scheme of immunogenesis. Lymphocyte is a central figure in the immune system. Modern ideas about the development of lymphocytes. The concept of the stem (parental) hematopoietic cell. The origin of the stem cell, its characteristics. Stem cell circulation. The concept of the precursors of T-and B-lymphocytes, their characteristics, identification. Thymus-dependent pathway for the development of lymphocytes (T-cells).
Questions for self-control: 1. Describe the immune system as a set of organs, tissues and cells that perform immunological functions. 2. List the central organs of the immune system. 3. Tell us about the role of the spleen, lymph nodes, tonsils and other tissues of the peripheral part of the immune system in immunity.
Questions for self-study: Features of lymphoid accumulations associated with mucous membranes in the intestines, lungs, urogenital system, skin, etc. The role in the immunity of the spleen, lymph nodes, tonsils and other tissues of the peripheral part of the immune system, their morphological features. T-and B-lymphocytes, their characteristics, methods of identification. The concept of subpopulations of T-and B-lymphocytes.

Topic 5. Basics of immunodiagnostics.
Plan: The concept of serological reactions. Characterization of the reaction of antigen - antibody: specificity, biphasic nature, reversibility, the optimal ratio of ingredients, qualitative and quantitative, sensitivity, etc. The mechanism of reactions. Practical use of serological reactions: identification of the antigen, diagnostic detection of antibodies. The main components of serological reactions. Diagnostic immune sera, diagnosticum. Monoclonal antibodies, their use. Phenomena of manifestation and methods of registration of serological reactions. The main methods for the detection of antibodies and antigens. Assessment of the functional state of phagocytes. Methods for determining complement. Principles of assignment of the reaction of CFR, RPGA and CIC. The principle of formulation of reactions using chemical and physical labels of antibodies and antigens (ELISA, immunofluorescence, radioimmunoassay, flow cytometry), their variants and diagnostic value. Modern immunochromatographic tests, the principle of the method.
Questions for self-control: 1. List the main components of serological reactions. 2. What are monoclonal antibodies, what is their use? 3. List modern immunochromatographic tests and explain the principle of the method. 4. What is an ELISA? .5. Tell the phenomena of specific agglutination and precipitation, staging options, use in medicine.
Questions for self-study: Reactions based on the phenomenon of agglutination. Reactions based on precipitation

phenomenon. Reactions involving the complement. Reactions using labeled antigens and antibodies. Immunoelectron microscopy (using antibodies labeled with ferritin, colloidal gold, isotopes).

Topic 6. Antigens.
Plan: Definition. The concept of foreignness, antigenicity, immunogenicity, antigen specificity. Characteristics of molecules with antigenic properties (proteins, polysaccharides, lipopolysaccharides, etc.). Complete and incomplete antigens. Haptens The structure of the macromolecule antigen. Antigenic determinants (epitopes) and their role in the formation of the specificity of antigens.
Questions for self-control: 1. Give the definition of antigen. 2. Give the characteristic of molecules with antigenic properties. 3. Describe the diversity of antigens.
Questions for self-study: Immunochemical specificity of antigens, its manifestations: species, group, type, organ, heterospecific. Microbial antigens, localization, chemical composition, their role in the infectious process and the development of the immune response. Thymus-dependent and thymus-independent antigens. Variety of antigens.

Topic 7. Antibodies.
Plan: Antibodies. Definition. Physico-chemical, biological properties and functions. Immunoglobulins. The main classes, their structural and functional features. The mechanism of interaction of antibodies with antigen. Immune complex. Avidity and affinity of antibodies. The concept of valency antibodies. Antigenic structure of immunoglobulins: isotypic, allotypic. idiotypical determinants. Theory of synthesis and diversity of antibodies.
Questions for self-control: 1. Expand the concepts of antibodies and immunoglobulins 2. Tell us about the antigenic structure of immunoglobulins. 3. Name the properties of antibodies. 4. Tell the molecular structure, classes of immunoglobulins, properties of immunoglobulins (IgG, IgM, IgA. IgD. IgE).
Questions for self-study: Definition of the concept and principles of classification of antibodies. The structure and function of immunoglobulins. Molecular structure, classes of immunoglobulins, properties of immunoglobulins (IgG, IgM, IgA. IgD. IgE). Avidity and affinity of antibodies. The concept of valency antibodies. Antigenic structure of immunoglobulins: isotypic, allotypic. idiotypical determinants. Theory of synthesis and diversity of antibodies. Genetics of antibody formation. The mechanism of interaction of antibodies with antigen. Immune complex.

Topic 8. The human immune status.
Plan: Principles of formation. Age dynamics. Factors affecting the immune status: climatic, geographical, social, medical. Collect immunological history. Methods of investigation of the immune status and principles of its clinical evaluation. Evaluation of T-cell system immunity (cellular immunity). Evaluation of the B-cell system of immunity (humoral immunity). Assessment of the functional state of phagocytes. The main methods for the detection of antibodies and antigens. Definition of complement. Tests of the first and second level, their clinical interpretation.
Questions for self-control: 1. Name the factors affecting the immune status. 2. List the methods for assessing the immune status. 3. Expand the age features of the immune status and principles of its evaluation.
Questions for self-study: Methods for assessing the immune status. Detection of antibodies. Methods for the determination of immune complexes. Methods for the quantitative and qualitative determination of immunoglobulins. Determination of subpopulations of T-and B-lymphocytes: cluster analysis. E- and EAC-rosette; assessment of mitotic and killer lymphocyte activity, determination of NK-cell activity. Skin tests as a method of indicating cellular immunity. Tests of the first and second level, their clinical interpretation. Evaluation of T-cell system immunity (cellular immunity). Evaluation of the B-cell system of immunity (humoral immunity). Assessment of the functional state of phagocytes.

Topic 9. Differential diagnosis of major immunopathological syndromes.
Plan: The concept of immunopathological syndromes and their classification. Allergic syndrome. Infectious syndrome. Autoimmune syndrome. Immunoproliferative syndrome. Primary immunodeficiency. Secondary immunodeficiency. Differential diagnosis of major immunopathological syndromes.
Questions for self-control: 1. What are the factors influencing the development of immunopathological syndromes. 2. List the main immunopathological syndromes 3. Describe the differential diagnosis of the main immunopathological syndromes.
Questions for self-study: The concept of immunopathological syndromes and their classification. Allergic syndrome. Infectious syndrome. Autoimmune syndrome. Immunoproliferative syndrome. Primary immunodeficiency. Secondary immunodeficiency. Differential diagnosis of major immunopathological syndromes.

Topic 10. Allergic reactions.
Plan: The concept of allergies. The classification of allergic reactions according to Jelle and Coombs: type I - due to IgE anaphylactic (atopic) reactions; type II - cytotoxic reactions; type III - immunocomplex reactions; Type IV - T cell lymphocyte mediated reactions. History of discovery. The concept of sensitization. Characteristics of allergens. The mechanism of development of allergic reactions of the humoral type. Signs of difference between humoral and cellular allergic reactions. Manifestations (anaphylactic shock. Serum sickness, local anaphylaxis, etc.).
Questions for self-control: 1. Expand the concept of allergies. 2. List allergic reactions according to Gel and Coombs. 3. Name the signs of the difference between humoral and cellular allergic reactions.
Questions for self-study: Diagnostic tests to identify the humoral allergy type. Immunological basis of prevention and treatment. Desensitization. The concept of cell-mediated immunity. Mechanisms of development of reactions, the role of mediators. Forms of manifestation: infectious, contact, transplant. Antitumor, autoimmune allergy. Detection methods. Allergy skin tests, their diagnostic value.

Topic 11. Allergy pathology.
Plan: The concept of anaphylaxis. Anaphylactic shock. Etiology, pathogenesis, clinic, diagnosis, treatment, prevention. Drug allergies. Etiology, pathogenesis, diagnosis, treatment, prevention. Food allergies. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Angioedema. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention
Questions for self-control: 1. Expand the concept of anaphylaxis. 2. List the types of drug allergies 3. Name the signs of food allergic reactions.
Questions for self-study: Mechanisms of development of anaphylactic shock. Lyell syndrome - etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Stevens-Johnson syndrome - etiology, pathogenesis, clinic, diagnosis, treatment and prevention. First aid for anaphylactic shock. Rehabilitation with swelling of the larynx. Food allergies - etiology, pathogenesis, clinical manifestations, diagnosis, treatment and prevention. Angioedema-Quincke's edema - etiology, pathogenesis, clinic, diagnosis, treatment and prevention.

Topic 12. Allergic diseases.
Plan: Bronchial asthma. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Urticaria. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Atopic dermatitis. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Allergic rhinitis. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention.
Questions for self-control: 1. Expand the concept of atopic diseases. 2. List the types of asthma and allergic rhinitis. 3. What are the main symptoms of urticaria and atopic dermatitis? 4. What is ASIT therapy.
Questions for self-study: Mechanisms of development of bronchial asthma. Quincke edema, etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Allergic rhinitis - etiology, pathogenesis, clinic, diagnosis, treatment and prevention. ASIT therapy for atopic dermatitis.

Topic 13. Immunopathology.
Plan: Primary and secondary immunodeficiencies. Lack of humoral, cellular immunity, combined disorders of immunity. The role of infection in the development of human immunodeficiency.
Questions for self-control: 1. What is the role of infection in the development of human immunodeficiency? 2. Tell about the etiology and pathogenesis of primary immunodeficiencies. 3. What is an immunodeficiency condition? 4. Classification of immunodeficiencies.
Questions for self-study: The role of environmental factors in the induction of primary and secondary immunodeficiencies. Primary (congenital) immunodeficiencies with B-lymphocyte defects. Causes of defects of the humoral link. Bruton disease, clinical options, diagnosis, treatment tactics. Selective IgG deficiency - clinic, diagnosis, treatment tactics. Hyper IgE - syndrome - etiology, pathogenesis, clinic, diagnosis, treatment tactics.

Topic 14. Primary T-cell immunodeficiencies. Congenital immunodeficiencies with defects in the macrophage system.
Plan: Primary (congenital) immunodeficiencies with T-lymphocyte defects. Classification of T-cell immunodeficiencies. Causes of cellular defects. Causes of macrophage defect
Questions for self-control: 1. What are the causes of cellular defects? 2. Tell us about the etiology and pathogenesis of primary immunodeficiency of the macrophage.
Questions for self-study: Primary (congenital) immunodeficiencies with T-lymphocyte defects. Di-Georgie syndrome, clinical signs, diagnosis, treatment tactics. Louis-Barr Clinic syndrome, diagnosis, treatment tactics. Chediak-Higashi syndrome - etiology, pathogenesis, clinic, diagnosis, treatment tactics. TKID clinical signs, diagnosis, treatment. Chronic granulomatous disease clinical signs, diagnosis, treatment tactics. Wiskott-Aldrich

syndrome, clinical signs, diagnosis and treatment.

Topic 15. Secondary (acquired) immunological deficiency.
Plan: Secondary (acquired) immunological deficiency. Classification VIEW. The role of species in the pathogenesis of various human diseases. The structure and structure of HIV. Ways of HIV transmission. AIDS, etiology, pathogenesis, diagnosis and treatment.
Questions for self-control: 1. What is the induced form of the VIEW? 2. Tell us about the spontaneous form of VIEW. 3. What is HIV? 4. How is HIV different from AIDS? 4. List ways to transmit AIDS.
Questions for self-study: Secondary (acquired) immunological failure. Classification SID . The role of species in the pathogenesis of various human diseases. The structure and structure of HIV. Ways of HIV transmission. AIDS, etiology, pathogenesis, diagnosis and treatment.

Topic 16. Immunotropic therapy.
Plan: Principles of immunotherapy. Reportations to the use of immunotropic drugs. Classification of immunotropic drugs, modern immunocorrective drugs. Immunomodulators of thymic and bone marrow origin, mechanism of action and indications for use. Immunomodulators of microbial and plant origin, mechanism of action and indications for use. Immunomodulators of synthetic origin, mechanism of action and indications for use. Immunomodulators based on interferon (IFN) and interleukins (IL). Applications, treatment regimens. Classification of immunosuppressants, mechanism of action and indications for use.
Questions for self-control: 1. What groups of immunocorrective drugs know 2. Tell the basic principles of the appointment of immunotropic drugs. 3. Which immunomodulators have a membrane-protective action?
Questions for self-study: Immunomodulators of thymic and cerebral origin, mechanism of action and indications for use. Immunomodulators of microbial and plant origin, mechanism of action and indications for use. Immunomodulators of synthetic origin, mechanism of action and indications for use. Immunomodulators based on interferon (IFN) and interleukins (IL). Applications, treatment regimens. Classification of immunosuppressants, mechanism of action and indications for use.

Topic 17. Autoimmune pathology.
Plan: Immunological tolerance, types of immunological tolerance. Immunological memory. Autoantigens and autoantibodies. Mechanisms for the development of auto-aggression. Classification of autoimmune diseases. Target organs in autoimmune diseases.
Questions for self-control: 1. What are the causes of autoimmune pathology? 2. Tell the mechanism of immunological tolerance. 3. What are organ-specific and organ-specific diseases?
Questions for self-study: The concept of auto-aggression. Mechanisms for the development of auto-aggression. Immunological tolerance, types of immunological tolerance. Diabetes mellitus type I: etiology, pathogenesis, clinic, diagnosis and treatment. Autoimmune diseases of the thyroid gland: Graves disease, etiology, pathogenesis, clinic diagnosis and treatment. Hashimoto disease, etiology, pathogenesis, clinic diagnosis and treatment.

Topic 18. Autoimmune diseases.
Plan: What organs and tissues do not develop natural immunological tolerance. Rheumatoid arthritis: etiology, pathogenesis, clinic diagnosis and treatment. Systemic lupus erythematosus. Etiology, pathogenesis, clinic, diagnosis and treatment. Antiphospholipid syndrome. Etiology, pathogenesis, clinic, diagnosis and treatment. Vasculitis, etiology, pathogenesis, clinic, diagnosis and treatment.
Questions for self-control: 1. To which organs and tissues does not develop natural immunological tolerance? 2. Tell us about the etiology and pathogenesis of rheumatoid arthritis. 3. What is rheumatoid factor? 4. What is the Lupus test?
Questions for self-study: Rheumatoid arthritis: etiology, pathogenesis, clinic diagnosis and treatment. Systemic lupus erythematosus. Etiology, pathogenesis, clinic, diagnosis and treatment. Antiphospholipid syndrome. Etiology, pathogenesis, clinic, diagnosis and treatment. Vasculitis, etiology, pathogenesis, clinic, diagnosis and treatment.

APPENDIX 1

SITUATIONAL TASKS

Task 1. Organ has capsule, marginal sinuses, follicles, which consist of small lymphocytes on the periphery and blast forms of the center (reactive centers), zone of T-lymphocytes, in the center the sinus alternate with the accumulation of lymphocytes, plasma cells. What organ does have this structure?
1-Thymus
2- Brain
3-Lymphatic nodes

Task 2. With the microscopic examination of the blood, it is established that in man in the blood it does circulate many immunoglobulin's M and G what cells of the blood are critical for the formation of immunoglobulin?
1-T- lymphocytes
2. B- lymphocytes
3- Neutrophils
4-Erythrocytes

Task 3. With the microscopic examination of the cells of the blood are revealed the cells, which ripen in the thymus. With what cells does deal the discussion?
1- Erythrocytes
2-B- lymphocytes
3- Neutrophils
4. T- lymphocytes
5-Basophils

Task 4. With a macroscopic study of the thymus of child it is established that it is located on the neck, decreases in the size, in it the separation into the crust and the cerebral substance is disrupted. By coca another organ does relate to the central organs of immunogenesis?
1-Lymphatic nodes
2. Lymphatic follicles in the walls of gut.
3-Mindalin of brain.

Task 5. Name the cellular system, specific function of which is the immune protection:
1-Neutrophil granulocytes
2. Erythrocytes
3- Lymphoid cells a
4-.Reticulocytes

Task 6. The woman of 35 years entered hospital in the urgent of order with the assault of bronchial asthma and at the height of assault began death. On the dissection are found the expressed spasm of bronchi, the infiltration of the walls of bronchi with neutrophils, by lymphocytes, by fat cells, and also the obscuration of the opening of small bronchi by mucus. What mechanism of hypersensitivity does

be the basis of the described changes?
1. Immunological tolerance.
2. Immediate mechanism
3. Immunocomplex mechanism.
4. Cellular- defined by example mechanism
5. Atopy, anaphylaxis.

Task 7. The child of 2, 5 years, who prolonged was ill, lagged in the physical development, it died of the generalized fungus infection (candidiosis). The significant decrease of the thymus is found on the dissection. With the microscopic examination of the thymus among the fatty and connective tissue is determined an insignificant quantity of reticulocytes and lymphocytes. In the lymph nodes - expressed bright centers of the multiplication of follicles, the devastation of paracortical zones. About what process do testify these changes?
1. about immediate type hypersensitivity.
2. about retarded type hypersensitivity.
3. About the acquired of humeral immunity.
4. about the innate of humeral immunity.
5. about the innate of cellular immunity.

Task 8. With histological a study of the increased neck lymph node the anatomical pathologist found the plural granulomas, which consisted of epithelioid, lymphoid cells, giant polynuclear cells of Pirogov -Langans and foci of caseous necrosis. What mechanism of hypersensitivity does occur in this case?
1. Anaphylactic.
2. Immediate.
3. Immunocomprimesed
4. Cellular- indirected.
5. Cellular immunodeficiency.

Task 9. In woman with the rhesus- negative factor rh-positive child was born. Jaundice appeared toward the end of the first day in child, increased the liver and spleen. With a study of the placenta is determined its increase, pale painting, edema of naps. What immunopathologic mechanism does be the basis of changes in newborn?
1. Autoimmune disease
2. Humoral mechanism.
3. Immunocomplex mechanism.
4. Cellular mechanism
5. Atopy, anaphylaxis.

Task 10. Patient turned herself to the doctor with the complaints of an increase in the thyroid gland, the difficulty with the ingestion, apathy, and bradycardia. In palpation of gland is found the substitution of the tissue of gland by lymphoid infiltrations with the formation of lymphoid follicles and the proliferation of B-lymphocytes. For what illness the characteristic described histological picture?
1. Autoimmune thyroiditis of Hashimoto
2. Main goiter
3. Toxic goiter
4. Diffuse colloidal goiter

5. Diffuse parenchymatous goiter

Task 11. After transferred streptococcus angina in 2 weeks in the man of 23 years appeared general weakness, pains in the lumbar region, change in the urine - hematuria, proteinuria to 1 g/l. At the study of nephritic biostatic by immunohistochemical method are found the deposits in mezangiume, in the glomerate basal lamina Ig, M Ig.G, the fractions of complement, while with the electron-microscopic examination - electron-dense epithelial deposits. What immunological process did cause changes in the kidneys?
1. Anaphylactic mechanism of hypersensitivity.
2. Immediate mechanism of hypersensitivity.
3. Cellular mechanism of hypersensitivity.
4. Immunocomplex mechanism of hypersensitivity.
5. Cellular immunodeficiency.

Task 12. The boy of 8 months died of the staphylococcal sepsis. With a study of lymphatic it is main found the absence of reactive follicles and plasma cells. The thymus is developed normally. About what process do testify these changes in child?
1. Cellular immunity.
2. Immunological tolerance.
3. acquired humeral immunity.
4. Innate humeral immunity.
5. acquired cellular immunity.

Task 13. To patient with malignant lymphoma was carried out is somewhat it was course the radiation therapy. What changes in immunological status patient it does follow to expect?
1. Innate cellular immunodeficiency.
2. Immunological tolerance.
3. Acquired (second) immunodeficiency.
4. Innate humeral immunodeficiency.
5. Innate humeral and cellular immunodeficiency.

Task 14. A 22-year-old woman came to see a doctor complaining of the stuffy nose, attacks of sneezing, watery discharge from the nose, bothering her during last 3 years from August to September. The patient was made skin scarification tests with pollen allergens (ambrosia, wormwood, and goose-foot). The result of the tests is negative.
Which diagnostic measures are necessary to specify the causes of the diseases in this patient?

Task 15. A 20-year-old man is complaining of attacks of heavy breathing, itching of the eyelids, lachrymation, tickling in the throat, which develop during tidying-up, shaking out carpets and bedding. History: in the childhood suffered from atopic dermatitis.
Which etiological factors are the most probable in this case?
Which methods of investigation may prove them?
Which elimination measures must be taken for the patient?

Task 16. A 19-year-old woman is followed in the antenatal clinic because of pregnancy (10-12 weeks).
History: she is known to have been ill with pollinosis for 5 years; sensitization to ambrosia and goose-foot allergens was revealed.
Which preparations should be preferred in case of exacerbation of allergic rhinitis?
What recommendations may be given to prevent atopic diseases in the future child?

Task 17. In a 52-year-old man, after the contact with synthetic detergents, multiple eruptions have developed on the skin of the arms and abdomen, accompanied with pronounced itching. History: the patient is known to have been ill with ischemic heart disease: post-infarction cardiosclerosis, blockade of the right leg of the His' band.
Which antihistamine preparations should be administered in such a situation?

APPENDIX 2

Tests for basic and clinical Immunology

1. A secondary lymphoid organ is
   - a. TLR
   - b. bacterial flagellin
   - c. tonsils
   - d. C-reactive protein
2. One of the pathogen-associated molecular pattern is
   - a. TLR
   - b. bacterial flagellin
   - c. tonsil
   - d. C-reactive protein
3. Antimicrobial peptides is(are)
   - a. defensins and cathelicidins
   - b. unmethylated DNA, ss RNA
   - c. SALT
   - d. C-reactive protein
4. The cell of the following cell types that is called a Kupfer cell when in the liver is
   - a. neutrophil
   - b. T or B lymphocyte
   - c. macrophage
   - d. NK cell
5. A pathogen associated molecular pattern is(are)
   - a. defensins and cathelicidins
   - b. Unmethylated DNA, ss RNA
   - c. SALT
   - d. C-reactive protein
6. Which of the following is involved in a humoral immune response?
   - a. neutrophil
   - b. B lymphocyte
   - c. macrophage
   - d. NK cell
   - e. T cells
7. An acute phase reactant involved in cardiac risk measurements is(are)
   - a. defensins and cathelicidins
   - b. unmethylated DNA, ss RNA
   - c. SALT
   - d. C-reactive protein
8. CD19, 20, 21 are on these cells
   - a. macrophage
   - b. B cells
   - c. T cells
   - d. dendritic cells
9. Which one of these does not belong?
   - a. Kupfer cells
   - b. histiocytes
   - c. alveolar macrophages

- d. dendritic cells

10. CD11c+ cells are
- a. macrophage
- b. B cells
- c. T cells
- d. dendritic cells

11. A pattern recognition receptor is(are)
- a. defensins and cathelicidins
- b. unmethylated DNA, ss RNA
- c. SALT
- d. toll-like receptor

12. Apoptosis, also known as programmed cell death occurs when
- a. the cell receives certain signals and then sends perforins to kill neighboring cells
- b. the cell receives certain signals and digests its own DNA
- c. the cell receives certain signals and digests its own membrane
- d. none of the above

13. Which of the following cells kills tumor cells and virally infected cells, not antigen specific, uses perforins
- a. neutrophil
- b. B lymphocyte
- c. macrophage
- d. NK cell

14. The innate immune system uses
- a. PRR to recognize PAMP
- b. PAMP to recognize PRR
- c. PAMP to recognize surface mannose
- d. surface mannose to recognize lectins on the bacteria

15. Which of the following has a polymorphic nucleus
- a. neutrophil
- b. B lymphocyte
- c. macrophage
- d. NK cell
- e. T cells

16. The process by which macrophage and neutrophils squeeze through the intact blood vessel is
- a. opsonization
- b. diapedesis
- c. chemotaxis
- d. phagocytosis

17. An acute phase reactant is
- a. TLR
- b. bacterial flagellin
- c. tonsil
- d. C-reactive protein

18. An antigen-specific cell is a
- a. neutrophil
- b. T or B lymphocyte
- c. macrophage
- d. NK cell

19. The first cell at the site of an infection is a(n)
- a. neutrophil
- b. T or B lymphocyte
- c. macrophage

- d. NK cell

20. When treated with IL-2, this cell becomes an LAK cell.
- a. neutrophil
- b. T or B lymphocyte
- c. macrophage
- d. NK cell

21. A secondary lymphoid organ is(are)
- a. defensins and cathelicidins
- b. unmethylated DNA, ss RNA
- c. SALT
- d. C-reactive protein

22. A lectin is a
- a. molecule that binds to neutrophils
- b. molecule that binds lipids
- c. molecule that binds carbohydrates
- d. a molecule that causes apoptosis

23. Each of the 12 types of these binds a different PAMP.
- a. TLR
- b. bacterial flagellin
- c. tonsil
- d. C-reactive protein

24. The phagocytic cell that does not arrive first at the site of a chronic infection is the
- a. neutrophil
- b. B lymphocyte
- c. macrophage
- d. NK cell
- e. T cell

25. A phagocytic cell is a(n)
- a. platelet
- b. T or B lymphocyte
- c. macrophage
- d. NK cell

26. The cell of the following cells that has a specific regulatory subset is a
- a. neutrophil
- b. B lymphocyte
- c. macrophage
- d. T cell

27. Which cell is very active in antigen presentation?
- a. dendritic cells
- b. T cells
- c. epithelial cells
- d. LAK cells

28. Which statement is correct?
- a. Serum is formed after blood is allow to clot.
- b. Serum is formed in blood after anticoagulants have been added.
- c. Plasma is formed after blood is allowed to clot.
- d. Clotting factors are no longer in plasma.

29. CD 56+, CD 16+, and CD3- are markers used to characterize–
- a. a macrophage
- b. an NK cell
- c. a dendritic cell
- d. an eosinophil

30. All the cells are effectors except:

A. T-cytotoxic.

B. NK-cell.

C. Plasma cell.

D. T-helper.

E. None of above

31. How many types of the immune globulines do you know?

A. 6.

B. 3.

C. 4.

D. 5.

E. 2.

32. All the markers are of T-cells except:

A. CD4.

B. CD8.

C. CD3.

D. CD19.

E. None of above

33. What type of immunoglobulins has the most important role in case of acute respiratory infection?

A. IgA.

B. IgM.

C. IgG.

D. IgD.

E. IgE

34. What is the function of plasma cells?

A. participation in immune cooperation.

B. immunoglobulin production.

C. IFN production.

D. participation in neoplasia control.

E. immunosuppression.

35. What is the function of NK-cells?

A. participation in immune cooperation.

B. immunoglobulin production.

C. IFN production.

D. participation in neoplasia control

E. immunosuppression.

36. What class of immunoglobulin increases in case of helmint invasion?

A. IgA.

B. IgM.

C. IgG.

D. IgD

E. IgE.

37. What class of immunoglobulin can go through placenta?

A. IgA.

B. IgM.

C. IgG.
D. IgD.
E. IgE.
38. All the medicines could be useful in case of anaphylactic reactions except:
A. epinephrine
B. diphenhydramine
C. zaditen
D. dobutamine
E. betametason
39. AIDS is caused by a human retrovirus that kills
A. B lymphocytes
B. lymphocyte stem cells
C. CD4-positive T lymphocytes
D. CD8-positive T lymphocytes
E. None of above
40.The least likely recurrent infection caused by primary immune deficiency is:
a. Recurrent otitis media
b. Recurrent bacterial skin infection
c. Recurrent bacterial pneumonia
d. Recurrent osteomyelitis
e. Recurrent urinary tract infection
41. Which one is considered as a characteristic of transient hypogammaglobulinemia of infancy (THI)?
a. Normal IgG
b. Normal IgM
c. Normal IgA
d. Normal IgD
42. Which one is the most likely diagnosis of an 18 year old female who presents with a history of recurrent sinopulmonary infection, low IgG and IgA and ITP?
a. X-linked agammaglobulinemia
b. Severe combined immunodeficiency
c. Common variable immunodeficiency
d. Ataxia-telangiectasia
e. Cystic fibrosis
43. A 7 month old infant with a history of failure to thrive, recurrent oral candidiasis, and Pneumocystis carinii pneumonia is being evaluated. Which of the following is the least useful diagnostic test?
a. Immunoglobulin levels and functional antibody
b. Enumeration of T cells and lymphocyte proliferation assay
c. Anti-HIV antibody
d. Delayed type hypersensitivity skin test
e. Nitroblue tetrazolium test and phagocytic tests
44. A mother brings her son, a 6 year old boy with severe eczema, recurrent bacteria skin infections and history of staphylococcal pneumonia for evaluation of immunodeficiency. Initial tests reveal normal CBC and platelets, 50,000 IU of IgE, normal IgG, IgM and IgA levels. Which one is the most likely diagnosis?
a. Atopic dermatitis
b. Wiskott-Aldrich Syndrome

c. Hyper-IgE syndrome

d. Chronic granulomatous disease

e. Leukocyte adhesion defect

45. Which one is a true association of a primary immune deficiency and an abnormal hematologic finding?

a. Leukocyte adhesion defect and thrombocytopenia.

b. Hyper-IgM syndrome and neutropenia.

c. Wiskott-Aldrich syndrome and gigantic platelets.

d. Chronic granulomatous disease and large cytoplasmic granules in PMNs.

e. Hyper-IgE syndrome and mastocytosis.

46. Which one is the characteristic infection in patients with terminal complement (C5-C9) deficiency?

a. MRSA

b. Pneumocystis carinii

c. Meningococcus

d. Catalase-positive organisms

e. Herpes viruses

47. A contraindicated vaccine in an isolated IgA deficiency patient is:

a. OPV

b. Varicella

c. Influenza

d. MMR

e. None of the above

48. IVIG replacement is indicated in all of the following, except:

a. X-linked agammaglobulinemia (XLA)

b. X-linked hyper-IgM syndrome

c. Chronic granulomatous disease (CGD)

d. Wiskott-Aldrich syndrome (WAS)

e. Common variable immunodeficiency

49. PCP prophylaxis with trimethoprim-sulfamethoxazole is recommended in:

a. X-linked agammaglobulinemia (XLA)

b. X-linked hyper-IgM syndrome

c. Chronic granulomatous disease (CGD)

d. Wiskott-Aldrich syndrome (WAS)

e. Hyper-IgE syndrome

50. Development of Lyel's Syndrome is caused by:

A. anaphylactic type of allergic reaction
B. hyperresponsiveness of delayed type
C. cyto-toxic type of allergic reaction
D. immuno-complex type of allergic reaction

51. In the base of pathogenesis of serum disease is:

A. anaphylactic type of allergic reaction
B. hyperresponsiveness of delayed type
C. cyto-toxic type of allergic reaction
D. immuno-complex type of allergic reaction

52. Risk factors of medication side effect:

A. intolerance of medications in anamnesis
B. simultaneous assignment of two or more medications from the one group
C.simultaneous assignment of two or more medications from different groups excluding their interaction
D. all of the above

53. What nosology is accompanied by necrosis of epidermis surface?
    A. Lyel's Syndrome
    B. Syndrome of Stivens-Jonson
    C. toxico-allergic dermatitis
    D. varicella
54. What condition is always accompanied by toxic damage of CNS:
    A. serum disease
    B. Syndrome of Stivens-Jonson
    C. Lyel's Syndrome
    D. eczema
55. For treatment of allergy it is used everything except:
    A. adrenaline
    B. eufilin
    C. diphenhydramine
    D. paracetamol
56. The most effective drug for anaphylactic shock is:
    A. adrenaline, dopamine
    B. calcium chloride
    C. penicillin
57. Allergic reaction of immediate type:
    A. anaphylactic shock
    B. nettle rash
    C. Lyel's Syndrome
    D. Syndrome of Stivens-Jonson
58. Allergic reaction of delayed type:
    A. serum disease
    B. nettle rash
    C. acute vascular purpura
    D. anaphylactic shock
59. Bullous damage of skin and mucosa is typical for:
    A. Lyel's Syndrome
    B. Syndrome of Stivens-Jonson
    C. multiform exudative erythema
    D. candidiasis
60. Lyel's Syndrome appears after:
    A. taking antibiotics of penicillin group
    B. taking non-narcotic analgetics, more often pyrazolone group
    C. taking sulfanilamide, more often of prolonged forms
    D. all of the above
61. Catarrhal or mattery keratoconjunctivitis is typical for:
    A. Lyel's Syndrome
    B. Syndrome of Stivens-Jonson
    C.syndrome of Guillian - Barre
    D.Lime's syndrome
62. There are infective-allergic syndromes:
    A. syndrome of Landry
    B. Syndrome of Stivens-Jonson
    C. syndrome of Lyel
    D. syndrome of Guillian - Barre
63. Clinics of hyperresponsiveness of delayed type is caused by action of:
    A. hystamine
    B. kinins
    C. prostaglandins
    D. catheholamine
64. There are hyperresponsiveness reactions of immediate type except:
    A. nettle rash
    B. asthma
    C. anaphylaxia
    D. serum disease

65. In the base of pathogenesis of anaphylactic shock there is:
    A. immune-complex type of allergic reaction
    B. cyto-toxic type of immune reaction
    C. hyperresponsiveness of delayed type
    D. anaphylactic type of allergic reaction
66. Syndrome of Lyel is caused by:
    A. anaphylactic type of allergic reaction
    B. hyperresponsiveness of delayed type
    C. cyto-toxic type of allergic reaction
    D. immune-complex type of allergic reaction
67. It is typical for **S**yndrome of Stivens-Jonson
    A. acute start, febrile fever
    B. catarrhal or mattery keratoconjunctivitis
    C. development of dehydration shock
    D. erosive damage of mucous
68. Emergency in anaphylactic shock:
    A. to stop introduction of medication which cause anaphylactic reaction
    B. to cut away at the injection site by 1 ml 0,1% adrenalin
    C. glucocorticosteroids - intravenously by stream infusion, then by drop infusion
    D. all of the above
69. Clinic features of serum disease:
    A. it appears after taking medication suddenly
    B. it's developed in 1-3 weeks after taking medications
    C. nettle rash or macular –popular rash
    D. bullous polymorphous exudative erythema
70. Complications of anaphylactic shock:
    A. vasogenic shock
    B. DIS
    C. cerebral and pulmonary edema,
    D. all of the above
71. After the test for penicillin patient felt pain in chest, labored breathing, loss of consciousness. What is your diagnosis?
    A. anaphylactic shock
    B. Arthus phenomenon
    C.thrombembolia of pulmonary artery
    D. infectious-toxic shock
71. It is assigned in anaphylactic shock to enter medicine:
    A. Dopamine, adrenalin, glucocorticosteroids
    B. Glucose
    C. antihistamines
    D. antibiotics
72. Development of pain and toxic-allergic shock is typical for:
    A. serum disease
    B. eczema
    C. Syndrome of Lyel
    D. Syndrome of Guillian - Barre
73. Allergic reaction of immediate type is:
    A. anaphylactic shock
    B. serum disease
    C. Syndrome of Lyel
    D**.** Syndrome of Stivens-Jonson
74. Disease accompanied by toxic damage of CNS:
    A. serum disease
    B. Syndrome of Stivens-Jonson
    C. Syndrome of Lyel
    D. eczema
75. Hyperresponsiveness reaction of delayed type is:
    A. acute vascular purpura
    B. nettle rash

C. anaphylactic shock
D. serum disease

76. Syndrome of Lyel appears after taking medications:
A. antibiotics of penicillin group
B. analgetics
C. sulfanilamides
D. all of the above

77. What nosology is accompanied by necrosis of epidermis surfaces:
A. Syndrome of Lyel
B. Syndrome of Stivens-Jonson
C. toxic-allergic dermatitis
D. varicella

78. Erosive-helcoid damages of mucous of different organs are typical for:
A. Syndrome of Guillian - Barre
B. Syndrome of Lime
C. Syndrome of Lyel
D. Syndrome of Stivens-Jonson

79. It is typical for serum disease:
A. beginning in 1-3 weeks after taking medication
B. nettle-rash or macular –popular rash, Quincke's disease
C. arthralgia and myalgia
D. all of the above

80. In the base of pathogenesis of Stivens-Jonson Syndrome:
A. allergic reaction of delayed type
B. allergic reaction of immediate type
C. cyto-toxic type of allergic reaction
D. immune-complex type of allergic reaction

81. Risk factors of side effects of medications are the following:
A. heavy allergological anamnesis
B. simultaneous assignment of two or more medications from the one group
C. simultaneous assignment of two or more medications from different groups excluding their interaction
D. all of the above

82. For treatment of allergy is used everything excluding:
A. adrenalin
B. diphenhydramine
C. hydrocortisone
D. paracetamol

83. The first treatment in anaphylactic shock:
A. dopamine
B. adrenalin
C. hydrocortisone
D. antibiotics

84. Treatment of Lyel's Syndrome:
A. glucocorticosteroids
B. detoxication therapy
C. antihistaminic
D. sulfanilamides

85.Hyperresponsiveness of delayed type is typical for:
A. anaphylactic shock
B. serum disease
C. acute vascular purpura
D. nettle rash

86. Hyperresponsiveness of immediate type is typical for:
A. anaphylactic shock
B. Syndrome of Lime
C. Syndrome of Stiven-Jonson
D. nettle-rash

87. What doesn't refer to infectious-allergic syndrome^
    A. Syndrome of Guillian-Barre
    B. Syndrome of Lime
    C. Syndrome of Lyel
    D. Syndrome of Stivens-Jons
88. Risk factors of side effects of medications are the following:
    A. allergological anamnesis record
    B. simultaneous assignment of two or more medications from the one group
    C. simultaneous assignment of two or more medications from different groups excluding their interaction
    D. all of the above
89. Clinics of hyperresponsiveness of immediate type is caused by the following factors:
    A. histamine
    B. kinin
    C. prostaglandin
    D. catecholamine
90. Clinics of hyperresponsiveness of delayed type is caused by the following factors:
    A. histamine
    B. kinin
    C. prostaglandin
    D. catecholamine
91. In anaphylactic shock it is injected intravenously:
    A. dopamine
    B. adrenalin
    C. glucocorticosteroids
    D. antibiotics
92. It is typical for Syndrome of Lyel:
    A. bullous damage of skin
    B. erosive-helcoid damage of mucous
    C. dehydrative shock
    D. addition of the secondary infection
93. It is typical for Syndrome of Stivens-Jonson:
    A. acute beginning
    B. febrile fever
    C. catarrhal keratoconcjunctivitis
    D. all of the above
94. For treatment of allergy is used everything except:
    A. adrenalin
    B. diphenylhydramine
    C. aminophylline
    D. paracetamol
95. Emergency in anaphylactic shock is:
    A. to stop introduction of medications
    B. to inject adrenalin solution
    C. to inject dopamine, adrenalin, prednisolone intravenously
    D. all of the above
96. What nosology is accompanied by necrosis of epidermis surfaces:
    A. Syndrome of Lyel
    B. Syndrome of Stivens-Jonson
    C. toxic-allergic dermatitis
    D. varicella
97. In the base of serum disease pathogenesis is:
    A. anaphylactic type of allergic reaction
    B. hyperresponsiveness of delayed type
    C. cyto-toxic type of allergic reaction
    D. immune-complex type of allergic reaction
98. Development of Lyel's Syndrome is caused by:
    A. anaphylactic type of allergic reaction
    B. hyperresponsiveness of delayed type

C. cyto-toxic type of allergic reaction
D. immune-complex type of allergic reaction

99. Risk factors of side effects of medications are the following:
A. allergological anamnesis record
B. simultaneous assignment of two or more medications from the one group
C simultaneous assignment of two or more medications from different groups excluding their interaction
D. all of the above
100. What nosology is accompanied by necrosis of epidermis surfaces:
A. Syndrome of Lyel
B. Syndrome of Stivens-Jonson
C. toxic-allergic dermatitis
D. varicella
101. It is everything used for treatment of allergy except:
A. adrenalin
B. diphenylhydramine
C. hydrocortisone
D. paracetamol
102. The most effective medication for the treatment of anaphylactic shock is:
A. adrenalin, dopamine
B. penicillin
C. antihistaminic
D. calcium chloride
103. Everything refers to the reaction of responsiveness of delayed type except:
A. nettle-rash
B. asthma
C. anaphylaxia
D. serum disease
104. Clinics of hyperresponsiveness of immediate type is caused by many factors except:
A. catecholamine
B. histamine
C. kinin
D. prostaglandin
105. Complications of anaphylactic shock:
A. cardiovascular insufficiency
B. cerebral edema
C. DIC
D. all of the above
106. It is typical for Lyel's Syndrome:
A. epidermal necrolysis
B. erosive-helcoid damage of mucous
C. bacterial complications
D. dehydration shock
107. Infection-allergic syndromes are:
A. Syndrome of Guilline - Barre
B. Syndrome of Lyel
C. Syndrome of Stivens-Jonson
D. Syndrome of Lime
108. After the test for penicillin patient felt pain in chest, labored breathing, loss of consciousness. What is your diagnosis?
A. anaphylactic shock
B. Arthus phenomenon
C.thrombembolia of pulmonary artery
D. infectious-toxic

APPENDIX 3

Scale of evaluation

Examination (theoretical questions) (midterm)
«85-100%» • deep and durable learning themes of the module;
• complete, consistent, competent and logically presented answers to questions;
• reproduction of educational material on the themes of the module with the desired high degree of accuracy.
«75-84%»
• the presence of minor errors in the presentation of the material of the module;
• demonstration of the students knowledge of the completed the program;
• clear presentation of training material.
«60-74%»
• the presence of significant errors in the responses on module;
• demonstration to students is not enough knowledge on the program;
• not a clear presentation of educational material in the answer.

«less than 60%»
• no knowledge of materials topics;
• a serious mistakes in answers.

Control work of «Introduction to immunology. Types of immunity and nonspecific factors of immune reactivity»
0-59% - 0-4 points rating of "poor»
60-74% - 5-6 points rating of "satisfactory»
75-84% - 7-8 points rating of "good»
85-100% - 9-10 points rating of "excellent»

Control work of «Organization and function of the immune system. Evaluation of the immune system »
0-59% - 0-4 points rating of "poor»
60-74% - 5-6 points rating of "satisfactory»
75-84% - 7-8 points rating of "good»
85-100% - 9-10 points rating of "excellent»

Control work of «Clinical immunology »
0-59% - 0-4 points rating of "poor»
60-74% - 5-6 points rating of "satisfactory»
75-84% - 7-8 points rating of "good»
85-100% - 9-10 points rating of "excellent»

SCALE of EVALUATION of the PRESENTATION (the current control)

№ p/p	Name of the indicator	Mark (in %)
PRESENTATION		70
1	Cover sheet with title	0-4
2	Design of slides and use of additional effects (slide transitions, sound, drawings)	0-10
3	The text of the presentation write a short, well-formed and ideas are clear and structured 0-40	0-40
4	Slides presented in a logical sequence	0-10

5	Slides printed	0-06
REPORT		30
1	The correctness and accuracy of speech while protecting	0-12
2	Breadth of vision (answers to questions)	0-10
3	The implementation of the rules	0-8

During the presentation
0-59% - 0-7 points, a rating of "poor»
60-74% - 8-9 points, a rating of "satisfactory»
75-84% - 10-11 points, a rating of "good»
85-100% - 12-13 points, a rating of "excellent»

SCALE OF ASSESSMENT OF FRONTAL SURVEY TEST (current control)

1. In one test task 20 questions.
2. The questions are given ready-made answers to choose from, one correct and the others wrong.
3. For each correct answer – 5%.
4. Overall rating is defined as the amount of accumulated interest.
5. Scoring % is translated into points.

At testing: 0-59% - (0-11 correct answers), it is 0-7 points, a rating of "poor»
60-74% - (12 to 14 correct answers), it is 8-9 a rating of "satisfactory»
75-84% - (15-17 correct answers), it is 10-11 a rating of "good»
85-100% - (18-20 correct answers), it is 12-13 a rating of "excellent»

SCALE OF ASSESSMENT OF ORAL TEST
(intermediate control – "KNOW»)
(offset in the VII semester) When assessing oral answers to the test level of training to KNOW used the following criteria:

1. Knowledge of the basic processes of the studied subject area, depth and completeness of disclosure of the issue.
2. Ability to solve situational problems, making inferences and generalizations, to give reasoned answers.
3. Possession of a monological speech, the consistency of the answer, ability to answer questions, to express their opinion on the problem.

SCALE OF ASSESSMENT AN ORAL TEST "TO KNOW»
(credit in VII semester)

In assessing the oral responses to the test of the level of learning to KNOW taken into account following criterion:

1. Knowledge of the main processes of the studied subject area, depth and completeness of disclosure question's.
2. Ability to solve situational problems, to draw conclusions and generalizations, to give reasoned answers.
3. Possession of monologic speech, logic and sequence of the answer, ability to answer on the questions posed, to Express their opinion on the problem under discussion.

85-100% (16-20 points) estimated answer that shows solid knowledge the content of the subject of epidemiology; patterns of spread of infectious diseases among the population; the basic laws of the epidemic process; anti-epidemic and preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases.

75-84% (10-15 points) estimated response, revealing a strong knowledge of the content the subject of epidemiology; the legal framework of public health; biomedical statistics; regularities of the spread of infectious diseases among population; the basic laws of the epidemic process; anti-epidemic and

preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases; consistency and consistency answer's. However, one or two inaccuracies in the answer are allowed.

60-74% (5-10 points) evaluates the response, indicating mainly about the basic knowledge of the subject of epidemiology; patterns of the spread of infectious diseases among population; the basic laws of the epidemic process; anti-epidemic and preventive measures for prevention and localization of infectious foci diseases; epidemiological features of infections of the respiratory tract, gastrointestinal tract, blood and external covers, as well as anthroponoses, zoonoses, and sapronoses; methods epidemiological analysis of infectious diseases. Several errors are allowed in the content of the answer.

0-59% (1-4 points) estimated response, detecting ignorance of the subject of epidemiology; regularities of the spread of infectious diseases among the population; basic laws development of the epidemic process; anti-epidemic and preventive measures prevention and localization of foci of infectious diseases; epidemiological features anthroponoses, zoonoses and sapronoses; inability to give reasoned answers, weak possession of monologue speech, lack of logic and consistency. Allow serious errors in the content of the answer.

SCALE of ASSESSMENT of PRACTICAL TASKS "to be ABLE to OWN»
(credit in VII semester)

When assessing the answers to the test of the level of training to be ABLE and OWN are taken into account following criterion:

85-100% (8-10 points) estimated response in which the student is able to plan and carry out anti-epidemic measures in the foci of infectious diseases; sanitary and educational work among the population; analyze infectious diseases to establish the "territory, time and risk contingent" and to identify the "risk factors";
methods of epidemiological analysis of infectious diseases; ability to work with the population on the prevention of diseases and instilling sanitary and hygienic skills. Demonstrates full understanding of the problem. All requirements for the task done.

75-84% (4-7 points) estimated response in which the student is able to plan and conduct student anti-epidemic measures in the foci of infectious diseases; to carry out sanitary and educational work among the population; to analyze infectious diseases. morbidity to establish "territory, time and risk profile" and to identify " factors risk"; has the technique of epidemiological analysis of infectious diseases; ability
work with the population on the prevention of diseases and instilling sanitary and hygienic skills'.
Demonstrates a significant understanding of the problem. Most of the requirements, presented to the task completed.

60-74% (1-3 points) estimated response in which the student is not able to plan and the student is able to plan and carry out anti-epidemic actions in the centers infectious diseases; carry out sanitary and educational work among the population; to analyze the incidence of infectious disease to establish "territory, time and contingent risk" and identifying "risk factors"; not sufficiently good command of the technique epidemiological analysis of infectious diseases; not well-versed work with the population on the prevention of diseases and instilling sanitary and hygienic skills proficient in. Demonstrates partial or small understanding of the problem. Many of the requirements, the requirements for assignment are not met.

0-59% (0 points) is estimated the answer at which the student demonstrates misunderstanding problems or no answer and there was not even an attempt to solve the problem

APPENDIX 4

The planning sheet of discipline

Discipline Immunology
Field of study/specialization Diff. credits
Course/semester 2 / 3
Credit units (CU) 3

Title of module according to WPD	Type of control	Forms of control	Minimal credit points	Maximal credit points	Week of control
Module 1					
Introduction to immunology. Types of immunity and nonspecific factors of immune reactivity	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks	8	13	4 weeks
	Midterm examination	Evaluation test	5	10	
Module 2					
Organization and function of the immune system. Evaluation of the immune system	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks, writing of reports	8	13	9 weeks
	Midterm examination	Evaluation test	5	10	
Module 3					
Clinical immunology	Formative assessment	Activity, attendance, lecture notes, performance and presentation of lab works, individual work with tables, discussion of situational tasks, reports	9	14	15 weeks
	Midterm examination	Tests	5	10	
Total			40	70	**18 weeks**
Midpoint assessment			20	30	
Summative assessment			60	100	