


Kharkiv National Medical University
VI Medical Faculty for training foreign students
Department of Pediatrics №2
Educational program Medicine training of the second (Master's)
level of higher education training 22 "Healthcare"
in specialty 222 "Medicine"

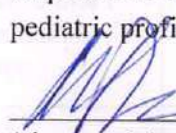
SYLLABUS OF THE COURSE
Elective discipline
URGENT PROBLEMS OF HAEMATOLOGY AND TRANSFUSIOLOGY

The syllabus of the discipline was approved at the meeting of the Department of Pediatrics №2
Protocol from
"27" August 2021 № 13

Head of Department


(signature) prof. Makieieva N.I.
(surname and initials)

Approved by the methodical commission of KhNU
on problems of professional training in
pediatric profile
Protocol from
"30" August 2021 year №1
Chairman of the methodical commission of KhNU
on problems of professional training
pediatric profile


(signature) prof. Gonchar M.O.
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Face-to-face consultations: by prior arrangement.

Online consultations: Moodle, ZOOM according to the schedule.

Location: classes are held in "City Clinical Children's Hospital №16", remotely - on ZOOM or MOODLE systems

Discipline information

Name of indicators	Field of knowledge, direction of training, educational and qualification level	Characteristics of the discipline
		full-time education
Number of credits - 4	Training direction 22 "Healthcare" (code and name)	Elective (optional)
Total number of hours - 120	Specialty: 222 "Medicine" (code and name)	Year of training:
		6th
		Semester
Hours for full-time study: classrooms – 20 lectures - self-learning - 100	Educational qualification: Master of Medicine	Lectures
		год.
		Practical classes, seminars
		20 год.
		Laboratory classes
		0 год.
		Self-learning/Independent
100 год.		
Individual tasks: h.		
Type of control - credit		

The educational program in Higher Medical Education is of the second (Master's) level program, which provides the equational qualification "Master of Medicine" in the field of knowledge – 22 Healthcare, specialty 222 "Medicine". This program is based on the Law of Ukraine "On Higher Education" and the resolution of the Cabinet of Ministers of Ukraine from 01.02.2017 № 53 "On amendments to the resolution of the Cabinet of Ministers of Ukraine from 29.04.2015 № 266", in accordance with the order of the Ministry of Education and Science of Ukraine from 01.06.2016 № 600 "On approval and implementation of Guidelines for development of higher education standards".

The course program determines prerequisites for access to education, orientation and the main focus of the program, the amount of ECTS credits required for a Master's degree, list of general and special (professional) competencies, normative and variable content of training, formulated in terms of learning outcomes and control requirements quality of higher education.

The department accepts qualified students of any race, national or ethnic origin, gender, age, special needs, religion, sexual orientation, gender, veteran status, or marital status for all rights, privileges, programs, and activities, provided to university students.

Description of the discipline (abstract).

Elective course “Urgent Problems of Haematology and Transfusiology” is devoted to the main issues of epidemiology, classification, methods of treatment and organization of emergency care for the most common diseases of the blood system.

As a result of theoretical and practical training, students will get acquainted with the latest knowledge on the current issues of hematology and transfusiology, master modern diagnostic methods, principles of treatment and organization of emergency therapy.

Practical classes consist of the supervision of the patients in the hematology department of "City Clinical Children's Hospital №16" according to the schedule of classes, as well as during individual work with cases on specific topics.

Teaching is based on the principles of evidence-based medicine using the current standards (guidelines) of the global professional societies.

The course covers the main practical and theoretical aspects relevant to the future family doctor.

Prerequisites. The study of the discipline is based on the prior mastering of disciplines in medical biology, normal and pathological anatomy, normal and pathological physiology, biochemistry, microbiology, propaedeutics of pediatrics, medical genetics, pharmacology and medical prescription, epidemiology and principles of evidence-based medicine, emergency, and emergency practical skills in caring for pediatric patients.

Co-requisites. The main provisions of the discipline should be applied in the study of related disciplines during 6 year of study. It is the basis for preparation for the licensing exam as well as preparation for study in higher education institutions in the programs of the third educational and scientific level of higher education.

Objective: to provide training for highly qualified specialists in the field of medicine (hematology and transfusiology), who are able to solve complex problems of diagnosis and treatment of children with the most common somatic diseases.

The main objectives of the course are the acquisition of competencies in accordance with the general and professional competencies of the educational-professional program "Medicine" of the second level of higher education in the specialty 222 Medicine by students.

- Integrated competencies:

ability to solve typical and complex specialized tasks and practical problems during professional activity in the field of health care, or in the process of training, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.

- General competencies:

ability of abstract thinking, analysis and synthesis, ability to learn and to apply knowledge in practical situations; knowledge and understanding of the subject area and understanding of professional activity; ability to adapt and act in a new situation; ability to make an informed decision; work in a team; interpersonal skills; ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language; skills of using information and communication technologies; determination and persistence in terms of tasks and responsibilities; ability to act socially responsibly and consciously.

Professional competencies in the field of pediatrics:

Survey skills; ability to determine the necessary list of laboratory and instrumental studies and evaluate their results; ability to establish a preliminary and clinical diagnosis of the disease; ability to determine the necessary mode of work and rest, the nature of nutrition in the treatment

of diseases; ability to determine the principles and nature of disease treatment; ability to diagnose emergencies; ability to determine tactics and skills of emergency medical care; skills of performing medical manipulations; ability to plan and conduct sanitary and hygienic, preventive and anti-epidemic measures, including on infectious diseases; ability to determine the tactics of management of persons subject to dispensary supervision; ability to keep medical records.

The study of this discipline develops the following social skills in students:

- communicativeness (implemented through the method of working in groups and brainstorming during the analysis of clinical cases, the method of presenting the results of independent work and their defense in the group),
- teamwork (implemented through group work method and brainstorming during the analysis of clinical cases),
- conflict management (implemented through business games),
- time management (implemented through the method of self-organization during classroom work in groups and independent work),
- leadership skills (implemented through the method of presenting the results of independent work and their defense in the group).

Discipline status: basic. The training format of the discipline is mixed - the learning is accompanied by the Moodle system, teaching the discipline, combines traditional forms of classroom learning with elements of distance education, which uses available interactive information technology (ZOOM, Moodle), face-to-face and distance counseling.

Teaching methods.

Clinical (curation of children with the most common somatic pathology), phantom, digital media (presentations, video materials, methodical recommendations, lectures), scientific (participation in scientific developments in the discipline), knowledge assessment (tests, situational tasks, assessment of practical skills, defense of a clinical case - writing a medical history)

Learning outcomes.

The course covers the main aspects of training of a future family doctor.

According to the training program in the discipline “Urgent Problems of Haematology and Transfusiology” the student will acquire theoretical knowledge, methodological training, practical skills and abilities in the following areas:

- Physiology and pathology of the blood system in children of different ages
- The hematopoietic system and methods of its study.
- Deficiency anemias: differential diagnosis, treatment, prevention
- Aplastic anemias: etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention.
- Hereditary, acquired and immune hemolytic anemias: etiology, pathogenesis, clinic, diagnosis and differential diagnosis.
- Anemia in chronic diseases.
- The system of hemostasis and methods of its research.
- Syndrome of primary hemostasis disorders.
- Coagulopathies in children.
- Leukemia in children: etiology, symptoms, methods of diagnostics and treatment.
- Lymphomas in children – etiology, symptoms, diagnostics and treatment.
- Leukemoid reactions in children.
- Myelodysplastic syndrome.
- General issues of transfusiology and basics of clinical transfusiology

The content of the discipline

Curriculum of the discipline.

Course “URGENT PROBLEMS OF HAEMATOLOGY AND TRANSFUSIOLOGY” (120 h.) 4 credits

Lecture topics		
1		
Total		
Topics of practical classes (20 h.)		
1	Modern concepts of the hematopoietic system and methods of its study. Deficiency anemias: differential diagnosis, treatment, prevention. Anemia in chronic diseases. Acute and chronic posthemorrhagic anemia. Aplastic anemia. Hereditary, acquired and immune hemolytic anemias. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention.	5
2	Modern concepts of the hemostasis system and methods of its research. Syndrome of primary hemostasis. IgA vasculitis. Thrombocytopenic purpura. Thrombocytopathy. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention. Coagulopathy. Hemophilia. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention. Clinic, diagnosis and treatment of Willebrand's disease	5
3	Leukemia: modern ideas about the development of leukemia and research methods. Lymphoblastic and myeloblastic leukemias. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment, dispensary observation.	5
4	Modern ideas about the development of lymphomas, research methods. Hodgkin's lymphoma and non-Hodgkin's lymphoma. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment, dispensary observation.	5
Total		20
Topics of self-learning (100 h.)		
1	Modern ideas about the hematopoietic system and methods of its study. Deficiency anemias: differential diagnosis, treatment, prevention. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of iron deficiency, B-12 deficiency and folate deficiency anemia. Treatment and prevention.	10
2	Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of hereditary, acquired and immune hemolytic anemias. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of aplastic anemia. Treatment and prevention.	10
3	Modern ideas about the hemostasis system and methods of its research. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of IgA vasculitis. Treatment and prevention. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of thrombocytopenic purpura. Treatment and prevention.	10
4	Coagulopathy. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of hemophilia. Treatment and prevention. Clinic, diagnosis and treatment of Willebrand's disease.	10
5	Leukemia: modern ideas about the development of leukemia and research methods, treatment. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of lymphoblastic leukemia. Treatment, dispensary observation.	10
6	Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of myeloblastic leukemias. Treatment, dispensary observation.	10
7	Modern ideas about the development of lymphomas, research methods, treatment.	10

	Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of Hodgkin's lymphoma. Treatment of Hodgkin's lymphoma. Dispensary observation.	
8	Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of non-Hodgkin's lymphoma. Treatment of non-Hodgkin's lymphoma. Dispensary observation.	10
9	Leukemoid reactions. Myelodysplastic syndrome.	5
10	Methods of calculating of blood loss, indications for blood transfusions. Posttransfusion complications. Emergency care. Prevention. Classification of components and preparations of donor blood, their characteristics, indications for use, storage conditions.	15
Total		100

Topics of practical classes

1. Modern concepts of the hematopoietic system and methods of its study. Deficiency anemias: differential diagnosis, treatment, prevention. Anemia in chronic diseases. Acute and chronic posthemorrhagic anemia. Aplastic anemia. Hereditary, acquired and immune hemolytic anemias. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention.

The main stages of hematopoiesis, normal indicators of blood elements. Clinical interpretation of the results of clinical blood tests and myelogram. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of iron deficiency, B-12 deficiency and folate deficiency anemia. Treatment and prevention. Acute and chronic posthemorrhagic anemia. Diagnosis. Emergency care. Differential diagnosis of deficiency anemias within a multidisciplinary team. Principles of treatment. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of hereditary, acquired and immune hemolytic anemias. Treatment and prevention. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of hereditary and acquired aplastic anemias. Diagnostic criteria. Plan of investigations for a patient with anemia. Differential diagnosis.

2. Modern concepts of the hemostasis system and methods of its research. Syndrome of primary hemostasis. IgA vasculitis. Thrombocytopenic purpura. Thrombocytopathy. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention. Coagulopathy. Hemophilia. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment and prevention. Clinic, diagnosis and treatment of von Willebrand's disease

Modern ideas about the hemostasis system and methods of its research. Syndrome of disorders of primary hemostasis. Clinical symptoms. Examination plan for a patient with hemorrhagic syndrome. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis, treatment and prevention of IgA vasculitis. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis, treatment and prevention of thrombocytopenic purpura. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis, treatment and prevention of thrombocytopathy. Coagulopathy. Classification. Diagnostic criteria. Methods of research of a secondary link of a hemostasis. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of hemophilia. Treatment and prevention. Clinic, diagnosis and treatment of von Willebrand's disease.

3. Leukemia: modern ideas about the development of leukemia and research methods. Lymphoblastic and myeloblastic leukemias. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis. Treatment, dispensary observation.

The concept of lymphoproliferative diseases. Examination plan for a child with suspected oncohematological disease. Leukemia in children: modern ideas about the development of leukemia in children and methods of research and treatment. Classification. Etiology,

pathogenesis, clinic, diagnosis and differential diagnosis of lymphoblastic leukemia in children. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis of myeloblastic leukemia in children. Treatment, dispensary observation.

4. Lymphomas in children, research methods. Hodgkin's and non-Hodgkin's lymphoma.

Modern ideas about the development of lymphomas in children, research methods. Classification. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis, treatment, dispensary observation in Hodgkin's lymphoma. Etiology, pathogenesis, clinic, diagnosis and differential diagnosis, treatment, dispensary observation of children with non-Hodgkin's lymphoma.

Recommended literature

1. Hematology: Basic principles and practice / Edited by Ronald Hoffman and al. – Churchill Livingstone, 2000 (3rd edition). – 2584p.
2. Nataliia Makieieva, Oksana Afanasieva, Viktoria Koval. Clinical masks of acute leukemia in children. Inter Collegas. – 2017. – Vol. 4, № 1. 9-13.
3. Nathan and Oski's Hematology of Infancy and Childhood / Edited by David G. Nathan, Stuart H. Orkin. – W.B.Saunders Company, 1998/ - Volume 1 (1-968p.)
4. Nathan and Oski's Hematology of Infancy and Childhood / Edited by David G. Nathan, Stuart H. Orkin. – W.B.Saunders Company, 1998/ - Volume 2 (969- 1914p.)
5. Nelson Textbook of Pediatrics 21th Edition / Robert M. Kliegman, Joseph St. Geme. – 2019. – 4112 p.

Information resources

<https://reference.medscape.com/>
<https://www.cochranelibrary.com/about/about-cochrane-library>
<https://www.ncbi.nlm.nih.gov/pubmed/>
<https://www.uptodate.com/home>
<http://www.orpha.net>

Discipline policy and values.

For successful mastering of the corresponding course it is necessary to fulfill certain conditions: the student must have sufficient theoretical preparation for practical classes according to the subject; regularly attend practical classes; not be late and not miss classes; perform all necessary tasks and take an active part in each lesson; be able to work with a partner or in a group; in case of questions on the subject of the course the student has the opportunity to discuss them with the curator of the course, colleagues.

The tasks aiming to assess the level of knowledge of the student must be performed individually and independently. During such knowledge assessment tasks it is strongly forbidden for students: to communicate with another student by oral, electronic, written or any other means; to copy from another student; to bring any written or printed materials to the test unless explicitly permitted by the teacher; to bring any electronically stored information unless explicitly permitted by the teacher.

Curation of patients is possible if students have the appropriate form of clothing (medical uniform), a health book with a mark on vaccination, compliance with the sanitary-epidemic regime (during epidemics and pandemics COVID-19, etc.).

Students with special needs can meet with the teacher or warn the teacher before the start of classes, at the request of the student it can be done by the head of the group. If student has any questions, the student has the opportunity to resolve them with the course supervisor or the

teacher, using the contact information provided above.

Students' participation in research and conferences on this discipline is encouraged.

KhNMU creates a space of equal opportunities free from discrimination of any national, racial or ethnic origin, sex, age, disability, religion, sexual orientation, gender, or marital status. All rights, privileges, programs and activities granted to students or staff of the University apply to all without exception, provided they are properly qualified. The anti-discrimination policy and the policy of counteracting sexual harassment of KhNMU are confirmed by the Code of Corporate Ethics and the Charter of KhNMU.

Behavior in the audience

It is important for students to follow the rules of good behavior at the university. These rules are common to all, they also apply to all faculty and staff, and are not fundamentally different from the generally accepted norms.

During classes

- allowed:
 - leave the audience for a short time if necessary and with the permission of the teacher;
 - drink soft drinks;
 - take photos of presentation slides;
 - take an active part in the class.
- prohibited:
 - eat (except for persons whose special medical condition requires otherwise - in this case, medical confirmation is required);
 - smoking, drinking alcohol and even low-alcohol beverages or drugs;
 - use obscene language or use words that offend the honor and dignity of colleagues and faculty;
 - gambling;
 - damage the material and technical base of the university (damage inventory, equipment; furniture, walls, floors, litter the premises and territories);
 - shouting or listening to loud music in classrooms and even in corridors during classes.

Plagiarism and academic integrity

The Department of Pediatrics №2 maintains zero tolerance for plagiarism. Students are expected to constantly raise their awareness of academic writing. The first lessons will provide information on what to consider plagiarism and how to properly conduct research and scientific research.

Evaluation policy

Organization of current control. Teachers make sure that each student receives the necessary competence in the areas included in the topics of practical classes. Mastering of the topic (current control) is controlled in a practical lesson in accordance with specific goals. The following tools are used to assess the level of preparation of students: tests, solving situational problems, interpretation and evaluation of laboratory tests, methods of prescribing therapy, monitoring the acquisition of practical skills. Assessment of current educational activities (CEA) in each practical lesson is carried out on the traditional 4-point scale: "excellent", "good", "satisfactory" and "unsatisfactory".

Grade from the discipline.

During the assessment of mastering of each topic of the discipline (current educational activity) and the final lesson the student is graded according to the traditional 4-point system: "excellent", "good", "satisfactory" and "unsatisfactory".

The grade in the discipline is given to the student at the last (final) lesson according to the schedule. The final score for current educational activity and final lesson is defined as the arithmetic mean of traditional grades for each lesson and final class, rounded to 2 decimal places

(to the nearest hundredth). The traditional grades are converted into points (table 1). The satisfactory minimum number of points that a student must score for the current activity during the study of the discipline is 120 points, the maximum number of points - 200 points.

Assessment of students' independent work. Independent work of students, which is defined by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson.

Assessment of individual student tasks is carried out by performing the tasks of the teacher:

- report of the abstract on a practical lesson can be evaluated to 0 - 2 points;
- report with a presentation in a practical lesson 0 - 3 points,
- report at scientific and practical conferences of the department, university, writing abstracts, articles 0 - 5 points;
- participation in the All-Ukrainian Olympiad - 5 - 10 points

The points for individual student tasks (a total of not more than 10 points) can be added as an incentive additional points to the final score for current learning activities, calculated using Table 2 and are part of the assessment of the discipline.

The satisfactory minimum number of points that a student must score for the current educational activity during the study of the discipline is 120 points, the maximum number of points - 200 points.

After graduating from the discipline "Urgent Problems of Haematology and Transfusiology" the student receives a credit.

Table 1

**Recalculation of the average score for current activities in a multi-point scale
(for disciplines ending with credit)**

4- point scale	200- point scale	4- point scale	200- point scale	4- point scale	200- point scale
5	200	4.22-4,23	169	3.45-3,46	138
4.97-4,99	199	4.19-4,21	168	3.42-3,44	137
4.95-4,96	198	4.17-4,18	167	3.4-3,41	136
4.92-4,94	197	4.14-4,16	166	3.37-3,39	135
4.9-4,91	196	4.12-4,13	165	3.35-3,36	134
4.87-4,89	195	4.09-4,11	164	3.32-3,34	133
4.85-4,86	194	4.07-4,08	163	3.3-3,31	132
4.82-4,84	193	4.04-4,06	162	3.27-3,29	131
4.8-4,81	192	4.02-4,03	161	3.25-3,26	130
4.77-4,79	191	3.99-4,01	160	3.22-3,24	129
4.75-4,76	190	3.97-3,98	159	3.2-3,21	128
4.72-4,74	189	3.94-3,96	158	3.17-3,19	127
4.7-4,71	188	3.92-3,93	157	3.15-3,16	126
4.67-4,69	187	3.89-3,91	156	3.12-3,14	125
4.65-4,66	186	3.87-3,88	155	3.1-3,11	124
4.62-4,64	185	3.84-3,86	154	3.07-3,09	123
4.6-4,61	184	3.82-3,83	153	3.05-3,06	122
4.57-4,59	183	3.79-3,81	152	3.02-3,04	121
4.54-4,56	182	3.77-3,78	151	3-3,01	120
4.52-4,53	181	3.74-3,76	150	Less than 3	Not sufficient
4.5-4,51	180	3.72-3,73	149		
4.47-4,49	179	3.7-3,71	148		
4.45-4,46	178	3.67-3,69	147		
4.42-4,44	177	3.65-3,66	146		

4.4-4,41	176	3.62-3,64	145
4.37-4,39	175	3.6-3,61	144
4.35-4,36	174	3.57-3,59	143
4.32-4,34	173	3.55-3,56	142
4.3-4,31	172	3.52-3,54	141
4,27-4,29	171	3.5-3,51	140
4.24-4,26	170	3.47-3,49	139

The correspondence between the scores on the 200-point scale, the four-point (national) scale and the ECTS scale is given in Table 2.

Table 2

**Correspondence of estimates on a 200-point scale,
four-point (national) scale and ECTS scale**

Rating on a 200-point scale	Assessment on the ECTS scale	Score for four-point (national) scale
180–200	A	Excellent
160–179	B	Good
150–159	C	Good
130–149	D	Satisfactory
120–129	E	Satisfactory
Less than 120	F, Fx	Unsatisfactory

The grade in the discipline is given only to students who have passed all the classes, tests.

Grades "Fx" or "F" ("unsatisfactory") are given to students who are not credited with the study of the discipline, the form of control of which is credit.

Head of Department
professor

Makieieva N.