

INSTRUCTION
for 4th year students of medical faculty
CHILDREN'S INFECTIOUS DISEASES

PLAN

Name of the section (topic)	Number of class hours
	practical
1. Introduction to pediatric infections. Exanthems in pediatric infections (measles, rubella, varicella).	5
2. Tonsillitis in pediatric infections. Diphtheria. Infectious mononucleosis. Croup in children.	6
3. Respiratory syndrome in infectious diseases in children. Influenza and acute respiratory infections of non-influenza etiology in children. Pertussis (whooping cough).	6
4. Meningeal syndrome in children. Meningococcal infection. Meningoencephalitis in children. Enterovirus infection.	6
5. Acute intestinal infections in children.	6
6. Herpetic infections (HSV). Chickenpox. Mumps. Credit.	6
Total hours	35

I. EXPLANATORY NOTE

Infectious diseases for children - a discipline containing systematic scientific knowledge and methods for diagnosing, treating and preventing infectious diseases in children.

The purpose of teaching and studying the discipline "Children's Infectious Diseases" is to develop among students and acquire scientific knowledge about the modern diagnosis, treatment and prevention of infectious diseases, taking into account the characteristics of the clinical course of diseases depending on the age of the child and the reactivity of the body.

The objectives of the study of academic discipline are the acquisition by students of academic competencies, the basis of which is the ability to independently search for educational and information resources, mastering the methods of acquiring and understanding knowledge:

- basic concepts of infectology (infection process, source of infection, transmission paths and mechanisms, immunity formation, preventive measures);
- causes and mechanisms of the most common infectious diseases in children;
- the most important manifestations of typical syndromes characteristic of infectious diseases in children;
- factors leading to the generalization of the infectious process, contributing to the development of severe complications;
- features of the course of diseases in children of the first year of life;
- principles of treatment and care for emergency conditions in children;
- principles of specific prophylaxis of infectious diseases (indications and contraindications for vaccination, vaccination calendar).

The tasks of teaching discipline are to form social, personal and professional competencies, the basis of which is the knowledge and application of:

- methods for conducting an epidemiological analysis of the development of an infectious disease in a child;
- methods for the diagnosis, treatment and prevention of infectious diseases in children.

Teaching and successful study of the discipline "Children's Infectious Diseases" is carried out on the basis of knowledge and skills acquired by the student in the sections of the following academic disciplines:

Medical biology and general genetics. The concept of the ecosystem, knowledge of the general laws of the development of wildlife and the influence of the environment on the formation of hereditary factors.

Biological chemistry. The molecular basis for the development of pathological processes, the basic principles of biochemical diagnostic methods.

Human anatomy. Features of the structure of human organs and tissues, the study of the laws of development of this structure in connection with the function and the environment surrounding the body.

Histology, cytology, embryology. Mechanisms of histogenesis and organogenesis, tissue homeostasis, limits of tissue variability. General patterns of reaction of tissues and organs to external influences. Structural basis of homeostasis.

Normal physiology. The patterns of functioning of cells, tissues, organs, systems of a healthy organism and the mechanisms of their regulation. Indicators of the functions of a healthy body.

Microbiology, virology, immunology. Normal microflora of the human body. Microbiological basis of antimicrobial measures. Etiology, pathogenesis, immunity, microbiological diagnosis, specific therapy and prevention of bacterial, viral, fungal

and protozoal diseases. Opportunistic infections and their diagnosis. The immune system of the body, age characteristics. Natural, antiinfective, transplant and antitumor immunity.

Propaedeutics of internal diseases. Examination methods and assessment of clinical and laboratory parameters.

Pathological anatomy. General pathological processes. Alteration. Dystrophy and necrosis. Circulatory disorders. Inflammation. Compensatory and adaptive processes. Immunopathology.

Pathological physiology. General patterns of occurrence and mechanisms of development of pathological processes, mechanisms of compensation for impaired functions and structures of various organs and systems.

Pharmacology. Pharmacological properties and the basics of the clinical use of drugs, indications for the appointment and clinical use of drugs.

Clinical laboratory diagnostics. The rules for the collection, storage and biochemical methods of analysis of biological materials. Laboratory diagnosis of metabolic disorders, acid-base disorders. Fundamentals of laboratory hematology. The diagnostic value of assessing the composition of blood serum. Laboratory diagnosis of common diseases of organs and systems. Laboratory methods in clinical toxicology, emergency analysis.

Epidemiology. The doctrine of the epidemic process. Anti-epidemic measures and means. Immunoprophylaxis of human infectious diseases. Organization of anti-epidemic support of the population. Epidemiological diagnosis. Epidemiological surveillance of intestinal infections, aerosol infections, blood infections, infections of the external integument and zoonoses.

Neurology and neurosurgery. Inspection methods in neurology and neurosurgery.

The study of the discipline "Children's Infectious Diseases" should ensure the formation of students' academic, social, personal and professional competencies.

Requirements for preparing of students

The student must know:

- etiology, pathogenesis, classification of clinical symptoms and syndromes of common infectious diseases in children and adolescents;
- clinical and epidemiological indications, rules for hospitalization of children with infections and the epidemiological regimen in stationary conditions and at home;
- specific laboratory diagnosis of infectious diseases in children and differential diagnosis with other diseases that have a similar clinical picture;
- the main complications and outcomes of infection in children, the principles of treatment of children with infectious diseases;
- clinical manifestations and features of emergency conditions in infectious diseases in children and adolescents;

- principles and methods of general and specific prevention of infectious diseases in children; vaccination calendar in childhood and the organization of immunization on an outpatient basis.

The student must be able to:

- carry out a clinical examination of a child with an infectious pathology, draw up an examination plan, determine the need for hospitalization of the child with an infectious disease;
- evaluate the results of examination of patients with childhood infections, make a clinical diagnosis;
- draw up documentation for infectious diseases;
- organize preventive measures at the site of infection.

Practical skills:

- methodology for conducting an epidemiological analysis of the development of an infectious disease in a child;
- a technique for identifying clinical symptoms, atypical, severe and complicated forms of infection;
- modern methods of clinical, instrumental and laboratory examination, methods of providing emergency medical care on an outpatient and inpatient basis in conditions that threaten the life of a child with an infectious pathology;
- methods of treatment and rehabilitation of children after an infectious disease;
- methods and forms of public health education.

II. CONTENT OF EDUCATIONAL MATERIAL

1. Introduction to pediatric infections. Exanthems in pediatric infections (measles, rubella, varicella).

Measles: etiology, basic properties of the virus. Epidemiology, source of infection, transmission routes. Pathogenesis of the measles process and complications. Clinical classification. Clinical manifestations depending on the period, with various forms of infection. Features of the course of measles in vaccinated patients. Diagnosis and differential diagnosis of measles. The principles of treatment. Indications for hospitalization. Prevention: Specific and Non-Specific. Preventive measures.

Rubella: etiology, characteristics of the rubella pathogen. Epidemiology, sources of infection, transmission routes. Pathogenesis and pathomorphological changes in rubella. Clinical manifestations of the disease, its course and outcomes with different forms of the disease. Complications. Diagnosis and differential diagnosis. Treatment. Antiepidemic measures in child care facilities. Prevention.

Scarlet fever: etiology. The characteristics of the pathogen by antigenic structure and toxigenic properties. Epidemiology. Sources of infection. Transmission ways. character of immunity. Features of antitoxic and antibacterial immunity in scarlet fever. Pathogenesis. Phases of the infectious process. Toxic, septic, allergic effects of

streptococcus. Pathogenetic relationship of scarlet fever and rheumatism. Clinical classification. Clinical manifestations of a typical form, its course and outcomes. Extra buccal (extrapharyngeal) scarlet fever. Complications. The importance of reinfection. Diagnosis and differential diagnosis of scarlet fever. Diagnosis of erased and atypical forms of scarlet fever. Treatment. Indications for hospitalization. The principles of treatment of scarlet fever and its complications.

2. Tonsillitis in pediatric infections. Diphtheria. Infectious mononucleosis. Croup in children.

Diphtheria. Etiology. The causative agent of diphtheria, its main properties. Epidemiology. The incidence of diphtheria in the world and the Republic of Belarus. The epidemiological significance of bacteriocarriers. Ways of transmission of infection. The effect of active immunization on diphtheria morbidity and mortality. Pathogenesis. The role of exotoxin in the pathogenesis of diphtheria. Pathogenetic features of severe forms of diphtheria. The concept of antitoxic immunity. Classification. Clinical forms of oropharyngeal diphtheria. Diphtheria of the respiratory tract (croup). Rare forms of diphtheria: diphtheria of the nose, eyes, skin, genitals, etc. Clinical features of diphtheria in vaccinated children. Features of the course of the disease in the age aspect. Complications Factors contributing to the occurrence of complications. Early detection of complications of diphtheria. The diagnosis is clinical and bacteriological. Clinical and epidemiological significance of early diagnosis. Differential diagnosis of diphtheria of the pharynx. Treatment of patients and carriers. The rules of the regimen, patient care for various forms of diphtheria. Early use of specific and pathogenetic treatment. Rules for the introduction of antidiphtheria serum. Modern methods for the prevention of diphtheria. Active immunization.

Infectious mononucleosis. Etiology and epidemiology. Infectious mononucleosis caused by the Epstein-Barr virus. The epidemiological significance of the erased forms of the disease. Pathogenesis. The pathogen tropism to the lymphoid and macrophage systems of the body. Clinical classification. A typical symptom of the disease: fever, tonsillitis, adenoiditis, polylymphadenopathy, hepatosplenomegaly. Characteristics of the "ampicillin" rash. Characterization of laboratory changes. The importance of identifying atypical mononuclear cells in peripheral blood. Features of the course of infectious mononucleosis in the age aspect. Diagnosis and differential diagnosis. The importance of specific laboratory research methods in the diagnosis of infectious mononucleosis. Treatment. Pathogenetic and symptomatic therapy. Indications for hospitalization. Prevention

Croup syndrome in children, etiological factors, pathogenesis. Clinical features of acute stenosing laryngotracheitis in children. Laryngeal stenosis is a true and false croup. The degree of stenosis of the larynx, their characteristic. Differential diagnosis

of croup syndrome. Therapeutic approaches to the management of patients with the syndrome of croup. Emergency and intensive care at the croup.

3. Respiratory syndrome in infectious diseases in children. Influenza and acute respiratory infections of non-influenza etiology in children. Pertussis (whooping cough).

Influenza. Pathogenesis. Epithelial, toxic and antigenic effects of influenza virus. Antigenic structure of influenza viruses. Epidemics, pandemic influenza infection. Clinical classification. Clinical manifestations in various forms of influenza. Features of the clinical manifestations of influenza in various age groups. The course of the flu. The value of secondary microbial flora. Complications Atypical forms of flu. Features of influenza in children of the first year of life. Diagnosis. Differential diagnosis. Laboratory diagnostics. Treatment of influenza depending on the age, severity of the disease and its complications. Etiotropic, pathogenetic and symptomatic therapy. Emergency care at the prehospital stage. Flu Prevention Specific prophylaxis.

ARI of non-influenza etiology. Etiological structure of respiratory infections.

Parainfluenza Features of parainfluenza viruses, their antigenic structure. Epidemic features of parainfluenza infection. Clinical features of parainfluenza in children. Stenosing laryngotracheitis with parainfluenza.

Adenovirus infection. Types of adenoviruses. Epidemiological features. Clinical manifestations (acute nasopharyngitis, pharyngo-conjunctival fever, mesadenitis, intestinal disorders). Diagnostics. Differential diagnosis. Laboratory diagnostics. Therapeutic tactics. Prevention

Respiratory syncytial infection. Age susceptibility. Features of clinical manifestations and course. PC infection in young children. Diagnostics. Therapeutic tactics. Prevention

Mycoplasma infection. Pathogen properties. Epidemiology. Pathogenesis. The clinical picture. Course of the disease. Complications Diagnosis. Differential diagnosis. Therapeutic tactics. Prevention

Chlamydial infection. Etiology. Properties of pathogens. Epidemiology. Pathogenesis. The clinical picture. the course and outcome of the disease. Diagnosis. Differential diagnosis. Therapeutic tactics. Prevention

Whooping cough. Relevance of the topic. Etiology. The causative agent of whooping cough, its main properties. Epidemiology. Current epidemic features of whooping cough. Pathogenesis. Classification. The clinical picture depending on the period of the disease. Features of the course of whooping cough in infants. Complications of whooping cough. Flow. Forecast. Diagnostics. Clinical and epidemiological significance of early diagnosis. Diagnostic features in infants and vaccinated children. The importance of laboratory methods. Treatment. The principles of treatment at different periods of the disease and in different age groups, taking into

account pathogenetic features. Indications for hospitalization. Prevention of whooping cough. Active immunization. Organization of anti-epidemic measures.

4. Meningeal syndrome in children. Meningococcal infection. Meningoencephalitis in children. Enterovirus infection.

Meningococcal infection. Meningoencephalitis in children. Etiology. The characteristics of the pathogen. Epidemiology. Sources of infection and distribution. Classification of meningococcal infection. Generalized forms of meningococcal infection: purulent meningitis, meningococcemia, combined forms. Localized forms of meningococcal infection (nasopharyngitis, bacterial carriage) and their role in the spread of infection. Complications, course, prognosis. Clinical manifestations of septic shock. Waterhouse-Fridericksen Syndrome. Early diagnostic signs of meningococcal infection at the prehospital stage. Clinical and bacteriological diagnostics. Serological research methods. Differential diagnosis. Treatment. Etiotropic and pathogenetic therapy. Providing emergency care to patients with meningococcemia, with meningitis at the prehospital stage. Chemotherapy for meningococcal carriage. Prevention Epidemic measures in the outbreak.

Etiological structure of meningitis, encephalitis in the Republic of Belarus. Clinical manifestations of meningeal syndrome. Meningeal symptoms and techniques for checking them. Laboratory diagnosis of meningitis, encephalitis. The cerebrospinal fluid composition is normal. Serous and purulent meningitis. Encephalitis and meningoencephalitis. Differential diagnosis. Features of the course of meningitis and encephalitis in young children. Medical assistance at the prehospital stage. Etiotropic therapy of meningitis and encephalitis depending on the etiology. Tactics of pathogenetic therapy. Dispensary observation.

Enterovirus infection. Characterization of enterovirus infection. The variety of clinical manifestations. A large proportion of damage to the central nervous system, myocardium. Epidemiology: sources of infection, transmission routes, prevalence of infection. Seasonality, susceptible contingent. Etiology of the disease. The family, the genus of viruses, the diversity of viruses. The development of enterovirus infection (Koksaki A, B, ECHO). General properties of enteroviruses. Pathogenesis of EI; (entrance gate - ARI syndrome, pharyngitis, herpangina, viremia, tropism of viruses to nervous, muscle and epithelial tissue) The clinical picture. A brief description of the individual clinical forms - herpangina, epidemic myalgia, serous meningitis, myelitis, encephalomyocarditis of the newborn, encephalitis, pericarditis, myocarditis, infectious exanthema, minor disease, acute catarrhal disease, enterovirus diarrhea, hemorrhagic conjunctomyelitis, polyorrhagia. Diagnosis and differential diagnosis, treatment. Prognosis, prevention and measures in the outbreak.

5. Acute intestinal infections in children.

Etiology of modern acute intestinal infections in children.

Salmonellosis. Etiology. Epidemiology. Sources of infection and distribution. Features of nosocomial Salmonella strains. The main phases of the pathogenesis of salmonellosis. Clinical classification. Clinical forms and features of the course of salmonellosis in various age groups. Variants of the course and complications. Features of the course of salmonellosis in young children. Diagnosis. Clinical and laboratory detection methods. Diagnosis at the prehospital stage. Differential diagnosis with other bacterial OCI (shigellosis, escherichiosis, campylobacteriosis). Treatment. Etiotropic and pathogenetic therapy. Indications for hospitalization. Prevention Epidemic measures in the outbreak. General sanitary and epidemiological measures.

Viral diarrhea in children. Etiology. Rotavirus, norovirus, adenovirus and enterovirus infections. Etiology. Epidemiology. Sources of infection. Transmission ways. Clinical manifestations. Features of clinical symptoms in young children. Diagnosis. Laboratory research methods. Differential diagnosis. Treatment. The principles of rehydration. Prevention

6. Herpetic infections (HSV). Chickenpox. Mumps. Credit.

Herpetic infection (HSV). Etiology and classification of herpes viruses. Properties of pathogens. Epidemiology. Sources of infection, transmission mechanism. Pathogenesis. Classification. Clinical forms of infection: localized, widespread and generalized. Herpetic lesions of the skin, mucous membranes, eyes, nervous system. Features of primary and recurrent HSV infection. Herpetic infection in newborns. Complications Diagnostics. The importance of clinical data and laboratory methods, their specificity and sensitivity. Differential diagnosis. Therapeutic tactics in the acute period and inter-relapse. Prevention

Chickenpox. Etiology. Identity of the causative agent of chickenpox and shingles. Epidemiology. Sources of infection and distribution. Classification. Course of the disease. Atypical and erased forms of chickenpox. Features of the course of chickenpox in children of the first year of life. Generalized forms of chickenpox. Congenital chickenpox. Complicated forms of chickenpox. Purulent complications. Encephalitis. Diagnostics. Differential diagnosis. Treatment. Prevention is specific and non-specific. Anti-epidemic measures in children's groups. Shingles. The clinical picture. Diagnosis. Treatment. Prevention

Mumps infection. Etiology. Pathogen properties. Epidemiology. Sources of infection and distribution. Pathogenesis. Clinical classification. Clinical symptoms in various forms of the disease. Different localization and forms of mumps infection: isolated mumps, serous meningitis, pancreatitis, orchitis, etc. Age-related features of mumps infection. Course of the disease. Complications. Diagnostics. Differential diagnosis of glandular form. Differential diagnosis of mumps meningitis with

meningitis of another etiology. Forecast. The principles of treatment. Indications for hospitalization. Prevention. Dates of quarantine and isolation. Specific prophylaxis.

INFORMATION AND METHODOLOGICAL PART LITERATURE

Main Reading

- Harrison's Infectious Diseases. 3rd Edition / D.Kasper, A.Fauci. – McGraw-Hill Education, 2016. – 1328p.
- Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases / J.E.Bennett, R.Dolin, M.J.Blaser: 9th ed. – Elsevier, 2019 – 19913p.
- Principles and Practice of Pediatric Infectious Diseases 5th Edition. / S.S. Long, C.G.Prober, M.Fischer. – Elsevier, 2017. 1688p.
- Feigin and Cherry's Textbook of Pediatric Infectious Diseases: Expert Consult.7th Edition / J.Cherry, G. J.Demmler-Harrison , S.L.Kaplan, W.J. Steinbach. – Saunders, 2013. – 3904p.

Further reading

- Textbook of Pediatric Infectious Diseases 1st Edition / A.Parthasarathy, R.Agrawal, C.P. Bansal. - Jaypee Brothers Medical Publishers Pvt Ltd, 2013 - 608p.
- Atlas of Human Infectious Diseases / H.F.L.Wertheim, P.Horby, J.P.Woodall. - Wiley-Blackwell, 2012. - 304p.

Electronic databases

- Oxford Medicine Online [Electronic resource] / Oxford University Press. - Access mode: www.oxfordmedicine.com . - Date of access: 04.04.2019 .
- Springer Link [Electronic resource] / Springer International Publishing AG. - Access mode: <https://link.springer.com> . - Date of access: 04.04.2019 .
- Lecture material.

Tasks for selfeducation

1.	Yersiniosis in children.
2.	Parvovirus infection.
3.	Hib-infection.
4.	Poliomyelitis and polio-like diseases.
5.	CMV-infection.

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