

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
КАФЕДРА ЭПИДЕМИОЛОГИИ

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ЭПИДЕМИОЛОГИЯ

EPIDEMIOLOGY

Практикум



Минск БГМУ 2025

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Ф33

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Содержит учебные задания для самостоятельной работы и иллюстрации по общей, частной, госпитальной эпидемиологии, иммунопрофилактике инфекционных заболеваний.

Предназначен для студентов 3-го курса медицинского факультета иностранных учащихся, обучающихся на английском языке по специальности «Лечебное дело».

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CLASS № 1. Basic epidemiological notions

Questions for self-control:

1. Give the definition of notion «epidemiology». Name the object and subject of study in epidemiology.
2. Explain the significance of each factor (biological, natural and social) in the epidemic process.
3. Determine how different theories (self-regulation, the transmission mechanism) explain of the mechanism of epidemic process development.
4. Explain the manifestations of the epidemic process from the standpoint of the self-regulation theory.

Basic epidemiological notions

The epidemic process is _____

The source of infection is _____

The transmission mechanism is _____

The transmission factors are _____

The route of transmission is _____

The epidemic focus is _____

The modern doctrine of the epidemic process includes 3 sections: _____

Factors of the epidemic process

Name them and compare with their examples

The contagiousness of a pathogen

The healthcare system

The climate and the weather

The susceptibility to infectious diseases

The landscape and geographical conditions

1.

2.

3.

The migration of the population

The presence of organized collectives

The level of sanitary culture of the population

The state of the immune system

The species composition of animals

List manifestations of the epidemic process

Qualitative characteristics: _____

Quantitative characteristics: _____

Transmission mechanism includes 3 phases



Mechanisms of infectious diseases transmission

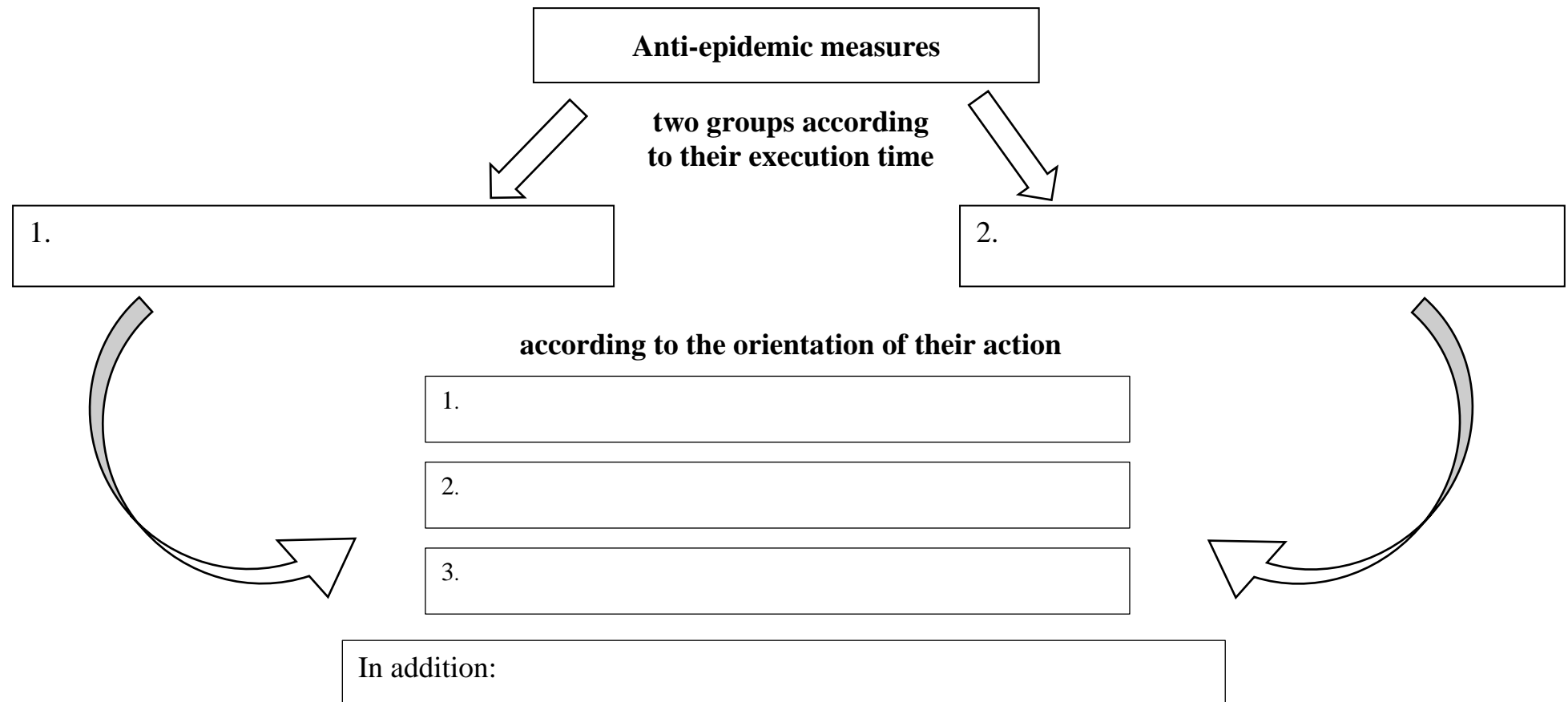
Mechanism of transmission	Localization of the pathogen in human body	Factors and routes of transmission	Examples of infectious diseases (3–4)
Aerosol			
Fecal-oral			
Vector-borne			
Contact			
Vertical			
Artificial			

Signature of the tutor _____ Date ____/____/____/

CLASS № 2. Anti-epidemic measures and means

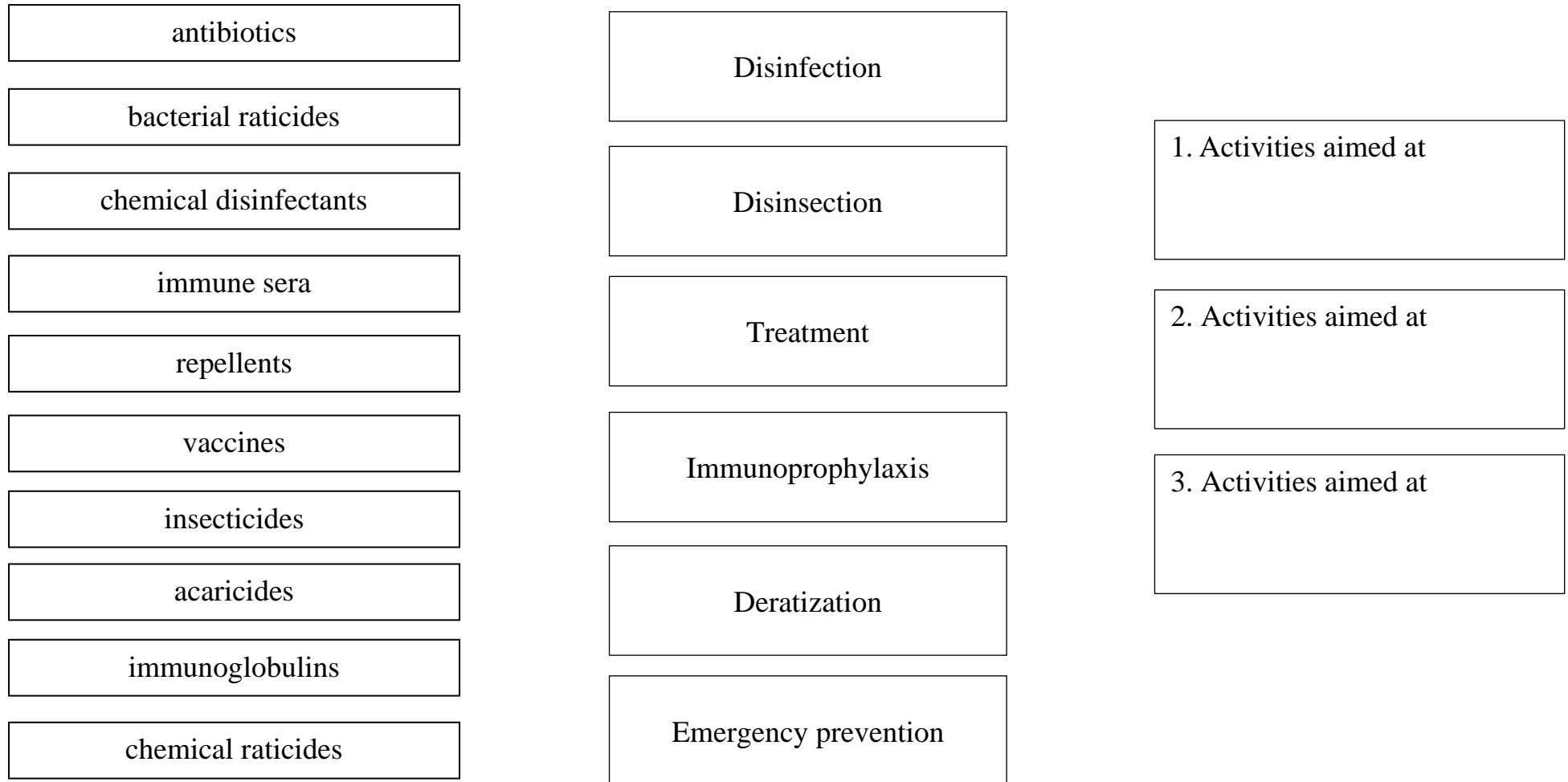
Questions for self-control:

1. Define the concept “anti-epidemic measures”.
2. Give the definition of term “anti-epidemic means”.
3. Divide anti-epidemic measures into groups according to their implementation time.
4. Distribute preventive measures according to the direction of action.



Anti-epidemic measures and means

Compare antiepidemic measures, the direction of their action and the antiepidemic agents used



Preventive measures against infections with various transmission mechanisms

Mechanism of transmission of infection	Examples of infectious diseases (3–4)	The main directions of prevention
Aerosol		
Fecal-oral		
Vector-borne		
Contact		
Vertical		
Artificial		

Signature of the tutor _____ Date ____/____/____/

CLASS № 3. Organization of anti-epidemic work in outpatient clinics and medical and preventive organizations

Questions for self-control:

1. Specify the main objectives of anti-epidemic measures in healthcare organizations.
2. Distribute the activities conducted in the epidemic focus according to the direction of action.
3. Describe the measures aimed at the source of the infection in the epidemic focus.
4. Describe the activities for contact persons in the epidemic focus.

Epidemic control measures in health care organizations

Disinfection is _____

Sterilization is _____

Antisepsis is _____

Asepsis is _____

Methods of disinfection of medical devices

Name and give an example

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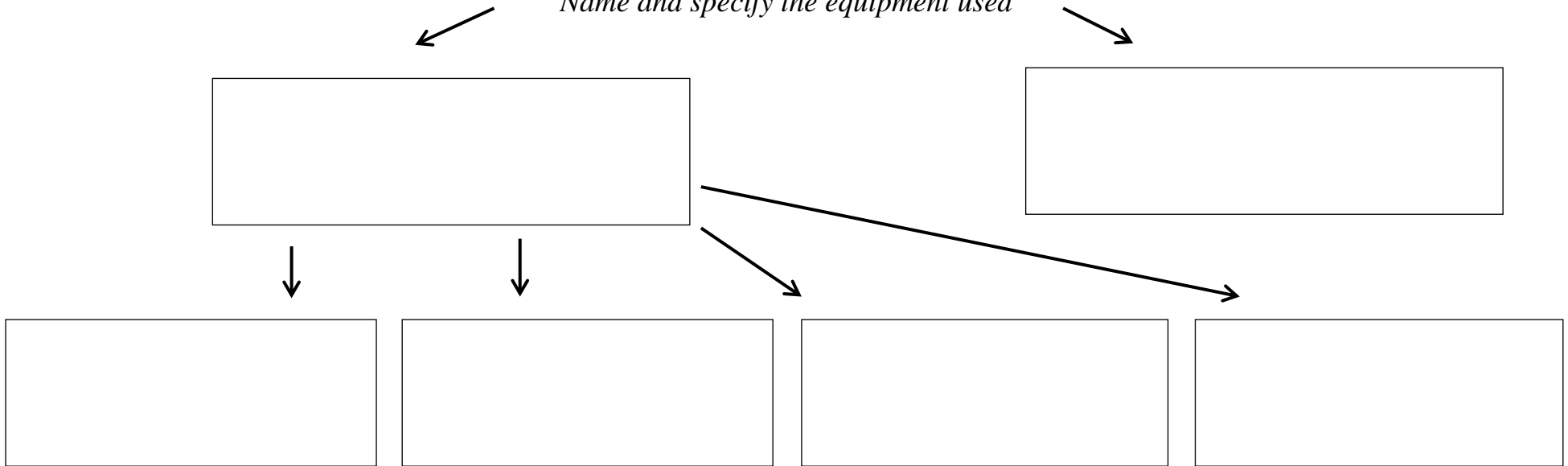
Stages of sterilization of medical devices

Name and describe

1.	2.	3.
----	----	----

Methods of sterilization of medical devices

Name and specify the equipment used



Activities in the epidemic focus

Measures aimed at the source of infection :	Activities aimed at the transmission mechanism :	Activities in regard to persons who communicate with the source of infection (contact persons in the focus):
1.		1.
2.		2.
3.		3.
4.	2.	4.
5.		5.
6.		6.
7.	3.	7.
8.		
In zoonotic foci:		

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CLASS № 4. Organizational and methodological issues of immunoprophylaxis of infectious diseases: general requirements for the organization of vaccinations; technical regulations on immunoprophylaxis; National calendar of preventive vaccinations; preventive vaccinations for epidemic indications; planning of preventive vaccinations

Questions for self-control:

1. Give the definition «immunity». Describe the main categories of immunity.
2. Give the definition «body's immune response». Describe the primary and secondary immune response of the body.
3. Name basis for inclusion of vaccines in the National Immunization Schedule.
4. Name the population groups that are subject to vaccination for epidemic indications.

The population groups that are subject to vaccination for epidemic indications:

1. _____
2. _____
3. _____
4. _____
5. _____

List the infections against which vaccinations are carried out according to epidemic indications

The main characteristics of vaccine preparations

Biotechnological vaccine platforms	Type of vaccine	Antigenic composition of vaccine	Advantages	Disadvantages	Examples of infectious diseases
Vaccines based on whole microorganisms (corpuscular) Live (attenuated) vaccines	Bacterial				
	Viral				
Vaccines based on whole microorganisms (corpuscular) Inactivated (killed) vaccines	Bacterial				
	Viral				
Recombinant vaccines based on:	Recombinant producers				
	Recombinant vectors				
	Nucleic acids (DNA, RNA)				

Biotechnological vaccine platforms	Type of vaccine	Antigenic composition of vaccine	Advantages	Disadvantages	Examples of infectious diseases
Vaccines based on antigens of destroyed microorganisms	Subunit				
	Split vaccines				
	Virosomal				
	Chemical				
	Conjugated				
	Toxoids				
	Peptides				

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CLASS № 5. Organizational and methodological issues of immunoprophylaxis of infectious diseases: requirements for the device and equipment of vaccination offices of organizations; requirements for transportation and storage of immunobiological medicines; requirements for preventive vaccinations

Questions for self-control:

1. List the requirements for the device and equipment of vaccination offices of organizations.
2. Name the main requirements for transportation and storage of immunobiological medicines (IBM).
3. Give the definition “immunization safety”. What does the immunization safety system include?
4. Describe the injection safety and waste recycling.

The order and requirements for preventive vaccinations

The order of actions	Actions and responsibilities of a doctor	Actions and responsibilities of a nurse
Medical examination before vaccination		
Establishment of medical contraindications or granting permission for vaccination		
Vaccine preparation and vaccination techniques		
Medical supervision of a vaccinated patient		

Requirements for transportation and storage of immunobiological medicines

1. Define the concept of «cold chain system» _____

2. The cold chain system comprises three main elements:

1.

2.

3.

3. Specific requirements for IBM storage in the Inoculation office.

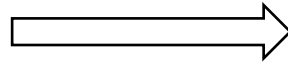
Specify the correct statements:

- The vaccination room in newly built polyclinics for children should include a separate room for immunization against tuberculosis and a tuberculin test.
- Immunoprophylaxis against tuberculosis and tuberculin tests should be carried out on a special table used only for these purposes.
- In the vaccination room, the number of doses in the refrigerator should correspond to the number of vaccinations scheduled for 2 months.
- The arrangement of IBM packages in the refrigerator should ensure that cooling air is available to each package.
- Other medicines can be stored in the IBM refrigerator.
- IBM products of the same name must be stored in the same batch, taking into account the expiration date.
- Temporary storage of the vaccine at the bottom of the refrigerator is allowed.
- IBM with a shorter shelf life should be used first.
- The volume of the stored IBM products should not exceed two thirds of the volume of the refrigerator compartment.

Correct storage of vaccines in the refrigerator

1. Place the following immunobiological preparations in the refrigerator:

DTaP, BCG, IPV, OPV, HBV, DT,
the solvents to live IBM.



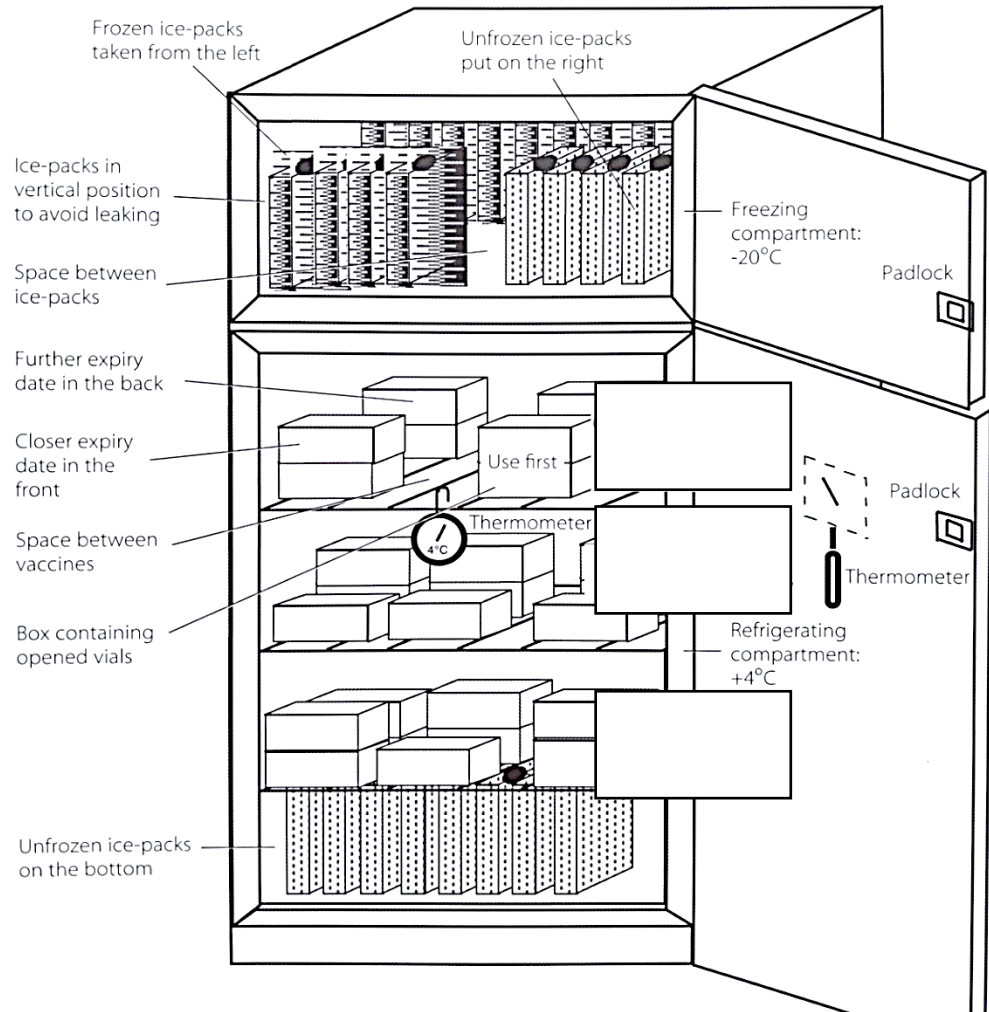
2. Specify the limits of the temperature of storage and transportation of most vaccine preparations

3. Which vaccines can be frozen during long-term storage

4. Specify what is used to control the storage temperature of vaccines

1. _____

2. _____



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CLASS № 6. Organizational and methodological issues of immunoprophylaxis of infectious diseases: the concept of adverse reactions to preventive vaccinations: types, detection, registration, investigation, evaluation of the quality and effectiveness of immunoprophylaxis

Questions for self-control:

1. Formulate the concept of “adverse reactions (side effects)”.
2. Describe mechanism for adverse reactions monitoring.
3. Name and describe groups of medical contraindications to vaccination.
4. Describe evaluation of the quality and effectiveness of immunoprophylaxis.

The concept of adverse reactions to preventive vaccinations

Adverse events after vaccination (AEAV) are _____

Adverse reactions (side effects) are _____

Adverse reactions monitoring is _____

Signs of poor-quality medicines:

1. _____
2. _____
3. _____
4. _____
5. _____

Types of adverse reactions and prevention of their occurrence

What should be done to minimize the risks of adverse reactions?

1. _____
2. _____
3. _____
4. _____
5. _____

1. Mild reaction —

Skin abscess

2. Strong reaction —

Lymphadenitis

3. Serious reaction —

Pain at the injection site

Anaphylactic shock

4. Unknown reaction —

Fatigue, decreased appetite

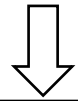
Encephalopathy

Convulsions

Thrombocytopenic purpura

Medical contraindications to vaccination are divided into three groups:

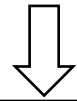
1. _____
(up to one month)



Examples

1.
2.
3.

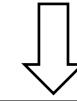
2. _____
(from 1 to 3 months, up to 1 year)



Examples

1.
2.
3.

3. _____
(1 year or more)



Examples

1.
2.
3.

Contraindications to all live vaccines:

1. _____
2. _____
3. _____
4. _____

Specify the correct statements:

- Routine vaccination is carried out after disappearance of acute manifestations and in the state of complete or maximum possible remission.
- Exacerbation of a chronic disease is a temporary contraindication for vaccination.
- The decision on the establishment permanent medical contraindications can be made by pediatrician (physician).

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CLASS № 7. Immunoprophylaxis of infectious diseases included in the National Schedule of preventive vaccinations: viral hepatitis B, tuberculosis, diphtheria, whooping cough, tetanus

Questions for self-control:

Make a characteristic of:

- **recombinant vaccine against viral hepatitis B (HBV)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **BCG, BCG-M vaccines**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **pertussis-diphtheria-tetanus vaccine (DTaP/DTwP/Dtap)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **adsorbed diphtheria-tetanus toxoid (DT)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **adsorbed diphtheria-tetanus toxoid with a reduced content of antigens (Td)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **adsorbed diphtheria toxoid (Dt)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization;
- **adsorbed tetanus toxoid (Tt)**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization.

VIRAL HEPATITIS B IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
HBV							

Task 1

Determine the schedule of vaccination of a child in the maternity hospital, born on 11/12/2025, weight 2300g.

The questions:

1. Describe the IBM for preventive immunization.
2. Prescribe a vaccination regimen, dosage and explain the method of administration.

The answers:

TUBERCULOSIS IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
BCG, BCG-M							

Task 2

Determine the schedule of vaccination of a child in the maternity hospital, born on 11/12/2025, weight 1900g.

The questions:

1. Determine the procedure for the patient's admission to vaccination.
2. Suggest vaccination tactics.

The answers:

DIPHTHERIA, WHOOPING COUGH, TETANUS IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
Anatoxin (Toxoid)							
Whole cell vaccine							
Acellular vaccine							

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CLASS № 8. Immunoprophylaxis of infectious diseases included in the National Schedule of Preventive vaccinations: immunoprophylaxis of polio, measles, rubella, mumps

Questions for self-control:

Make a characteristic of **oral polio vaccine (OPV)**, **inactivated polio vaccine (IPV)**, **measles, mumps, rubella vaccine (MMR)** indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization.

MEASLES, MUMPS AND RUBELLA IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
MMR							

POLIO IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
OPV							
IPV							

Task 1

Make an individual vaccination calendar for a child aged 10 months to 18 years. It is known that the child had a history of immediate allergic reactions to neomycin. Up to 10 months vaccinated according to the calendar.

The questions:

1. Name the vaccines for preventive immunization.
2. Prescribe the vaccination schedule, dosage and explain the method of administration.

The answers:

Task 2

Pair up: *infectious disease – vaccine.*

BCG
MMR
IPV
DT
OPV
HBV

viral hepatitis B
diphtheria-tetanus
whooping cough
tuberculosis
measles, rubella, mumps
polio

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CLASS № 9. Immunoprophylaxis of infectious diseases included in the National Schedule of Preventive vaccinations: immunoprophylaxis of Hib-infection, pneumococcal infection, influenza, infection caused by human papillomavirus

Questions for self-control:

Make a characteristic of **influenza vaccines, vaccine against Hib-infection vaccines, against pneumococcal infection vaccines, against infection caused by human papillomavirus**: indications; doses and routes of administration; immunization schedule; contraindications; adverse reactions after immunization.

IMMUNOPROPHYLAXIS OF INFECTION CAUSED BY HAEMOPHILUS INFLUENZAE TYPE B

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
Hib-infection vaccine							

PNEUMOCOCCAL INFECTION IMMUNOPROPHYLAXIS

Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
PCV polysaccharide						
PCV conjugated						

INFLUENZA IMMUNOPROPHYLAXIS

Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
Corpuscular vaccines						
Split vaccines						
Subunit vaccines						
Virosomal vaccines						

INFECTION CAUSED BY HUMAN PAPILLOMAVIRUS IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Method of introduction and dosage	Age of vaccination (according to the National Calendar)	Contraindications	Adverse reactions	Side effects (complications)
9-valent HPV vaccine (Gardasil 9, 9vHPV)							
Quadrivalent HPV vaccine (Gardasil, 4vHPV)							
Bivalent HPV vaccine (Cervarix, 2vHPV)							

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CLASS № 10. Immunoprophylaxis of infectious diseases according to epidemic indications: chickenpox, hepatitis B, hepatitis A, coronavirus infection SARS-CoV-2, tetanus

Questions for self-control:

Make a characteristic of **chickenpox, hepatitis B, hepatitis A, coronavirus infection SARS-CoV-2, tetanus:**
the relevance of infection, epidemiological characteristics.

IMMUNOPROPHYLAXIS OF HEPATITIS A AND HEPATITIS B

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
HAV							
HBV							

CHICKENPOX IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Chickenpox vaccine							

CORONAVIRUS INFECTION SARS-CoV-2 IMMUNOPROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Coronavirus infection SARS-CoV-2 vaccine							

POST-EXPOSURE TETANUS PROPHYLAXIS

Name of IBM	Type of IBM	Antigenic composition of IBM	Epidemiological indications	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Adsorbed tetanus toxoid (Tt)							
Adsorbed diphtheria-tetanus toxoid with a reduced content of antigens (Td)							
Tetanus human immunoglobulin							
Tetanus serum							

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CLASS № 11. Immunoprophylaxis of infectious diseases according to epidemic indications: rabies, yellow fever, tick-borne encephalitis, leptospirosis

Questions for self-control:

Make a characteristic of **rabies, yellow fever, tick-borne encephalitis, leptospirosis**: the relevance of infection, epidemiological characteristics.

PRE-EXPOSURE RABIES PROPHYLAXIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
The lyophilized anti-rabies vaccine for humans (vaccine)							

POST-EXPOSURE RABIES PROPHYLAXIS

Non-specific emergency prevention of rabies (primary surgical wound treatment)

The procedure for the primary surgical treatment of the wound	What is forbidden to do when treating a wound?
<ol style="list-style-type: none"> 1. 2. 3. 4. 	

POST-EXPOSURE RABIES PROPHYLAXIS

Specific emergency prevention of rabies

Immunobiological medicines (IBM):	Epidemiological indications for the vaccinations	IBM administration days, method of introduction and dosage	Adverse reactions and complications
Tactics of the using of the vaccine (vaccination scheme): drug administration days, dose			
Tactics of the using of the vaccine + anti-rabies immunoglobulin (vaccination scheme): drug administration days, dose			

Tasks

Tasks on the rabies immunoprophylaxis	The answers
On 27/02/2025, a veterinarian turned to a general practitioner to prescribe preventive rabies vaccinations due to the risk of infection in professional activities. Prescribe a vaccination schedule, dosage, and explain the method of administration. Specify the dates when the veterinarian should come to the clinic for vaccination	

IMMUNOPROPHYLAXIS OF YELLOW FEVER

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Yellow fever vaccine							

IMMUNOPROPHYLAXIS OF TICK-BORNE ENCEPHALITIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Tick-borne encephalitis vaccine							

IMMUNOPROPHYLAXIS OF LEPTOSPIROSIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Leptospirosis vaccine							

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CLASS № 12. Immunoprophylaxis of infectious diseases according to epidemic indications: brucellosis, anthrax, tularemia, plague

Questions for self-control:

1. Make a characteristic of brucellosis, anthrax, tularemia, plague: the relevance of infection, epidemiological characteristics.
2. Who are the main sources of brucellosis infection?
3. Why is anthrax classified as zoonoses and sapronoses?
4. List the main sources of tularemia.
5. Why is what classified as a natural focal infection?

IMMUNOPROPHYLAXIS OF BRUCELLOSIS

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Brucellosis vaccine							

IMMUNOPROPHYLAXIS OF ANTHRAX

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Anthrax vaccine for humans							

IMMUNOPROPHYLAXIS OF TULAREMIA

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Tularemia vaccine							

IMMUNOPROPHYLAXIS OF PLAGUE

Name of the vaccine	Type of the vaccine	Antigenic composition of the vaccine	Epidemiological indications for the vaccinations	Scheme, method of introduction and dosage	Contraindications	Adverse reactions	Side effects (complications)
Plague vaccine							

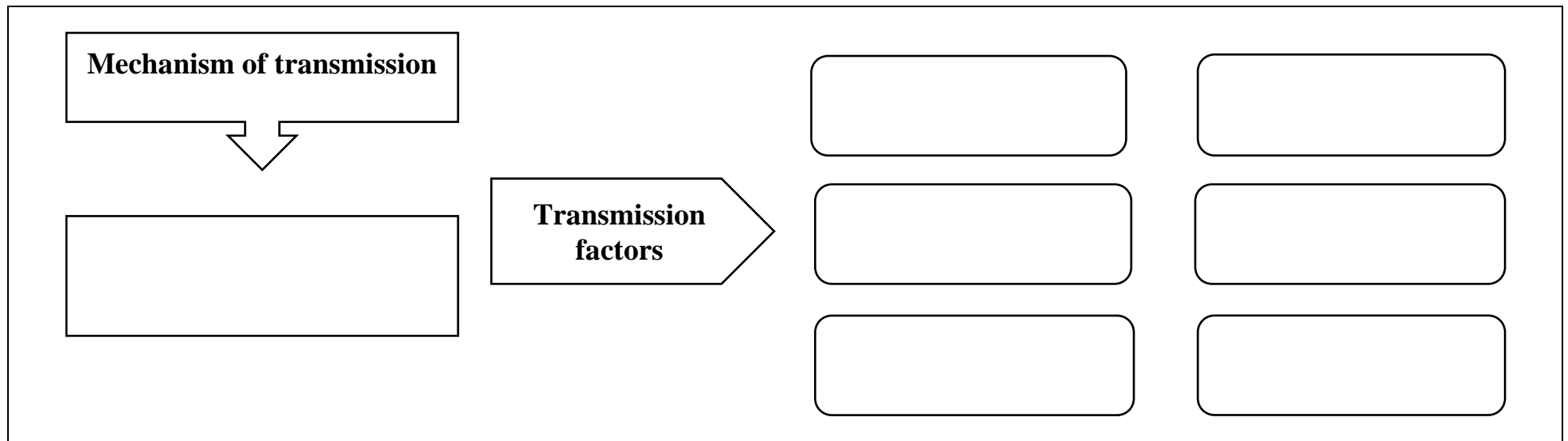
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CLASS № 13. Intestinal infections: general epidemiological characteristics; fundamentals of prevention and anti-epidemic measures

Questions for self-control:

1. Give a general epidemiological description of intestinal infections, describe their role in human infectious pathology.
2. Describe the fecal-oral transmission mechanism and transmission routes of intestinal infections.
3. List the risk groups for the incidence of intestinal infections.
4. Describe the prevention of intestinal infections.
5. Indicate the epidemiological differences between viral and bacterial intestinal infections.
6. Explain why the contagiousness of viral intestinal infections differs from bacterial ones.
7. Describe the social and natural factors that affect the incidence of intestinal infections.

The mechanism of intestinal infections



EPIDEMIOLOGICAL CHARACTERISTICS OF INTESTINAL INFECTIONS

Epidemiological features	Shigellosis	Salmonellosis	Rotavirus infection	Viral hepatitis A
Etiology				
Pathogen resistance in the environment				
Categories of infection sources				
The period of contagiousness				
Incubation period				
Mechanism and transmission routes				
Transmission factors				
Susceptible individuals				
Directions of prevention				

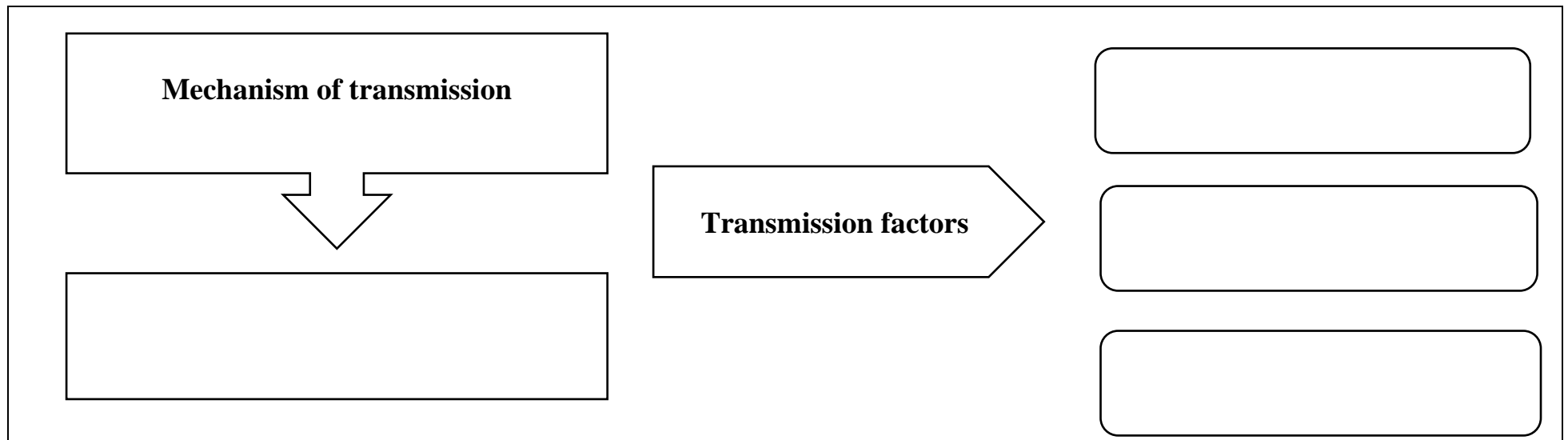
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CLASS № 14. Aerosol infections: general epidemiological characteristics; fundamentals of prevention and anti-epidemic measures

Questions for self-control:

1. Give a general epidemiological description of aerosol infections, describe their role in human infectious pathology
2. Describe the aerosol transmission mechanism and transmission routes of aerosol infections.
3. List the risk groups for the incidence of aerosol infections
4. Describe the prevention of aerosol infections.
5. Indicate the epidemiological differences between viral and bacterial aerosol infections.
6. Explain why the contagiousness of viral aerosol infections differs from bacterial ones.
7. Describe the social and natural factors that affect the incidence of aerosol infections.

The mechanism of aerosol infections



EPIDEMIOLOGICAL CHARACTERISTICS OF AEROSOL INFECTIONS

Epidemiological features	Influenza	Whooping cough	Streptococcal infection (scarlet fever)	Meningococcal infection
Etiology				
Pathogen resistance in the environment				
Categories of infection sources				
The period of contagiousness				
Incubation period				
Mechanism and transmission routes				
Transmission factors				
Susceptible individuals				
Directions of prevention				

EPIDEMIOLOGICAL CHARACTERISTICS OF AEROSOL INFECTIONS

Epidemiological features	Measles	Rubella	Mumps	Chickenpox
Etiology				
Pathogen resistance in the environment				
Categories of infection sources				
The period of contagiousness				
Incubation period				
Mechanism and transmission routes				
Transmission factors				
Susceptible individuals				
Directions of prevention				

Signature of the tutor _____ Date ____/____/____/

CLASS № 15. Infections with a predominantly parenteral mechanism of infection: a disease caused by the human immunodeficiency virus (HIV-infection), parenteral viral hepatitis (B, C, D)

Questions for self-control:

1. Give a general epidemiological description of infections with a predominantly parenteral mechanism of infection, describe their role in human infectious pathology
2. Describe the parenteral transmission mechanism and transmission routes of infections with a predominantly parenteral mechanism.
3. List the risk groups for the incidence of infections with a predominantly parenteral mechanism.
4. Describe the prevention of infections with a predominantly parenteral mechanism.
5. Describe the procedure for emergency contact when working with biological material.

Prevention of parenteral infections among medical workers:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

**EPIDEMIOLOGICAL CHARACTERISTICS
OF INFECTIONS WITH A PREDOMINANTLY PARENTERAL MECHANISM OF INFECTION**

Epidemiological features	HIV-infection	Viral hepatitis B	Viral hepatitis C	Viral hepatitis D
Etiology				
Pathogen resistance in the environment				
Categories of infection sources				
The period of contagiousness				
Incubation period				
Mechanism and transmission routes				
Transmission factors				
Susceptible individuals				
Directions of prevention				

The procedure for emergency contact when working with biological material

The procedure for blood contact with damaged skin	
The procedure for blood contact with the mucous membranes of the eyes	

Actions in case of blood contamination of intact skin: _____

Actions in case of contamination of environmental objects with blood: _____

Medications used for post-exposure prophylaxis of infections with a predominantly parenteral mechanism:

1. _____
2. _____
3. _____

Signature of the tutor _____ **Date** ____/____/____/

CLASS № 16. Biosecurity. International health regulations. Sanitary protection of the territory. Vector-borne infections

Questions for self-control:

1. Define the concept of biosafety.
2. What are the International Health Regulations?
3. Describe the sanitary and epidemiological requirements for the organization and conduct of sanitary and anti-epidemic measures for the sanitary protection of the territory of the Republic of Belarus.
4. Give a general epidemiological description of vector-borne infections, describe their role in human infectious pathology.
5. Describe the vector-borne transmission mechanism and transmission routes of vector-borne infections.
6. List the risk groups for the incidence of vector-borne infections.
7. Describe the prevention of vector-borne infections.

Basic notions

Biosecurity is _____

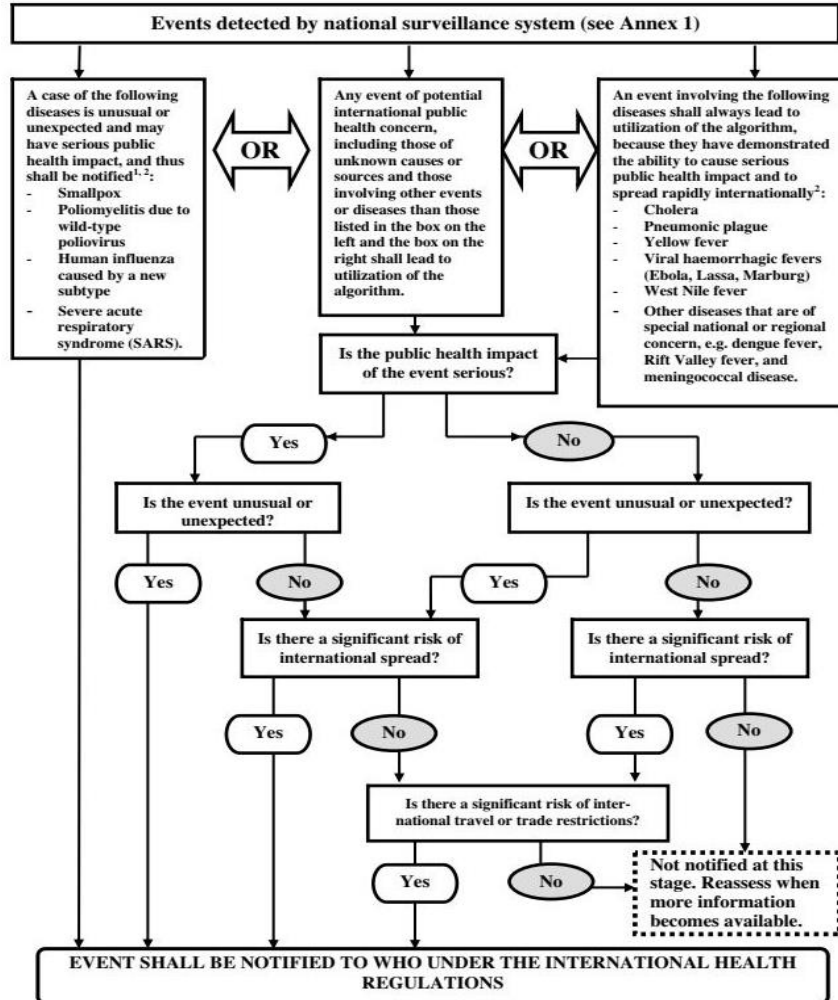
The concept of the national biosafety system is _____

International Health Regulations are _____

Public health emergency of international importance is _____

International health regulations (2005)

DECISION INSTRUMENT FOR THE ASSESSMENT AND NOTIFICATION OF EVENTS THAT MAY CONSTITUTE A PUBLIC HEALTH EMERGENCY OF INTERNATIONAL CONCERN



List the infectious diseases that require measures for sanitary protection of the territory of the Republic of Belarus:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

List diseases that pose a danger to public health:

1. _____
2. _____
3. _____
4. _____
5. _____

EPIDEMIOLOGICAL CHARACTERISTICS OF VECTOR-BORNE INFECTIONS

Epidemiological features	Tick-borne encephalitis	Lyme disease
Etiology		
Pathogen resistance in the environment		
Categories of infection sources		
The period of contagiousness		
Incubation period		
Mechanism and transmission routes		
Transmission factors		
Susceptible individuals		
Directions of prevention		

Signature of the tutor _____ Date ____/____/____/

CLASS № 17. Infections associated with medical care (Healthcare-Associated Infections)

Questions for self-control:

1. Define the infections associated with medical care.
2. List the main causative agents of infections associated to medical care.
3. List the mechanisms of transmission of infections associated with medical care.
4. Specify the main measures for the prevention of infections associated with medical care.

Classification characteristics of infections associated with medical care

Classification characteristics	Examples
At the place of medical care	
By type of medical technology	
Based on the artificial systematics of microorganisms	
By localization of the pathological process	
By affected cohorts of people	
At the place of infection	
By the origin of the infection	

The mechanism of development of the epidemic process of infections associated with medical care

Sources of infection	Ways of transmission of infection	Factors of susceptibility

Highly pathogenic bacteria associated with severe nosocomial infections

**Hospital strains
ESKAPE**

Signature of the tutor _____ Date ____/____/____/

CLASS № 18. Infection control and medical prevention of healthcare-associated infections

Questions for self-control:

1. What is infection control?
2. Specify the purpose, stages and features of the organization of infection control.

The main objectives of infection control standards

Standards	The main tasks in the prevention of infections associated with medical care
1. The management structure of the infection control system	
2. Accounting and registration of hospital infections	
3. Microbiological provision of infection control	
4. Epidemiological diagnosis of hospital infections	
5. Preventive and anti-epidemic measures in the infection control system	
6. Staff training	
7. Staff health protection	

Determine the order of basic principles of infection control

Recognition
of the problem
of hospital infections

Studying
the problem

Setting
priorities

Development
of events

Analysis

Registration
of cases

Collaboration

Control
efficiency

Inverse connection

Signature of the tutor _____ Date ____/____/____/

THE FINAL TEST QUESTIONS

1. Basic epidemiological notions (epidemic process, source of infection, susceptibility).

2. Basic epidemiological notions (mechanism of transmission, epidemic focus).

3. Anti-epidemic measures: grouping and orientation; criteria for selection of leading directions.

4. Disinfection: organization; types; methods; essential to preventing and communicable diseases control.

5. Chemical disinfectants: main groups and its characteristics; methods of application.

6. Sterilization: types, methods, stages of sterilization.

7. Epidemic control measures in outpatient and health-care organizations.

8. Immunoprophylaxis of infectious diseases: immune response (primary, secondary), justification of the optimal date of vaccination.

9. Immunoprophylaxis of infectious diseases: Immunization schedule, functioning of vaccination room.

10. Indications and contraindications for preventive vaccination.

11. Types of adverse reactions and prevention of their occurrence.

12. General characteristics of immunobiological preparations (vaccines, serum immunoglobulins).

13. Immunoprophylaxis of viral hepatitis B: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

14. Immunoprophylaxis of tuberculosis: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

15. Immunoprophylaxis of polio: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

16. Immunoprophylaxis of measles, mumps, rubella: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

17. Immunoprophylaxis of diphtheria and pertussis in persons who do not have contraindications to administration DTP vaccine: product characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

18. Immunoprophylaxis of diphtheria and pertussis, adsorbed diphtheria and tetanus toxoids with a reduced amount of antigen: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

19. Emergency tetanus prophylaxis: indications, preparation characteristics, order of products selection and schemes of their application.

20. Emergency prevention of rabies: preparation characteristics; indications to anti-rabies vaccination; organization of anti-rabies aid.

21. Immunoprophylaxis of influenza: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

22. Immunoprophylaxis of Hib-infection: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

23. Immunoprophylaxis of viral hepatitis A: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

24. Immunoprophylaxis of pneumococcal infection: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

25. Immunoprophylaxis of HPV (human papillomavirus)-infection: preparation characteristics; indications; doses and ways of application; immunization schedule; contraindications; adverse reactions (side effects) after immunization.

26. Immunoprophylaxis of chickenpox: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

27. Immunoprophylaxis of coronavirus infection SARS-CoV-2: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

28. Immunoprophylaxis of yellow fever: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

29. Immunoprophylaxis of tick-borne encephalitis: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

30. Immunoprophylaxis of leptospirosis: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

31. Immunoprophylaxis of brucellosis: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

32. Immunoprophylaxis of anthrax: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

33. Immunoprophylaxis of tularemia: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

34. Immunoprophylaxis of plague: preparation characteristics; indications; doses and ways of application; immunization scheme; contraindications; adverse reactions (side effects) after immunization.

35. Epidemiological characteristics of intestinal infections.

36. Sanitary and antiepidemic measures for intestinal infections.

37. The main directions of prevention of intestinal infections.

38. Salmonellosis: epidemic process, basics of anti-epidemic and preventive measures.

39. Viral hepatitis A: epidemic process, basics of anti-epidemic and preventive measures.

40. Epidemiological characteristics of aerosol infections.

41. Sanitary and antiepidemic measures for aerosol infections.

42. The main directions of prevention of aerosol infections.

<p>43. Meningococcal infection: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>44. Influenza: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>45. Chickenpox and varicella zoster infection: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>46. Measles: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>47. Rubella: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>48. Epidemiological characteristics of infections with a predominantly parenteral mechanism of infection.</p> <p>49. HIV (acquired immune deficiency syndrome): epidemic process, basics of anti-epidemic and preventive measures.</p> <p>50. Viral hepatitis B, D, C: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>51. Procedure for emergency contact when working with biological material. Post-exposure prophylaxis.</p> <p>52. International health regulations. A public health emergency of international importance.</p> <p>53. Sanitary and epidemiological requirements for the organization and conduct of sanitary and anti-epidemic measures for the sanitary protection of the territory of the Republic of Belarus.</p> <p>54. Epidemiological characteristics of vector-borne infections.</p> <p>55. Tick-borne encephalitis: epidemic process, basics of anti-epidemic and preventive measures.</p> <p>56. Lyme disease: epidemic process, basics of anti-epidemic and preventive measures.</p>	<p>57. Infections associated with medical care (Healthcare-Associated Infections): definition of the concept, epidemiological characteristics of pathogens, the mechanism of development of the epidemic process and the basics of prevention.</p> <p>58. Sanitary and epidemiological requirements for the work of healthcare organizations.</p> <p>59. Infection control and medical prevention of healthcare-associated infections.</p> <p>60. Clinical epidemiology: definition of the concept, methods of clinical epidemiology. Planning and conducting epidemiological studies.</p>
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