

**EDUCATIONAL COMPONENT SYLLABUS  
IMMUNOPROPHYLAXIS. DIAGNOSIS AND TREATMENT OF DRUG ALLERGY**

Specialty: **221 "Dentistry"**

Educational and professional program: **Dentistry**

Component code in the educational program: **EC 81**

Level of higher education: **second (master's)**

Form of education: **full-time (full-time)**

Year of study: **5**

Semester(s): **I X (fall ), X (spring )**

Type of educational component: **elective**

Academic year: **2028-2029**

Volume: **3 ECTS credits (90 hours)**

Training sessions: **practical classes, individual assignments**

Final control: **credit**

Prerequisites: **therapeutic dentistry, pediatric dentistry, pediatric surgical dentistry, surgical dentistry**

Department/division: **Department of Internal Medicine No. 2 and Clinical Immunology and Allergology named after Academician L.T. Mala**, 41 Hryhoriy Skovoroda Street, Kharkiv

Head of the educational component: Dr. Med. Sci., Professor Babadzhan Volodymyr Danylovych ,  
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Educational component page in the KNMU Distance Learning System (Moodle):  
<http://distance.knmu.edu.ua/course/view.php?id=1690>

**DESCRIPTION OF THE EDUCATIONAL COMPONENT**

The optional educational component "Immunoprophylaxis. Diagnosis and treatment of drug allergy" includes an introduction to about immunoprophylaxis as a method of effective prevention of the development of dangerous infectious diseases, mastering the technique of vaccination, knowledge of the vaccination calendar, clinical manifestations and methods of preventing complications of immunotherapy, understanding the mechanisms of occurrence, clinical manifestations, possibilities of clinical and laboratory diagnostics of drug therapy, emergency care in case of its occurrence. Such information will help dentists to maximally protect themselves and patients from the occurrence of complications of drug treatment and the use of dental materials in their daily practice.

The elective educational component "Immunoprophylaxis. Diagnosis and treatment of drug allergy" is intended for training students of the 5th year of the second (master's) level of higher education, in the specialty 221 "Dentistry" of the field of knowledge 22 "Healthcare" qualification: Master of Dentistry, Dentist.

**OBJECTIVE:** deepening knowledge, skills, abilities and other competencies in immunoprophylaxis, prevention of infectious diseases, identification, prevention, diagnosis and treatment of drug allergies, 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 mechanisms of the immune response during active immunoprophylaxis (vaccination): activated B-cell immune response to bacterial vaccines and toxoids and activated T-cell immune response to viral vaccines .
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. Understand the mechanisms of the immune response to live, killed, split, vector, DNA, RNA vaccines.
4. Understand the mechanisms of passive immunoprophylaxis and immunotherapy using anti-infective antisera.
5. Be able to use live, attenuated (weakened) vaccines against tuberculosis (BCG), polio ( oral polio vaccine types 1, 2 and 3 (OPV), inactivated polio vaccine (Imovax Polio) , live dry cultured measles

- vaccine, Ruvax; live dry mumps vaccine, Trimovax, live attenuated rubella vaccine (Ervevax); live hyperattenuated rubella vaccine (Rudivax) .
6. Be able to use killed vaccines: anti-rabies vaccine (COCAV), against pertussis, tick-borne encephalitis, against hepatitis B DNA recombinant (Eberbiovac), bacterial chemical vaccines (diphtheria and tetanus toxoids), viral subunit vaccines against influenza , genetically engineered vaccines ( against viral hepatitis B), vector, DNA and RNA vaccines against COVID -19.
  7. Be able to diagnose, treat and prevent post- vaccination reactions and complications .
  8. Be able to use and administer antisera and immunoglobulins: antirabies, antitetanus, purified equine antidiaphragma serum, purified concentrated liquid antitoxin serum of types A, B, E, antisyneguous immunoglobulin, human antistaphylococcal immunoglobulin, antitetanus donor immunoglobulin, human immunoglobulin against herpes simplex virus type 1, type 2, zoster, herpimun 6, cytobiotect, human immunoglobulin against Epstein-Barr virus.
  9. Distinguish between types of allergic reactions according to Gell and Coombs, know Cook's classification of allergic reactions.
  10. Understand the mechanisms and pathogenesis of drug allergy, including in combat conditions .
  11. Understand the mechanisms and pathogenesis of anaphylaxis to medications.
  12. Be familiar with the methodology for conducting skin prick, scarification and intradermal tests, patch tests in the diagnosis of drug allergies and allergies to dental materials.
  13. Be familiar with and be able to apply laboratory tests in the diagnosis of drug allergy ( basophil degranulation test, CAST - ELISA , Flow - CAST - basophil activation test by the level of expression of CD 63 and CD 203, lymphocyte transformation test, T-lymphocyte activation test by the level of expression of CD 69) .
  14. Know the main clinical forms of drug allergy ( anaphylaxis, acute urticaria, angioedema, angioedema in the larynx, anaphylactic shock, allergic contact stomatitis) .
  15. Be able to treat drug allergies.
  16. Be able to conduct a graded challenge or test dosing to determine drug sensitization.
  17. Know the clinical manifestations, methods of diagnosis and treatment of drug allergies to antibiotics, anesthetics, local anesthetics, dental materials, analgesics, intravenous X-ray contrast agents, antihypertensives and other drugs .
  18. Know the clinical manifestations, methods of diagnosis and treatment of drug allergy to drugs that have hapten properties. Know the importance of patch tests for its detection and prevention.
  19. Be able to recognize and provide emergency care for medical allergy emergencies (anaphylaxis, anaphylactic shock, angioedema in the larynx).

## **CONTENT OF THE EDUCATIONAL COMPONENT**

### **List of topics for practical classes (30 hours):**

1. Mechanisms of immune response during active immunoprophylaxis (vaccination). Mechanisms of passive immunoprophylaxis and immunotherapy using anti-infective antisera.
2. The use of live, killed, bacterial, chemical, viral subunit , genetically engineered vaccines and DNA, RNA vaccines for immunoprophylaxis of infectious diseases according to epidemiological indications .
3. Anti-infectious vaccines of the preventive vaccination calendar.
4. Diagnosis, treatment and prevention of post-vaccination reactions and complications.
5. Sera and immunoglobulins.
6. Use of anti-tetanus and anti-rabies serum. Indications, contraindications. Diagnosis of the level of immunity. Serum sickness.
7. Types of allergic reactions according to Gell and Coombs, Cook's classification of allergic reactions. Drug allergy, including in combat conditions.
8. Anaphylaxis. Acute urticaria. Angioedema. Angioedema of the larynx. Anaphylactic shock. Allergic contact stomatitis.
9. Methods of conducting scarification tests, prick tests and patch tests with drugs. Laboratory methods for diagnosing drug allergies.

10. Drug allergy to antibiotics and anesthetics, including in the wounded. Methods of conducting scarification and prick tests for the diagnosis of sensitization to drugs.
11. Drug allergy to local anesthetics. Methods of scarification and prick tests for the diagnosis of sensitization to drugs.
12. Drug allergy to analgesics, intravenous X-ray contrast agents, antihypertensives and other drugs.
13. Drug allergy to drugs that have haptens properties. Patch test.
14. Types of standardized allergens for patch testing. Allergic contact stomatitis.
15. Allergic emergencies in the dental clinic. Credit.

#### **List of topics for student independent work (60 hours)**

1. The use of live, killed, bacterial chemical, viral subunit, genetically engineered vaccines and DNA vaccines for immunoprophylaxis of infectious diseases.
2. Vaccines prescribed for epidemiological indications, against especially dangerous infections, antiviral vaccines. Diagnosis, treatment and prevention of post-vaccination reactions and complications.
3. Serums and immunoglobulins. Antitetanus and antirabies serums. Complications of use. Serum sickness. Prevention. Treatment.
4. Drug allergy. Anaphylaxis, allergic contact stomatitis.
5. Skin tests (prick tests, scarification tests), patch tests in the diagnosis of drug allergy. Standardized laboratory methods for the diagnosis of drug allergy.
6. Diagnosis, treatment and prevention of allergy to antibiotics and anesthetics, including in the wounded. The value of skin tests for the diagnosis of sensitization to allergens.
7. Diagnosis, treatment and prevention of allergy to local anesthetics. The value of skin tests for the diagnosis of sensitization to allergens.
8. Hypersensitivity to drugs that have haptens properties. Patch tests.
9. Emergencies in allergology. Anaphylactic shock in dental practice: diagnosis and treatment. Preparation for the exam.

VTS 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](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](https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf)).

### EDUCATION COMPONENT POLICIES

**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](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](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

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\\_lsaIAxWcBNsEHZOiOIEQFnoECBUQAQ&usg=AOvVaw2vLJbT0KqYBg15C2GB-Tiw](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_lsaIAxWcBNsEHZOiOIEQFnoECBUQAQ&usg=AOvVaw2vLJbT0KqYBg15C2GB-Tiw)

3. Side effects of drugs: allergic reactions : a textbook for doctors, interns in the specialty "General practice-family medicine" and "Internal diseases" / V. I. Kryvenko, I. V. Nepryadkina , O. P. Fedorova [and others].– Zaporizhzhia: [ZDMU], 2020. – p. 134

4. 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.

5. Lectures of Dr. M. S. Professor Babajan V. D. 2025 – 2026 academic year .

6. Component- Cross -reactivity-Map-150903\_en. - Access mode:

<http://www.inunimai.org/cms/index.php/xmap-en>

Acting Head of the Department of Internal Medicine No. 2 and Clinical Immunology and Allergology named after Academician L.T. Malaia  
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