

SYLLABUS

1. General information on the course

Full course name	Clinical Aspects of Immunization
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Academic and Research Medical Institute. Кафедра педіатрії
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	16 weeks across 11 semester
Workload	4 ECTS, 120 hours. For full-time course 20 hours are working hours with the lecturer (20 hours of seminars), 100 hours of the individual study.
Language(s)	English

2. Place in the study programme

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

Module 1. Clinical aspects of immunoprophylaxis
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Topic 1 The place of immunoprophylaxis in the system of preventive and anti-epidemic measures

Modern aspects of immunoprophylaxis. The concept of immunity. Types of immunity. Place immunoprophylaxis in the system of preventive and antiepidemic measures. Features epidemic processes of vaccine controlled infections. Immunobiological drugs: vaccines, serum and immunoglobulin preparations. Organizational and legal bases immunoprophylaxis. National calendar of preventive vaccinations and vaccination calendar according to epidemiological indications. Vaccination of persons for health reasons. Recommended vaccination. Organization of the vaccination room of the children's clinic, office immunoprophylaxis. Indications and against indications for vaccination. Active and passive immunization. Documentation: accounting and reporting forms for immunoprophylaxis of infectious diseases diseases Storage and transportation of immunobiological drugs ("cold chain).

Topic 2 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 3 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 4 Immunoprophylaxis of diphtheria, tetanus and pertussis

Immunoprophylaxis of diphtheria, pertussis and tetanus: 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 of pregnant women and breastfeeding women, vaccination efficacy and duration of protection. Emergency prevention of tetanus.

Topic 5 Immunoprophylaxis of poliomyelitis and hemophilic infection

Immunoprophylaxis of poliomyelitis and hemophilic infection: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.

Topic 6 Immunoprophylaxis of measles, rubella and mumps

Immunoprophylaxis of measles, rubella and mumps: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.

Topic 7 Immunoprophylaxis of chickenpox and rotavirus infection

Immunoprophylaxis of chickenpox and rotavirus infection: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.

<p>Topic 8 Immunoprophylaxis of pneumococcal infection and influenza</p> <p>Immunoprophylaxis of pneumococcal infection and influenza: clinical aspects of immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccination, vaccination of pregnant and lactating women, vaccination effectiveness and duration of protection.</p>
<p>Topic 9 Immunoprophylaxis of meningococcal infection and papillomavirus human infection</p> <p>Immunoprophylaxis of meningococcal infection and papillomavirus infection human: clinical aspects of immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination pregnant and breastfeeding women, vaccination effectiveness and duration protection.</p>
<p>Topic 10 Final modular control</p> <p>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:

LO1	To acquire the skills of interviewing and objective examination of the child.
LO2	To substantiate and apply clinical methods for understanding the manifestations of the disease in childhood.
LO3	Have the ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.
LO4	Ability to carry out differential diagnosis of somatic and infectious diseases of childhood, to formulate a clinical diagnosis based on their assessment.
LO5	To be able to diagnose emergency conditions and determine the tactics of providing them, as well as to have the skills to provide medical assistance in them.
LO6	Apply in practice the algorithms of examination and management of sick children with emergency conditions, master the methods of treatment of emergency conditions in children.
LO7	To justify the use of basic invasive and non-invasive diagnostic methods, to be able to perform medical manipulations.
LO8	Plan measures to prevent the spread of childhood infectious diseases. Carry out detection and early diagnosis of children's infectious diseases; primary anti-epidemic measures in the focus of an infectious disease.
LO9	Ability to conduct epidemiological and medical-statistical research on the health of the population; processing of state, social, economic and medical information. Have the ability to maintain medical records.

7. Soft Skills

SS1	Ability to abstract thinking, analysis, and synthesis.
SS2	Ability to learn and master modern knowledge
SS3	Ability to apply knowledge in practice.

SS4	Knowledge and understanding of the subject area and professional activity comprehension.
SS5	Ability to adapt and act in a new situation.
SS6	Ability to make reasoned decisions.
SS7	Ability to work as a team member.
SS8	Interpersonal skills.
SS9	Skills in information and communication technologies.

8. Teaching and learning activities

<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>
<p>Topic 2. Immunoprophylaxis of tuberculosis</p>
<p>pr.tr.2 "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 3. Immunoprophylaxis of hepatitis A and B</p>
<p>pr.tr.3 "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 4. Immunoprophylaxis of diphtheria, tetanus and pertussis</p>
<p>pr.tr.4 "Immunoprophylaxis of diphtheria, tetanus and pertussis" (full-time course)</p> <p>Immunoprophylaxis of diphtheria, pertussis and tetanus: 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 of pregnant women and breastfeeding women, vaccination efficacy and duration of protection. Emergency prevention of tetanus.</p>

<p>Topic 5. Immunoprophylaxis of poliomyelitis and hemophilic infection</p> <p>pr.tr.5 "Immunoprophylaxis of poliomyelitis and hemophilic infection" (full-time course)</p> <p>Immunoprophylaxis of poliomyelitis and hemophilic infection: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.</p>
<p>Topic 6. Immunoprophylaxis of measles, rubella and mumps</p> <p>pr.tr.6 "Immunoprophylaxis of measles, rubella and mumps" (full-time course)</p> <p>Immunoprophylaxis of measles, rubella and mumps: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.</p>
<p>Topic 7. Immunoprophylaxis of chickenpox and rotavirus infection</p> <p>pr.tr.7 "Immunoprophylaxis of chickenpox and rotavirus infection" (full-time course)</p> <p>Immunoprophylaxis of chickenpox and rotavirus infection: clinical aspects immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination of pregnant women and women who are breastfeeding, the effectiveness of vaccination and the duration of protection.</p>
<p>Topic 8. Immunoprophylaxis of pneumococcal infection and influenza</p> <p>pr.tr.8 "Immunoprophylaxis of pneumococcal infection and influenza" (full-time course)</p> <p>Immunoprophylaxis of pneumococcal infection and influenza: clinical aspects of immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination regimens and methods of vaccination, vaccination of pregnant and lactating women, vaccination effectiveness and duration of protection.</p>
<p>Topic 9. Immunoprophylaxis of meningococcal infection and papillomavirus human infection</p> <p>pr.tr.9 "Immunoprophylaxis of meningococcal infection and papillomavirus human infection" (full-time course)</p> <p>Immunoprophylaxis of meningococcal infection and papillomavirus infection human: clinical aspects of immunoprophylaxis drugs for active immunoprophylaxis, indications, contraindications, vaccination schemes and methods of vaccination, vaccination pregnant and breastfeeding women, vaccination effectiveness and duration protection.</p>
<p>Topic 10. Final modular control</p> <p>pr.tr.10 "Final modular control" (full-time course)</p> <p>Execution of a practical case (preparation, presentation, defense)</p>

9. Teaching methods

9.1 Teaching methods

Course involves learning through:

TM1	Case-based learning
TM2	Electronic learning
TM3	Practical training
TM4	Research Based Learning
TM5	Self-study
TM6	Team Based Learning

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.

Acquisition of soft skills by students is carried out during the entire period of studying the discipline. The ability for analytical and critical thinking, teamwork, perseverance is formed during team-, practice- and case-oriented training, knowledge and understanding of the subject area is acquired during self-study. E-learning stimulates the ability to use information technologies. Research-based learning encourages the development of certainty and persistence in tasks and responsibilities.

9.2 Learning activities

LA1	Preparation for practical classes. Interpretation of laboratory (clinical blood analysis, clinical urinalysis, biochemical blood analysis, immunological studies, microbiological studies, etc.) and instrumental examination methods, creation of a vaccination calendar for a child with a violation of the vaccination calendar or with certain contraindications.
LA2	Electronic learning in systems (the list is specified by the teacher, for example, Google Classroom, Zoom and in the format of the YouTube channel)
LA3	Analysis of clinical cases.
LA4	Working with textbooks and equivalent information sources.
LA5	Search and research task.
LA6	Performance of group practical task.

10. Methods and criteria for assessment

10.1. Assessment criteria

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)	$0 \leq RD < 119$

10.2 Formative assessment

	Description	Deadline, weeks	Feedback
FA1 Peer assessment	Partnership interaction aimed at improving the results of educational activities by comparing one's own current level of success with previous indicators. Provides an opportunity to analyze one's own educational activities.	During the entire period of studying the discipline.	Adjustment together with students of approaches to learning, taking into account the results of the assessment.
FA2 Instructions of the teacher in the process of performing practical tasks	The guidelines reveal the methods of pedagogical control over the professional activities of applicants. Efficiency is determined by compliance with all stages of practical tasks. The effectiveness of the formation of the necessary practical skills and abilities depends on the level of formation of practical competence.	During the entire period of studying the discipline.	Advising students in the process of interpreting the results of patient examinations, creating vaccination calendars for children with a violation of vaccination or with certain contraindications.
FA3 Survey and teacher's oral comments based on his results.	It provides an opportunity to identify the state of educational experience gained by students in accordance with the set goals, to find out the prerequisites of the state of formation of the obtained results, the causes of difficulties, to adjust the learning process, to track the dynamics of the formation of learning results and to forecast their development.	During the entire period of studying the discipline.	According to the obtained data on the results of training, on the basis of their analysis, it is proposed to determine the evaluation as an indicator of the achievements of the students' educational activities.
FA4 Solving clinical cases.	The case method makes it possible to reveal and form the qualities and abilities of medical students necessary for further work, forms clinical thinking, analytical abilities, independence in decision-making, communication, skills for working with a sufficiently large amount of information.	During the entire period of studying the discipline.	Assessment of the student's ability to think clinically, justify their decisions, express their opinions clearly, determine the level of theoretical training, which is reflected in the corresponding assessment.

FA5 Tests (automated tests) to control the educational achievements of applicants.	A method of effective verification of the level of assimilation of knowledge, abilities and skills from each subject of an educational discipline. Testing allows you to check the assimilation of educational material from each subject.	During the entire period of studying the discipline.	The student must provide 60% of the correct answers.
FA6 Counseling of the teacher during the preparation of an individual research project.	The student must prepare an individual research project on the proposed topic. Involvement of the latter in research activities contributes to the formation of their scientific worldview, industriousness, work capacity, initiative, etc.	During the entire period of studying the discipline.	Teacher's oral comments.

10.3 Summative assessment

	Description	Deadline, weeks	Feedback
SA1 Assessment of the level of theoretical training (testing, survey, solving a clinical case.)	Forms the skills of independent activity in students, prompts them to strive for exploratory knowledge. Stimulates students to work with the necessary literature, transfers the learning process from the level of passive absorption of information to the level of its active transformation.	During the entire period of studying the discipline.	Held at each class, the result of performing the ND affects the comprehensive assessment for the practical class.
SA2 Carrying out a research and research task (preparation, presentation, defense).	The student must prepare an individual research project on the proposed topic. Involvement of the latter in research activities contributes to the formation of their scientific worldview, industriousness, work capacity, initiative, etc.	In class, what is the topic of the report.	The applicant receives an assessment for the search and research component and the presentation itself.
SA3 Differentiated assessment (in accordance with the regulations).	Compilation of differential calculation. Applicants who have successfully mastered the material of the discipline and scored a minimum of 72 points in the current class are allowed to take the test.	Last lesson.	Student can get 80 points for diff. test. The minimum number of points a student must receive is 48 points

Form of assessment:

	Points	Minimum points	Можливість перескладання з метою підвищення оцінки
11 semester	200 scores		
SA1. Assessment of the level of theoretical training (testing, survey, solving a clinical case.)	110		
Oral survey and testing, solving a clinical case.	110	72	No
SA2. Carrying out a research and research task (preparation, presentation, defense).	10		
	10	6	No
SA3. Differentiated assessment (in accordance with the regulations).	80		
computer testing (30), answer to theoretical tasks (15), performance of practical skills (15)	80	48	No

When mastering the materials of the discipline, the student is awarded a maximum of 5 points for each practical session (the grade is given in the traditional 4-point grading system) for testing and oral answers. The test control is considered passed if the student answered 60% of the questions correctly (6 correct answers out of 10 questions). The grade for the discipline is defined as the sum of points for the current educational activity (at least 72) and points for the final module control (at least 48). The number of points for the current activity is calculated according to the formula $110 \times \text{the arithmetic average of the student's performance in the 4-point evaluation system} / 5$. For the defense of the presentation, the student receives a maximum of 10 points, a minimum of -6. The maximum number of points for the current educational activity of the student is 120. The student is admitted to the credit provided that the requirements of the educational program are met and if he has scored at least 72 points for the current educational activity: 66 points during practical classes, 6 points for the defense of the presentation. The final module control is conducted at the end of the academic semester in the form of a written assessment, while the grade "5" corresponds to 80 points, "4" - 64 points, "3" - 48 points, "2" - 0 points. In case of an unsatisfactory result for the final module control, the student has the right to retake the assessment. The possibility of re-crediting points in the system of non-formal education in accordance with the Regulation.

11. Learning resources

11.1 Material and technical support

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.)

11.2 Information and methodical support

Essential Reading	
1	Manual of Children's Infectious Diseases [Текст] = Дитячі інфекційні хвороби : навч. посіб. / О. Ye. Fedortsiv, I. L. Horishna, H. A. Pavlyshyn, I. M. Horishnyi. — Vinnitsia : Nova Knyha, 2020. — 440 p.
2	Infant and Young Child Nutrition (0–23 months) : recommendations [Текст] / O. V. Katilov, A. V. Varzar', O. Yu. Belousova etc. — Vinnytsia : Nova Knyha, 2019. — 64 p.
3	Pediatric Infectious Diseases [Текст] : textbook / S. O. Kramarev, O. B. Nadruga, L. V. Pipa etc. — 4-th edition. — Kyiv : AUS Medicine Publishing, 2020. — 240 p. + Гриф МОЗ.
Supplemental Reading	
1	Methodical instructions for practical lesson on the topic "Viral hepatitis" on the discipline "Children infectious diseases" (in accordance with the conditions of the Bologna process) [Текст] : for students of specialty 222 "Medicine" of full-time training / O. I. Smiyan, T. P. Bynda, K. O. Smiian. — Sumy : Sumy State University, 2021. — 79 p.
2	Epidemiology of infectious diseases: textbook / ND Yushchuk, Yu. V. Martynov, EV Kukhtevich, Yu. Yu. Grishina. - 3rd ed. revised and add. - ed. "GEOTAR-Media". - 2016. - 496 p.
3	Infectious diseases and epidemiology: textbook / V. I. Pokrovsky, N. I. Briko, B. K. Danilkin. - 3rd ed., Rev. and add. - M. : GEOTAR-Media.- 2016. - 1008 p.
4	Children infectious diseases. Methodical instructions for practical lessons. "Poliomyelitis" [Електронний ресурс] : for students specialty 7.110101 of full-time studying / O. I. Smiyan, T. P. Bynda, O. G. Vasilyeva. — Електронне видання каф. педіатрії післядипломної освіти. — Sumy : Sumy State University, 2015. — 50 p.
5	Methodical instructions for practical lessons "Children infectious diseases. Measles" [Текст] : for students of specialty 7.110101 of full-time studying / O. I. Smiyan, T. P. Bynda, Iu. A. Mozgova, K. O. Smiian-Horbunova. — Sumy : Sumy State University, 2017. — 59 p.
6	Methodological instructions for practical lessons "Scarlet fever" on the discipline "Childhood infections" [Текст] : in accordance with the conditions of the Bologna process for students of specialty 222 "Medicine" of full-time training / O. I. Smiyan, T. P. Bynda, K. O. Smiian-Horbunova, O. G. Vasilyeva. — Sumy : Sumy State University, 2019. — 54 p.

7	Methodological instructions for practical lessons "Pertussis" on the discipline "Childhood Infections" (in accordance with the conditions of the Bologna process) [Текст] : for students of specialty 222 "Medicine" of full-time training / O. I. Smiyan, T. P. Bynda, K. O. Smiian, O. G. Vasilyeva. — Sumy : Sumy State University, 2020. — 57 p.
8	Methodological instructions for practical lessons "Diphtheria" on the discipline "Childhood Infections" (in accordance with the conditions of the Bologna process) [Текст] : for students of specialty 222 "Medicine" of full-time training / O. I. Smiyan, T. P. Bynda, O. G. Vasilyeva, K. O. Smiian. — Sumy : Sumy State University, 2020. — 83 p.
9	Methodological instructions for practical lessons "Rubella" on the discipline "Childhood infections" [Текст] : in accordance with the conditions of the Bologna process for students of specialty 222 "Medicine" of full-time training / O. I. Smiyan, T. P. Bynda, K. O. Smiian-Horbunova. — Sumy : Sumy State University, 2018. — 53 p.
Web-based and electronic resources	
1	https://moz.gov.ua/ Ministry of Health of Ukraine
2	https://www.ecdc.europa.eu/en European Centre for Disease Prevention and Control
3	https://pubmed.ncbi.nlm.nih.gov/ PubMed
4	https://www.nlm.nih.gov/ U. S. National Library of Medicine
5	https://www.who.int/wer/en/ Weekly Epidemiological Record
6	https://www.cdc.gov/ Centers for Disease Control and Prevention