

**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 Allergology 6 credits (162 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	0,2	0,2	5,6
Method of the assessment (in 10 point system)	Oral examination: three questions are asked according to a block of questions prepared at the Clinic of Children's Diseases, which is updated periodically. The questions are composed by the teachers preparing this course.			

PURPOSE OF THE COURSE UNIT

To provide theoretical and practical knowledge of modern pediatric allergology and clinical immunology. To acquaint with the terminology of allergies, immunology of allergic diseases, peculiarities of the development of allergies in children. To examine the etiology, pathogenesis, clinic, specific diagnosis, treatment and prevention of allergic diseases. To set out the main principles of treatment, to analyze the main groups of drugs for the treatment of allergic diseases, the principles and methods of specific immunotherapy. To discuss the latest possibilities of molecular (component) allergic diagnostics, allergen-specific immunotherapy and modern biological therapy in children with allergic diseases. To promote an interdisciplinary approach to the characteristics of allergen sensitization in a growing child and the prevention of the development of allergies, based on the principles of individualized medicine.

THE MAIN TOPICS OF COURSE UNIT

General part. Concepts of allergy and atopy, genetic factors of atopy, epigenetics. Modern allergy terminology. Epidemiology of allergic diseases in children in the world and in Lithuania. Antigen, allergen, isoallergen, epitope, antibody: definitions, properties. Allergens: classification, nomenclature. Determinants of allergenicity. Cross-allergic reactions, their clinical examples. B lymphocyte specific receptors, antigen recognition, activation, functions. Immunoglobulin classes, subclasses, structure, functions. Characteristics of IgG subclasses, specific IgG4 antibodies. IgE structure, concentration determination, role in protective and pathological reactions. Antigen-presenting cells: origin, characterization, functions. Th1, Th2, cytokine profiles, significance for the development of allergic reactions. Complement system, activation pathways. Classification of Gell and Coombs allergic reactions: Type I, II, III, and IV. Immunological types of allergic diseases. Allergens and environmental factors. Home/outdoor environment allergens.

The peculiarities of the development of allergy in children ("atopic march"). Diagnosis of allergic diseases: patient's anamnesis, skin tests, provocation tests, laboratory tests.

Skin prick tests, indications, contraindications, evaluation, clinical significance. Skin prick-prick test performance, evaluation, clinical significance. Skin patch test performance, evaluation, clinical significance. Clinical significance of specific IgE antibodies in serum. Modern molecular (component) allergological diagnostics.

General principles of treatment of allergic diseases in children. Pharmacotherapy. Characteristics of antihistamines. Histamine metabolism,

pharmacological effects, receptors. Use of agonists in the treatment of allergic diseases. Leukotriene receptor antagonists. Principles of glucocorticoid action, methods of use, indications. Adverse drug reactions in children.

Allergen specific immunotherapy: mechanisms, principles, indications, contraindications, methods, side effects, their prevention and treatment. Immunomodulators and modern biological therapy for the treatment of allergic diseases in children. Methods of allergen removal from the environment, home environmental hygiene and control. Prevention of allergic diseases.

Special part.

Food allergy: mechanisms, clinical course, diagnostics, differential diagnosis, peculiarities in children, treatment. Peculiarities of diagnosis and treatment of food allergies in breastfed infants. The importance of an elimination diet. Oral challenges: open and double-blind, placebo-controlled.

Drug allergy: mechanisms, clinical course, diagnostics, prevention, treatment.

Epidemiology of Layell and Stevens-Johnson syndrome, most common etiological factors, clinical course, and treatment. Serum sickness: clinical course, diagnosis, treatment.

Stinging insect allergy: clinical aspects, diagnosis, treatment of acute reactions, prevention.

Anaphylaxis and anaphylactic shock: etiology, pathogenesis, clinical course, treatment.

Respiratory allergic diseases in children. Allergic rhinitis: epidemiology, etiology, pathogenesis, clinical course, classification, diagnosis, differential diagnosis, treatment and prevention. Pollinosis: pollen allergens, plant flowering calendar in Lithuania, cross-allergic reactions with food. The link between allergic rhinitis and bronchial asthma. Peculiarities of bronchial asthma in children, development of allergic inflammation, clinical forms, severity, classification, diagnosis, differential diagnosis, treatment and prevention. Characteristics of groups of drugs used to treat asthma.

Allergic conjunctivitis: etiology, classification, clinical course, differential diagnosis, treatment.

Atopic dermatitis in children: prevalence, etiology, classification, clinical types, diagnosis, complications, differential diagnosis, treatment. Determination of the severity of atopic dermatitis (SCORAD methodology and others).

Allergic contact dermatitis: prevalence, etiology, pathogenesis, classification, clinical course, diagnosis, differential diagnosis, and principles of treatment. Occupational allergens.

Urticaria and angioedema: etiology, pathogenesis, classification (acute, chronic spontaneous, inducible), diagnosis, treatment, prognosis. The role of a low-pseudoallergen diet in the treatment of urticaria. Chronic idiopathic urticaria.

IgE and non-IgE mediated allergic diseases of the gastrointestinal tract: immediate gastrointestinal hypersensitivity, oral allergy syndrome, eosinophilic gastroenteropathies, food protein induced enteropathy, food protein induced enterocolitis syndrome, food protein induced proctitis.

Immunodeficiency conditions in children.

Work with families of children with allergic diseases. Training of patients and their families, cooperation.

RECOMMENDED LITERATURE SOURCES

1. Ansotegui IJ, Melioli G, Canonica GW, Caraballo L, Villa E, Ebisawa M et al. IgE allergy diagnostics and other relevant tests in allergy, a World Allergy Organization position paper. World Allergy Organ J. 2020 (a) Feb 25;13(2):100080.

2. Bird JA, Leonard S, Groetch M, Assa'ad A, Cianferoni A, Clark A et al. Conducting an Oral Food Challenge: An Update to the 2009 Adverse Reactions to Foods Committee Work Group Report. *J Allergy Clin Immunol Pract.* 2020 Jan;8(1):75–90.e17.
3. Grabenhenrich LB, Dölle S, Moneret-Vautrin A, Köhli A, Lange L et al. Anaphylaxis in children and adolescents: The European anaphylaxis registry. *J Allergy Clin Immunol.* 2016 Apr;137(4):1128–1137.
4. Matricardi PM, Kleine-Tebbe J, Hoffmann HJ et al. EAACI molecular allergology user's guide. *Pediatric Allergy and Immunology* 2016;27: (suppl23):1–250.
5. Muraro A, Halken S, Arshad SH, Beyer K, Dubois AE, Du Toit G et al. EAACI food allergy and anaphylaxis guidelines. Primary prevention of food allergy. *Allergy* 2014 (c);69(5):590–601.
6. Sturm G.J., Varga E.M., Roberts G. et al. EAACI guidelines on allergen immunotherapy: Hymenoptera venom allergy. *Allergy* 2018;73: 744-64.
7. Leonardi A., Silva D., Formigo D.P., Bozkurt B., Sharma V., Allegri P. et al. Management of ocular allergy. EAACI Position Paper. *Allergy* 2019;74: 1611-30.
8. Bousquet J., Pfaar O., Agache I., Bedbrook A., Akdis C.A., (...), Emuzyte R. et al. ARIA-EAACI care pathways for allergen immunotherapy in respiratory allergy. Review. *Clin Transl Allergy* 2021; 11(4), e12014: 1-11:
DOI 10.1002/clt2.12014; <https://doi.org/10.1002/clt2.12014>.
9. Sicherer S-H., Sampson H-A. Food allergy: A review and update on epidemiology, pathogenesis, diagnosis, prevention, and management. *J Allergy Clin Immunol* 2018;141(1): 41-58.
10. From the Global Strategy for Asthma Management and Prevention. Global Initiative for Asthma (GINA), 2021: <http://www.ginasthma.org>
11. Nelson Textbook of Pediatrics, 2-Volume Set, 21st Edition. Authors : Robert M. Kliegman & Joseph St. Geme. Available through VU Subscribed Scientific Databases – ClinicalKey <https://virtualbiblioteka.vu.lt/>
12. Halken S et al. EAACI guideline: Preventing the development of food allergy in infants and young children (2020 update). *Pediatr Allergy Immunol.* 2021 Jul;32(5):843-858
13. Wollenberg A et al. Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: part I and part II. Practice Guideline *J Eur Acad Dermatol Venereol.* 2018 May;32(5):657-682.

CONSULTING LECTURERS

1. Coordinating lecturer: Odilija Rudzevičienė (Prof. Dr).

2. Sigita Petraitienė (Assoc. 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