

EDUCATIONAL COMPONENT SYLLABUS**FUNDAMENTALS OF CLINICAL IMMUNOLOGY AND ALLERGOLOGY**Specialty: **221 "Dentistry"**Volume: **3 ECTS credits (90 hours)**Educational and professional program: **Dentistry**Training sessions: **practical classes, individual assignments**Component code in the educational program: **EC 73**Final control: **credit**Level of higher education: **second (master's)**Form of education: **full-time (full-time)**Prerequisites: **Therapeutic Dentistry**Year of study : **5**Semester(s): **IX (fall), X (spring)**Type of educational component: **elective**Academic year: **2028 -2029**Department/division: **Department of Internal Medicine No. 2 and Clinical Immunology and Allergology named after Academician L.T. Mala**, 41 Hryhoriy Skovoroda Street, Kharkiv

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e-mail: vd.babadzhan@knmu.edu.uaEducational component page in the KNMU Distance Learning System (Moodle):
<https://distance.knmu.edu.ua/course/view.php?id=203>**DESCRIPTION OF THE EDUCATIONAL COMPONENT**

The elective educational component "Fundamentals of Clinical Immunology and Allergology" includes improving the understanding of about the structure, laws and mechanisms of functioning of the immune system , knowledge of etiology, pathogenesis, clinical picture, diagnostic and treatment methods typical immunopathological processes (primary and secondary immunodeficiencies, autoimmune diseases, immunodiagnosis and immunotherapy of tumors, transplant rejection) and allergic diseases, the ability to diagnose main clinical and laboratory syndromes immunopathological, allergic processes, determine tactics immunotherapy, know the criteria for treatment effectiveness.

The elective educational component "Fundamentals of Clinical Immunology and Allergology" is intended for training students of the 5th year of the second (master's) level of higher education, in the specialty 221 "Dentistry" field of knowledge 2 2 "Health Care" qualification: Master of Dentistry, Dentist.

OBJECTIVE: deepening knowledge, skills, abilities and other competencies in clinical immunology and allergology, necessary in the professional activities of a dentist, pediatric dentist, dental surgeon, orthopedist-dentist, pediatric orthopedist-dentist, which are established on the basis of the educational and professional program.

LEARNING OUTCOMES:

1. Understand the features of the functioning of innate and acquired immunity under the influence of environmental factors, in conditions of chronic bacterial, viral and fungal infections.
2. Draw conclusions about the functioning of the immune system based on clinical data and immunogram results and the determination of specific immunoglobulins to infectious agents.
3. Analyze changes in immune status indicators taking into account the patient's age, health status, and season.
4. Identify etiological and pathogenetic factors of acquired immunodeficiency states.
5. Determine the features of the immunogram during antiviral immune protection.
6. Determine the features of the immunogram during antibacterial immune protection.
7. Identify the features of the immunogram during antifungal immune protection.
8. Conduct interviews, physical examinations, interpret immunograms, and prescribe treatment for patients with congenital and acquired immunodeficiency states.

9. Identify clinical manifestations and changes in immunograms in immunodependent diseases (disease caused by human immunodeficiency virus (HIV), herpes viral diseases; chlamydial infection; infectious mononucleosis, etc.).
10. Conduct a survey and physical examination of patients with allergic diseases. Determine the etiological (groups of allergens) and pathogenetic (types of immune reactions) factors of allergic diseases. Draw up a plan for examining patients with allergic diseases.
11. Know the methodology for conducting skin tests and provocative tests.
12. Know the basics of molecular allergology, the principles of single- and multi-component allergy diagnostics methods (ImmunoCAP, ISAC, ALEX-2).
12. Identify typical allergic diseases, their course and complications.
13. Conduct differential diagnostics between allergic and pseudoallergic diseases.
14. Determine the presence of drug allergies and anaphylaxis, causal factors, and have emergency care skills.
15. Prescribe antiallergic therapy, evaluate its effectiveness. Determine the prognosis, conduct primary and secondary prevention of allergic diseases . Ability to conduct marketing of medical services.

CONTENT OF THE EDUCATIONAL COMPONENT

List of topics for practical classes (30 hours):

1. Structure and functions of the immune system. Immunocompetent cells, their cooperation. The concept of immunogram. Indicators of a normal immunogram.
2. Methods of laboratory immunodiagnosics. Immunogram in acute and chronic viral and bacterial infections in the maxillofacial region (chronic stomatitis, gingivitis, periodontitis and periodontosis). Methods of immunocorrection in the treatment of stomatitis.
3. Activated T- and B-cell immune response. Immune system dysfunction. ELISA for determination of total IgE , specific IgM , IgG , IgE . Possibilities of multicomponent immunodiagnostic methods ALEX-2, ISAC. ELISA-CAST .
4. Primary (congenital) immunodeficiencies, their manifestations in the maxillofacial region. Immunogram in hereditary (primary) immunodeficiencies. Immunotherapy methods in dentistry.
5. Secondary (acquired) immunodeficiencies, their manifestations in the maxillofacial region. Immunogram in acquired (secondary) immunodeficiencies. Methods of immunotherapy.
6. Tumor markers. Possibilities of monoclonal antibody therapy for malignant tumors.
7. Diagnosis and treatment of autoimmune diseases.
8. Allergic diseases in the practice of a dentist. Anaphylaxis.
9. Anaphylactic shock, diagnosis and treatment.
10. Specific immunodiagnosis of allergic diseases. Graded challenge test. Laboratory methods of allergy diagnosis.
11. Urticaria and allergic angioedema. Hereditary angioedema. Allergic bronchial asthma. Treatment of an asthma attack.
12. Allergic stomatitis. Allergic contact stomatitis. Stevens-Johnson syndrome with lesions of the oral mucosa. Erythema multiforme exudative. Patch tests in dental practice.
13. Modern antiallergic drugs and methods of treating allergic diseases.
14. Drug allergy in dental practice. Methodology for conducting skin prick and scarification tests. Laboratory methods for diagnosing drug allergy. Treatment of drug allergy.
15. Urgent allergic conditions in dental practice. Diagnosis and treatment.

List of topics for student independent work (SIW, 60 hours)

1. Modern understanding of the structure and function of the immune system. CD antigens of immunocompetent cells. The concept of immunogram. Indicators of a normal immunogram. Immunological system of mucous membranes. Lymphoid tissue of the oral cavity.
2. Immunogram, interpretation of results.
3. ELISA for determination of total IgE, specific IgM, IgG, IgE. Possibilities of multicomponent immunodiagnostic methods ALEX-2, ISAC in the diagnosis of sensitization of patients to allergens. Possibilities of immunodiagnostic methods ELISA-CAST .

4. Immunogram in acute and chronic bacterial, viral and fungal lesions of the oral mucosa. Immunotherapy of chronic stomatitis. Congenital immunodeficiencies. Acquired immunodeficiencies. Their manifestations in the maxillofacial region. Classification, mechanisms of development, immunodiagnosis, treatment.
5. Immunological changes in HIV infection. Methods of early diagnosis of HIV infection. Complications of the oral mucosa in HIV infection. Herpetic infections: immunopathogenesis, immunodiagnosis, features of clinical manifestations in the maxillofacial region, immunotherapy. Fungal lesions of the skin and mucous membranes: immunopathogenesis, immunotropic therapy.
6. Allergic diseases in the practice of a dentist. Types of allergic reactions. Immediate and delayed allergic reactions. Anaphylaxis. Anaphylactic shock, causes, diagnosis and treatment.
7. Specific immunodiagnosis of allergies using skin tests (prick tests, scarification tests, patch tests). Features of the use of single- and multi-component methods of allergy diagnostics (general and specific IgE, ImmunoCAP, ISAC, ALEX-2).
8. Angioedema, urticaria, toxidermia, allergic contact stomatitis, serum sickness, allergic vasculitis. Patch tests in dental practice. Modern antiallergic drugs. Food allergy, clinical manifestations in the perioral area, treatment and prevention.
9. Drug allergy in dental practice. Skin tests with drugs in the diagnosis of drug allergy. Laboratory methods for the diagnosis of drug allergy. Anaphylactic shock. Acute angioedema. Hereditary angioedema. Other emergencies in allergology. Preparation for the exam.

SIW is aimed at deepening and consolidating theoretical knowledge obtained during classroom training and contributes to the formation of professional competencies. The results of VTS are subject to control and are included in the final knowledge control.

Consultations: online, with prior registration on the course page in the Distance Learning System.

Teaching methods: performing exercises and practical work, solving situational tasks and cases, standardized patient method

EVALUATION

Current educational activity (CEA). Assessment of the success of education seekers is carried out in accordance with the Instructions for assessing the educational activity of higher education seekers at KhNMU (<https://knmu.edu.ua/documents/normatyvni-dokumenty-navchalnogo-proczesu/>). The assessment for a practical or final lesson is from 2 to 5 points. Submitting assignments late for unwarranted reasons entails a reduction in the grade in accordance with the percentage of delay in time from the time of completing the assignment. Assignments are checked within 24 hours. Grades are posted in the electronic journal. Unsatisfactory grades are worked out in accordance with the Regulations on the procedure for working out academic classes by students of KNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

At the end of the semester, the average grade for the semester is converted into a multiple-point grade (70 – 120 points) in accordance with Table 1 of the Assessment Instructions (see above). The arithmetic average of the CEA for both semesters constitutes **the total learning activity (TLA)**.

Individual tasks (IT) are rated up to 10 points.

Final control. Test. The condition for admission to the test is to obtain 120 CEA points.

Discipline assessment (DA). DA = TLA+individual tasks.

Appealing the results of the final control is carried out in accordance with the procedure established at the KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

EDUCATIONAL COMPONENT POLICY

Recommendations for course work: actively participate in all forms of work in classes, devote 1-2 hours daily to independent work and preparation for classes, ask questions during classes, attend consultations, submit assignments on time, and complete all forms of control.

Attendance at classes. Attendance at lectures and practical classes is mandatory. The uniform during offline classes is a white medical gown. If you are more than 5 minutes late, you may not be allowed to attend the class. Missed classes are made up in accordance with the Regulations on the procedure for students of KNMU to complete classes (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

Academic integrity. KhNMU stands on zero tolerance for manifestations of academic dishonesty. Any violations of the principles of academic integrity entail liability in accordance with the procedure established at KNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

The use of electronic gadgets and artificial intelligence tools is permitted only with the permission of the teacher.

Policy on individuals with special educational needs. Applicants with special educational needs should contact a teacher to develop an individual educational trajectory.

Teacher response time: 12 hours.

Technical requirements for working on the course:

- access to a computer, laptop, tablet or smartphone
 - corporate Google account with your own photo
 - skills in working with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle
- Technical support:** ASU (ev.shevtsov@knmu.edu.ua), Google (tehotdelknmu@gmail.com), Moodle (al.korol@knmu.edu.ua)

RECOMMENDED SOURCES OF LITERATURE

1. Oxford Handbook of Clinical Immunology and Allergy/ Fourth edition/ Edited by Gavin Spickett. – Oxford University Press, 2020 - 677 p.- Mode Access : <https://academic.oup.com/book/29846> ; <https://doi.org/10.1093/med/9780198789529.001.0001>
2. EAACI Molecular Allergology . User's Guide 2.0/ Ed.: S . Dramburg, Ch . Hilger, A. Santos , L. Vecillas .// EAACI, 2023.-386 p.- Access mode:
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://hub.eaaci.org/resources_documents/molecular-allergology-users-guide-2-0/&ved=2ahUKEwil24e_IsaIAxWcBNsEHZOiOIEQFnoECBUQAQ&usg=AOvVaw2vLJbT0KqYBg15C2GB-Tiw
- 3 . Drug allergy: A 2022 practice parameter update / David A. Khan, MD, Aleena Banerji, MD, Kimberly G. Blumenthal // JAllergy Clin Immunol.-2018.- V . 150, N 6 .-P.1333-1393.
4. Lectures of Dr. M. S. Professor Babajan V. D. 2025 – 2026 academic year .
5. Component- [Cross](http://www.inunimai.org/cms/index.php/xmap-en) -reactivity-Map-150903_en. - Access mode:
<http://www.inunimai.org/cms/index.php/xmap-en>

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