

SYLLABUS

1. General information on the course

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| Full course name | Clinical Aspects of Immunization |
| Full official name of a higher education institution | Sumy State University |
| Full name of a structural unit | Medical Institute. Department of Pediatrics |
| Author(s) | Vasylieva Olena Hennadiivna |
| Cycle/higher education level | The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle |
| Semester | 1 week across 11 semester or 1 week across 12 semester |
| Workload | The amount is 5 ECTS credits, 150 hours, of which 36 are classroom |
| Language(s) | English |

2. Place in the study programme

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| Relation to curriculum | Elective course available for study programme "Medicine" |
| Prerequisites | Clinical aspects of immunoprophylaxis as a discipline is based on the study by students of microbiology, virology and immunology, life safety, basics of bioethics and biosafety, anatomy, pathoanatomy, pathomorphology, physiology, pathophysiology, pharmacology, hygiene and ecology, propaedeutics and pediatrics with these disciplines. |
| Additional requirements | Krok-1 |
| Restrictions | There are no specific restrictions |

3. Aims of the course

The aim of the discipline is to achieve modern knowledge and professional skills on the basics of immunoprophylaxis of infectious diseases, based on the study of drugs for immunization, methods and timing of vaccinations according to the vaccination calendar, vaccine storage conditions, medical records, analysis and interpretation of possible adverse events of immunization and planning measures to prevent the spread of infectious diseases in children.

4. Contents

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| Module 1. Modern bases of immunoprophylaxis in Ukraine |
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Topic 1 The place of immunoprophylaxis in the system of preventive and anti-epidemic measures

The place of immunoprophylaxis in the system of preventive and anti-epidemic measures. Calendar of preventive vaccinations in Ukraine. Classification of drugs for active immunoprophylaxis. The composition of drugs for active immunoprophylaxis. Ways of administration of drugs for active immunoprophylaxis. Active immunoprophylaxis: basics of immune response as a result of vaccination, basics of modern production of drugs for immunoprophylaxis, introduction of vaccines in the immunization program, revision of the National Vaccination Calendar. Storage of vaccines and toxoids. "Cold chain".

Topic 2 Organization of support for immunoprophylaxis in society

Organization of support for immunoprophylaxis in society: conducting situational analysis and cooperation with community leaders, public figures and religious leaders, establishing friendly, trusting relations with the population and the community, training of health workers in communication skills, use of various information channels, work with the media in case of crisis situations.

Topic 3 Vaccine immunization and safety

Vaccine immunization and safety: global guidelines and problems that may arise during vaccination. Tasks of the monitoring system. Types of immunization safety surveillance systems. Opportunities for countries at the regional and global levels. National control body.

Topic 4 Pharmacovigilance of vaccines

Pharmacovigilance of vaccines: global guidelines for the supervision of AEAI, messages, priority signals for investigation, final classification. Criteria for assessing the post-vaccination period. Classification of adverse events after immunization. Organization of AEAI monitoring. System of registration, accounting and notification of AEAI. AEAI investigation system. The main legislative acts that guarantee social justice in relation to persons who have developed AEAI.

Module 2. Immunoprophylaxis of certain infections

Topic 5 Immunoprophylaxis of tuberculosis

Immunoprophylaxis of tuberculosis: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 6 Immunoprophylaxis of hepatitis A and B

Immunoprophylaxis of hepatitis A and B: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 7 Immunoprophylaxis of diphtheria and pertussis

Immunoprophylaxis of diphtheria and pertussis: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 8 Immunoprophylaxis of tetanus

Immunoprophylaxis of tetanus: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection. Emergency prevention of tetanus.

Topic 9 Immunoprophylaxis of poliomyelitis, rotavirus infection

Immunoprophylaxis of poliomyelitis, rotavirus infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination effectiveness and duration of vaccination.

Topic 10 Immunoprophylaxis of chickenpox

Immunoprophylaxis of chickenpox: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 11 Immunoprophylaxis of measles, rubella

Immunoprophylaxis of measles, rubella: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination effectiveness and duration of protection.

Topic 12 Immunoprophylaxis of mumps

Immunoprophylaxis of mumps: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 13 Immunoprophylaxis of pneumococcal infection

Immunoprophylaxis of pneumococcal infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 14 Immunoprophylaxis of hemophilic infection and influenza

Immunoprophylaxis of hemophilic infection and influenza: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 15 Immunoprophylaxis of meningococcal infection

Immunoprophylaxis of meningococcal infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

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| <p>Topic 16 Immunoprophylaxis of human papillomavirus infection</p> <p>Immunoprophylaxis of human papillomavirus infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of vaccination.</p> |
| <p>Topic 17 Immunoprophylaxis COVID-19</p> <p>Immunoprophylaxis COVID-19: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 18 Final modular control</p> <p>Final modular control. Execution of a practical case (preparation, presentation, defense)</p> |

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

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| LO1 | Interview and clinically examine the patient |
| LO2 | Determine the necessary list of laboratory and instrumental studies and evaluate their results |
| LO3 | Establish a preliminary and clinical diagnosis |
| LO4 | Determine the tactics of emergency medical care |
| LO5 | Provide emergency medical care |
| LO6 | Perform medical manipulations |
| LO7 | Plan and implement preventive and anti-epidemic measures for infectious diseases |
| LO8 | Keep medical records |
| LO9 | Conduct epidemiological and medical-statistical studies of public health; analyze and process state, social, economic and medical information |

7. Teaching and learning activities

7.1 Types of training

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| <p>Topic 1. The place of immunoprophylaxis in the system of preventive and anti-epidemic measures</p> |
| <p>pr.tr.1 "The place of immunoprophylaxis in the system of preventive and anti-epidemic measures" (full-time course)</p> <p>The place of immunoprophylaxis in the system of preventive and anti-epidemic measures. Calendar of preventive vaccinations in Ukraine. Classification of drugs for active immunoprophylaxis. The composition of drugs for active immunoprophylaxis. Ways of administration of drugs for active immunoprophylaxis. Active immunoprophylaxis: basics of immune response as a result of vaccination, basics of modern production of drugs for immunoprophylaxis, introduction of vaccines in the immunization program, revision of the National Vaccination Calendar. Storage of vaccines and toxoids. "Cold chain".</p> |

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| <p>Topic 2. Organization of support for immunoprophylaxis in society</p> |
| <p>pr.tr.2 "Organization of support for immunoprophylaxis in society" (full-time course)</p> <p>Organization of support for immunoprophylaxis in society: conducting situational analysis and cooperation with community leaders, public figures and religious leaders, establishing friendly, trusting relations with the population and the community, training of health workers in communication skills, use of various information channels, work with the media in case of crisis situations.</p> |
| <p>Topic 3. Vaccine immunization and safety</p> |
| <p>pr.tr.3 "Vaccine immunization and safety" (full-time course)</p> <p>Vaccine immunization and safety: global guidelines and problems that may arise during vaccination. Tasks of the monitoring system. Types of immunization safety surveillance systems. Opportunities for countries at the regional and global levels. National control body.</p> |
| <p>Topic 4. Pharmacovigilance of vaccines</p> |
| <p>pr.tr.4 "Pharmacovigilance of vaccines" (full-time course)</p> <p>Pharmacovigilance of vaccines: global guidelines for the supervision of AEAI, messages, priority signals for investigation, final classification. Criteria for assessing the post-vaccination period. Classification of adverse events after immunization. Organization of AEAI monitoring. System of registration, accounting and notification of AEAI. AEAI investigation system. The main legislative acts that guarantee social justice in relation to persons who have developed AEAI.</p> |
| <p>Topic 5. Immunoprophylaxis of tuberculosis</p> |
| <p>pr.tr.5 "Immunoprophylaxis of tuberculosis" (full-time course)</p> <p>Immunoprophylaxis of tuberculosis: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 6. Immunoprophylaxis of hepatitis A and B</p> |
| <p>pr.tr.6 "Immunoprophylaxis of hepatitis A and B" (full-time course)</p> <p>Immunoprophylaxis of hepatitis A and B: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 7. Immunoprophylaxis of diphtheria and pertussis</p> |
| <p>pr.tr.7 "Immunoprophylaxis of diphtheria and pertussis" (full-time course)</p> <p>Immunoprophylaxis of diphtheria and pertussis: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 8. Immunoprophylaxis of tetanus</p> |

pr.tr.8 "Immunoprophylaxis of tetanus" (full-time course)

Immunoprophylaxis of tetanus: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection. Emergency prevention of tetanus.

Topic 9. Immunoprophylaxis of poliomyelitis, rotavirus infection

pr.tr.9 "Immunoprophylaxis of poliomyelitis, rotavirus infection" (full-time course)

Immunoprophylaxis of poliomyelitis, rotavirus infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination effectiveness and duration of vaccination.

Topic 10. Immunoprophylaxis of chickenpox

pr.tr.10 "Immunoprophylaxis of chickenpox" (full-time course)

Immunoprophylaxis of chickenpox: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 11. Immunoprophylaxis of measles, rubella

pr.tr.11 "Immunoprophylaxis of measles, rubella" (full-time course)

Immunoprophylaxis of measles, rubella: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination effectiveness and duration of protection.

Topic 12. Immunoprophylaxis of mumps

pr.tr.12 "Immunoprophylaxis of mumps" (full-time course)

Immunoprophylaxis of mumps: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 13. Immunoprophylaxis of pneumococcal infection

pr.tr.13 "Immunoprophylaxis of pneumococcal infection" (full-time course)

Immunoprophylaxis of pneumococcal infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.

Topic 14. Immunoprophylaxis of hemophilic infection and influenza

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| <p>pr.tr.14 "Immunoprophylaxis of pneumococcal infection" (full-time course)</p> <p>Immunoprophylaxis of pneumococcal infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 15. Immunoprophylaxis of meningococcal infection</p> |
| <p>pr.tr.15 "Immunoprophylaxis of meningococcal infection" (full-time course)</p> <p>Immunoprophylaxis of meningococcal infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 16. Immunoprophylaxis of human papillomavirus infection</p> |
| <p>pr.tr.16 "Immunoprophylaxis of human papillomavirus infection" (full-time course)</p> <p>Immunoprophylaxis of human papillomavirus infection: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of vaccination.</p> |
| <p>Topic 17. Immunoprophylaxis COVID-19</p> |
| <p>pr.tr.17 "Immunoprophylaxis COVID-19" (full-time course)</p> <p>Immunoprophylaxis COVID-19: clinical aspects of immunoprophylaxis, purpose of immunization, drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccine administration, possible reactions to vaccine administration, vaccination efficacy and duration of protection.</p> |
| <p>Topic 18. Final modular control</p> |
| <p>pr.tr.18 "Final modular control" (full-time course)</p> <p>Execution of a practical case (preparation, presentation, defense)</p> |

7.2 Learning activities

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| LA1 | Execution of individual calculation and analytical tasks |
| LA2 | Performing a group practical task |
| LA4 | E-learning in systems (Meet, MiX learning, Zoom) |
| LA5 | Discussion of cases |
| LA6 | Preparing for Step 2 |
| LA7 | Preparation for certification |
| LA8 | Preparation for current and final control |
| LA9 | Preparation for practical classes |
| LA10 | Watching movies |

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| LA11 | Solving situational problems |
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8. Teaching methods

Course involves learning through:

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| TM1 | Case-study |
| TM2 | Business games |
| TM3 | Educational discussion / debate |
| TM4 | Think-pair-share |
| TM5 | Role play |

The discipline is taught using modern teaching methods, which not only promote the development of professional skills, but also stimulate creative and scientific activity and aimed at training practice-oriented specialists.

GC 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to learn, master modern knowledge and apply them in practical situations. GC 3. Knowledge and understanding of the subject area and understanding of professional activity. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make informed decisions; work in a team; interpersonal skills. GC 6. Ability to communicate in a foreign language. GC 7. Ability to use information and communication technologies GC 8. Definiteness and persistence in terms of tasks and responsibilities GC 9. The ability to exercise their rights and responsibilities as a member of society, to realize the values.

9. Methods and criteria for assessment

9.1. Assessment criteria

| ECTS | Definition | National scale | Rating scale |
|------|---|------------------|------------------------|
| | Outstanding performance without errors | 5 (Excellent) | $170 \leq RD \leq 200$ |
| | Above the average standard but with minor errors | 4 (Good) | $140 \leq RD < 169$ |
| | Fair but with significant shortcomings | 3 (Satisfactory) | $120 \leq RD < 139$ |
| | Fail – some more work required before the credit can be awarded | 2 (Fail) | $0 \leq RD < 119$ |

9.2 Formative assessment

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| FA1 | Diagnostic testing |
| FA2 | Protection of presentations and abstracts |
| FA3 | Discussion and self-correction of the work done by students |
| FA4 | Interviews and oral comments of the teacher on his results |
| FA5 | Checking and evaluating written assignments |
| FA6 | Solving situational problems |

9.3 Summative assessment

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| SA1 | Average grade for current success in the discipline |
| SA2 | Execution of a practical case (preparation, presentation, defense) |

Form of assessment:

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| 11 semester | 200 scores |
| SA1. Average grade for current success in the discipline | 120 |
| Oral questioning and testing | 120 |
| SA2. Execution of a practical case (preparation, presentation, defense) | 80 |
| Preparation, presentation, defense. | 80 |

Form of assessment (special cases):

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| 11 semester | 30 scores |
| SA1. Average grade for current success in the discipline | 30 |
| Increase the average score in case of its insufficiency by conducting a practical part (drawing up an individual vaccination plan) or an interview on a thematic lesson plan (10 points). The student can deliver 3 times (3x10) | 30 |

In case of unsatisfactory result when compiling a differentiated test, the student has the right to retake it twice to the teacher who taught the discipline. The student has the right to receive an explanation of the grade obtained. In case of disagreement with the assessment, the student has the right to submit a written appeal to the head of the department on the day of the announcement of the assessment, indicating the specific reasons for disagreement with the assessment. The head of the department together with the examiner within 3 days considers the appeal and orally informs the student about the results of the review. If necessary, other specialists may be involved in the consideration of the appeal.

10. Learning resources

10.1 Material and technical support

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| MTS1 | Information and communication systems |
| MTS2 | Library funds |
| MTS3 | Medical facilities / premises and equipment (university clinic, vaccination rooms of children's clinics) |
| MTS4 | Projection equipment |
| MTS5 | Software (to support distance learning, Internet surveys, virtual laboratories, virtual patients, to create computer graphics, modeling, etc.) |
| MTS6 | Multimedia, video and sound reproduction, projection equipment (video cameras, projectors, screens, smart boards, etc.) |

10.2 Information and methodical support

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| Essential Reading |
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| 1 | Pediatric Infectious Diseases: textbook / S.O. Kramarov, O.B. Nadraga, L.V. Pypa et al. - 4th edition.- Medicine.- 2020.- 240 p. |
| 2 | Nelson Textbook of Pediatrics, 2-Volume.- Set 21st .- Robert Kliegman Joseph St. Geme Imprint: Elsevier.- 2019.- 4264 p. |
| 3 | Infectious Diseases: textbook (IV a. 1.) / O.A. Holubovska, M.A. Andreichyn, A.V. Shkurba et al., edited by O.A. Holubovska – Kyiv : AUS Medicine Publishing, 2018. – 664 p. |
| Supplemental Reading | |
| 4 | Centers for Disease Control and Prevention. ACIP Vaccine Recommendations and Guidelines. 2018. http://www.cdc.gov/vaccines/hcp/acip-recs/index.html . |
| 5 | World Health Organization Immunization, Vaccines and Biologicals. 2018. http://www.who.int/immunization/en/ . |
| 6 | World Health Organization. “Addressing Vaccine Hesitancy.” Immunization, Vaccines and Biologicals. 2018. Available online at http://www.who.int/immunization/en/ . |
| Web-based and electronic resources | |
| 7 | https://moz.gov.ua/ Ministry of Health of Ukraine |
| 8 | https://www.ecdc.europa.eu/en European Centre for Disease Prevention and Control |
| 9 | https://pubmed.ncbi.nlm.nih.gov/ PubMed |
| 10 | https://www.ecdc.europa.eu/en European Centre for Disease Prevention and Control |
| 11 | https://www.nlm.nih.gov/ U. S. National Library of Medicine |
| 12 | https://www.who.int/wer/en/ Weekly Epidemiological Record |
| 13 | https://www.cdc.gov/ Centers for Disease Control and Prevention |