

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of children's diseases			
Course unit title (ECTS credits, hours)	Paediatric Oncology and Haematology 8 credits (212 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	1	7
Method of the assessment (in 10 point system)	<p>Preparation of a presentation on selected topic. The presentation is focused on a pre-defined topic, agreed with the coordinating teachers (the PhD student has to analyse, review and present the most recent scientific publications related to the selected topic).</p> <p>Assessment criteria for the presentation (minimum 5 points): (a) relevance and novelty of the data presented (1 point); (b) overall structure and scope of the presentation, presentation of knowledge, argumentation and concreteness (2 points); (c) raising and justifying problematic issues (2 points); (d) ability to summarise, formulate a hypothesis, develop a research plan and justify it (3 points); (e) presentation of visual material, ability to participate in discussion, answering questions (2 points).</p>			
PURPOSE OF THE COURSE UNIT				
<p>The course aims to introduce paediatric paediatric haematology and oncology (aetiology, pathogenesis, diagnostic modalities and basic principles of treatment of paediatric blood and malignant diseases) and to discuss the possible prevention of these diseases. It pursues to analyse the main groups of drugs used for the treatment of blood and oncological diseases, specific immunotherapies and the principles and methods of bone marrow transplantation as well as to introduce a concept of late complications of childhood cancer treatment.</p>				
THE MAIN TOPICS OF COURSE UNIT				
<p><u>Haemopoiesis</u>. Embryonal haemopoiesis. Blood formation after birth. The role of cytokines in blood cell proliferation and differentiation. Interpretation of blood changes with age, principles of myelogram interpretation.</p> <p><u>Anaemias</u>. Classifications and grading of anaemias. Clinical manifestation of anaemic syndrome.</p> <p><u>Iron deficiency anaemia (IDA)</u>. Iron metabolism in a child's body, stages of iron deficiency. Aetiology of IDA, peculiarities of aetiology according to age of the child. Clinical manifestation. Diagnosis. Treatment. Prophylaxis.</p> <p><u>Megaloblastic anaemia</u>, aetiology and pathogenesis, diagnosis, treatment. Causes of folic acid and cobalamin deficiency in childhood. The role of proper nutrition in the occurrence and prevention of these anaemias.</p> <p><u>Haemolysis</u>. Classification, differentiation and treatment of haemolytic anaemias. Indications for splenectomy, prophylaxis of post-splenectomy sepsis. Congenital</p>				

haemolytic anaemias. Immune haemolytic anaemias. Neonatal haemolytic disease, aetiology, pathogenesis, clinic, diagnosis, treatment. Pathophysiology, clinic, diagnosis, treatment of haemoglobinopathies.

Bone marrow aplasia: types of aplasia, aetiology and pathogenesis, clinical manifestation. Diagnostic principles. Principles of treatment of congenital and acquired aplasia.

Reactive lymphadenopathy. Acute lymphadenitis. Neutropenias: classification, aetiology, clinic, diagnosis, treatment. Treatment of febrile neutropenia. Principles of empirical antibiotic therapy.

Disorders of monocyte-macrophages: Langerhans cell histiocytosis, haemophagocytic syndromes: classification, aetiopathogenesis, pathophysiology, clinic, principles of treatment.

Haemostasis. Physiology of haemostasis, coagulation phases, mechanism.

Advantages and disadvantages of selective coagulation tests. Thrombocytopenias: classification, aetiopathogenesis, pathogenesis, clinic, diagnosis and principles of treatment. Neonatal thrombocytopenias: aetiopathogenesis, clinic, diagnosis and treatment principles. DIC syndrome: causes, diagnosis, treatment. Thrombophilia: classification, pathogenesis, diagnosis, treatment. Haemophilia: diagnosis, clinic, treatment, complications. Inhibitory haemophilia: diagnosis, treatment.

Cancer in children. Peculiarities, epidemiology, classifications of paediatric malignancies. Cytogenetics and molecular genetics in oncology. Prognosis. Immunohistochemical markers and their role in tumour diagnosis. Radiological examination in the diagnosis of paediatric tumours, its types, techniques and principles of application. Principles of action of cytostatics. Cytostatic myelosuppression, other complications. Indications for bone marrow transplantation.

Acute leukaemia. Aetiology and pathogenesis, classification, clinical manifestation, modern diagnostics, identification of the risk group and choice of treatment approach.

Paediatric lymphomas: classification, clinical manifestation, differential diagnosis, principles of treatment.

Paediatric solid tumours (CNS, neuroblastoma, renal, soft tissue, bone): aetiology and pathogenesis, pathophysiology, clinic, diagnosis and principles of complex treatment.

Bone marrow transplantation: types, indications. Donor selection. Preparation of the recipient for transplantation. Main complications. Concept of graft versus host disease.

Late affect in paediatric oncology: their genesis, epidemiology, importance. Main complications, principles of monitoring.

RECOMMENDED LITERATURE SOURCES

1. Miniello VL, Verga MC, Miniello A, Di Mauro C, Diaferio L, Francavilla R. Complementary Feeding and Iron Status: "The Unbearable Lightness of Being" Infants. *Nutrients*. 2021 Nov 23;13(12):4201. doi: 10.3390/nu13124201. PMID: 34959753; PMCID: PMC8707490.
2. Wang M. Iron Deficiency and Other Types of Anemia in Infants and Children. *Am Fam Physician*. 2016 Feb 15;93(4):270-278. <https://www.aafp.org/afp/2016/0215/p270.html>
3. Lanzkowsky's Manual of Pediatric Hematology and Oncology 7th Edition
4. by Jonathan D. Fish (Editor), Jeffrey M. Lipton (Editor), Philip Lanzkowsky (Editor). Academic Press. 2022.
5. Stephanos K, Dubbs SB. Pediatric Hematologic and Oncologic Emergencies. *Emerg Med Clin North Am*. 2021 Aug;39(3):555-571. doi: 10.1016/j.emc.2021.04.007. Epub 2021 Jun 9. PMID: 34215402.

6. Langerhans Cell Histiocytosis in Children. Histiocytosis association. <https://histio.org/histiocytic-disorders/langerhans-cell-histiocytosis-in-children/>
7. Rascon J, Smalytė G. Improvement in childhood cancer survival in Lithuania over three decades. Acta Med Litu. 2020;27(1):1-9. doi: 10.6001/actamedica.v27i1.4260. PMID: 32577090; PMCID: PMC7305808.
8. www.uptodate.org
9. Practical-Haemostasis.com. A practical guide to haemostasis <https://practical-haemostasis.com/>
10. Long-Term Follow up Guidelines for survivors of Childhood, Adolescent, and Young Adult Cancers. Version 4.0, October 2013. [http://www.survivorshipguidelines.org/pdf/COG%20LTFU%20Guidelines%20Archive/Version%204.0/COG_LTFU_Guidelines_Appendix_I_v4%20\(secured\).pdf](http://www.survivorshipguidelines.org/pdf/COG%20LTFU%20Guidelines%20Archive/Version%204.0/COG_LTFU_Guidelines_Appendix_I_v4%20(secured).pdf)

CONSULTING LECTURERS

1. Coordinating lecturer: Jelena Rascon (Assoc. Prof. Dr.).

2. Gražina Kleintienė (Assoc. Prof. Dr.).

3. Goda Elizabeta Vaitkevičienė (Assoc. Prof. Dr.).

4. Dr. Sonata Šaulytė Trakymienė (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė