

European Syllabus in Paediatric Allergology

(European Training Committee Paediatric Allergology)

This syllabus is aimed at training in Paediatric Allergology doctors who are responsible for care of children

There are 3 levels of training to be considered:

LEVEL 1 – Primary Care General Practitioners or Family Doctors who, in some European Countries are the main responsible for primary care of children. They should be able to recognise allergic diseases and how and when to refer their patients (close supervision)

LEVEL 2 – Primary and Secondary Care Paediatricians. They should be able to manage allergic children and adolescents and cooperate with tertiary care specialists in the diagnostic workout and supervision of treatment

LEVEL 3 – **Tertiary Care Specialists, with capacity for independent practice (2 to 3 years training after common trunk))**

The present Syllabus is addressed to the training of Tertiary Care Specialists (Level 3). Later ETC-PA will develop specific Syllabi for levels 1 and 2

The trainee must have completed Common Trunk training in Paediatrics according to the standards of EAP/UEMS-SP

Each item will be classified under the categories of Knowledge (K), Skill (S) or both

Recommended minimum degree of expertise to be acquired for each knowledge item or skill:

H – High (updated scientific knowledge)

I – Intermediate (Paediatric allergology textbook knowledge)

B – Basic (general Paediatric Textbook)

D – Dispensable

K – Knowledge

S – Skill

Modules A – Q mandatory

Modules R – S optional

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European Syllabus in Paediatric Allergology for Tertiary Care Specialists

(European Training Committee Paediatric Allergology)

A Basic Knowledge on Immunology and Allergic Diseases (mandatory)		K	S
1	Immune response and Immunoregulatory mechanisms	H	
2	Pathogenesis of hypersensitivity and allergic diseases	H	
3	Epidemiology of allergic diseases, locally and worldwide	H	
4	Influence of genetic and environmental factors on development of allergic disease	H	
5	Clinical course of allergic disease, from infancy to adulthood	H	
6	Primary and secondary prevention of allergy	H	
B Allergens (mandatory)		K	S
1.	Allergens, definition of allergen source materials, e.g. timothy pollen or cat dander, allergenic molecules (allergens), iso-allergens, major allergens, and recombinant allergens	H	
2.	In vivo allergen standardization, principles and differences between methods	I	
3.	In vitro characterisation of allergen extracts, components and total allergenic activity	I	
4.	Allergens and allergen components – the principle	H	
5.	Allergens, aerobiology and distribution of inhalant allergens in the environment	H	
6.	Allergens, latex and drug allergens	H	
7.	Allergens, food allergens and cross-reactivity of food allergens	H	
8.	Allergens/modified allergens/hypoallergenic allergens	H	
9.	Polyclonal and monoclonal antibodies against IgE and IgG epitopes	I	
10.	Methods for determination of indoor allergens, moulds etc. in dust and air	I	
11.	Methods for determination of mould spores and pollens in the air outdoors	I	
12.	Distribution of allergens in the environment	H	
13.	Hidden allergens in foods	H	

C Diagnosis of allergy (mandatory)		K	S
1.	Definition of allergy and atopy.	H	
2.	Methods for routine and scientific skin prick tests, allergen patch tests and intradermal tests and their interpretation	H	H
3.	Methods and interpretation of challenge tests in the conjunctiva, (nose), bronchi (allergen bronchial challenges) and single blind and double blind oral food and drug challenges, See also Asthma, Food Allergy and Drug Allergy	H	H
4.	Methods for <i>in vitro</i> IgE and IgG testing and their interpretation	H	
5.	Methods for determination of mediators of allergic inflammation (MC mediators, Eos cell derived mediators, interleukins and other cell markers).	H	
6.	Indications for <i>in vivo</i> and <i>in vitro</i> allergy testing.	H	
7.	<i>In vivo</i> test for delayed hypersensitivity (allergy patch test, intradermal tests)	H	H
8.	<i>In vitro</i> morphological and functional assessment of cells and molecules involved in the mechanisms of immune response, hypersensitivity and immunopathology, according to current state of the art (principle and interpretation; meaning and validity of test results)	H	
D Bronchial asthma and other wheezing disorders (mandatory)		K	S
1	Different recurrent wheezing and asthma clinical patterns and phenotypes, their different pathology and natural history (including underlying pathophysiology and basic epidemiology)	H	
2	Differential diagnosis of asthma and wheezing	H	H
3	Epidemiology of viral infections, mechanisms of viral wheezing	H	
4	Treatment of acute asthma and wheezing illness at various ages	H	H
5	Long term management of asthma and recurrent wheezing at different ages including age related pharmacology and emerging therapeutic strategies, with special emphasis on side effects and those influencing children's growth	H	H
6	Available techniques for inhalation therapy and their age related advantages and limitations	H	H

E Ocular and ENT Allergy (mandatory)		K	S
1	Diagnosis and management of allergic conjunctivitis	H	H
2	Anatomy, physiology and pathology of the upper respiratory tract and ear of paediatric patients	H	
3	Anatomy of the upper respiratory and ear of paediatric patients as visualised using imaging techniques	I	I
4	Rhinitis: etiopathogenesis, classification, diagnosis and treatment. Sinusitis	H	H
5	Long term management of rhinitis, considering the impact of both the disease and the medication on the patient's quality of life and school performance.	H	H
6	Co-morbidities associated to allergic rhinitis	H	
7	Otitis media in allergic paediatric patients	H	
8	Indications of ENT surgery in patients with allergic rhinitis	H	
F Skin Diseases (mandatory)		K	S
1	Urticaria and angioedema (physiology, pathology, diagnosis, differential diagnosis, and treatment)	H	H
2	Chronic urticaria (diagnosis and long term management with special emphasis, on quality of life and school performance)	H	H
3	Diagnosis and management of hereditary angioedema	H	H
4	Atopic eczema (physiology, pathology, diagnosis, differential diagnosis, and treatment)	H	H
5	Contact dermatitis and other type IV reactions	H	I
6	Mastocytosis	H	
G Food Allergy (mandatory)		K	S
1.	Epidemiology and natural history of food allergy	H	
2.	Non-allergic adverse reactions to foods	H	
3.	Diagnostic procedures in food allergy, including additives (in vivo and in vitro) <ul style="list-style-type: none"> a. Open oral food challenges b. Double-blind placebo-controlled food challenges c. Relevance of determination of specific IgE, skin prick testing, atopy patch test 	H	H
4.	Manifestations of food allergy: <ul style="list-style-type: none"> a. Gastrointestinal symptoms (vomiting, gastro-oesophageal reflux, eosinophilic oesophagitis/gastritis, eosinophilic gastro-enteropathies, enteropathies, gastroenterocolitis, proctitis/proctocolitis, diarrhoea, chronic constipation b. Extra-gastrointestinal symptoms (atopic dermatitis, urticaria, anaphylaxis, 	H	

	rhino-conjunctivitis, asthma) c. Food-dependent exercise induced anaphylaxis		
5.	Oral allergy syndrome (pollen-food syndrome)	H	
6.	Celiac disease	H	
7.	Treatment of food allergy a. Elimination diet (education, EU regulative re. labelling etc.) b. Symptomatic treatment c. Treatment of anaphylaxis (see I) d. SOTI (Specific Oral Tolerance Induction)	H	H
8.	a. Prognosis of food allergy; Need for follow-up and re-challenges	H	
H Insect venom and body allergy¹ (mandatory)		K	S
1.	Definition of insect venom, insect body and related allergy in children	H	
2.	Epidemiology of insect allergy in children	H	
3.	Diagnosis of insect venom and body allergy by history, in vivo and in vitro IgE tests and challenge tests	H	H
4.	Prophylactic measures in insect allergy	H	
5.	Non allergic adverse reactions to insect venom and body material	H	
6.	Immunotherapy in <i>Hymenoptera</i> venom allergy, see K - Immunotherapy	H	H
7.	Non-immunological measures in insect allergy, e.g. self medication. See I Anaphylaxis	H	H
I Drug Allergy (mandatory)		K	S
1.	Definition and types of drug allergy in children	H	
2.	Epidemiology of drug allergy	H	
3.	Diagnostic procedures in drug allergy, skin prick tests, patch tests, intradermal tests, injection and oral challenge tests, <i>in vitro</i> IgE tests, methods for the measurement of tryptase and their interpretation	H	H
4.	Non allergic adverse reactions to drugs	I	
5.	Clinical characteristics and diagnosis of NSAID intolerance	H	
6.	Acute desensitization in drug allergy	H	H

¹ Insect allergy should be defined as allergy to *Hymenoptera* venoms, other insect venoms like mosquito bites/ mosquito venom, insect and lower animal and plant allergens, e.g. midges, spiders, nematodes, green algae and other algae etc.

J Anaphylaxis (mandatory)		K	S
1.	Definition of anaphylaxis due to foods, oral drugs, injected drugs/insect venoms, SCIT (injected drugs) and SLIT	H	H
2.	IgE mediated food allergy: Diagnosis of causal food allergen by history	H	H
3.	IgE mediated food allergy: Diagnosis of causal food allergen by skin tests, and <i>in vitro</i> IgE tests	H	H
4.	IgE mediated food allergy: Confirmation of the diagnosis of causing food allergen by single or double blind placebo controlled oral food challenges	H	H
5.	IgE mediated food allergy: Treatment of IgE mediated food allergy by non-immunological measures	H	H
6.	IgE mediated food allergy: Treatment of IgE mediated food allergy by SCIT and SLIT, see J Immunotherapy	H	H
7.	IgE mediated drug allergy: Diagnosis of causing drug allergen by history (e.g. anaesthesia)	H	H
8.	IgE mediated drug allergy: Diagnosis of causing drug allergen by skin tests, and <i>in vitro</i> IgE tests	H	H
9.	IgE mediated drug allergy: Confirmation of the diagnosis of causing drug allergen by single or double blind placebo controlled oral food challenges	H	H
10.	Acute treatment of IgE-mediated drug allergic patients by modified rush “immunotherapy”, see K Immunotherapy	H	H
11.	IgE mediated insect venom and body allergy: Diagnosis of causing insect allergen by history	H	H
12.	IgE mediated insect venom and body allergy: Diagnosis of causing insect allergen by skin tests, and <i>in vitro</i> IgE tests	H	H
13.	IgE mediated insect venom and body allergy: Confirmation of the diagnosis of causing insect allergen by challenges?	H	H
14.	Non-immunological treatment of IgE mediated insect venom and body allergy	H	H
15.	Anaphylaxis during SCIT: and SLIT Investigation of causes like subclinical asthma, other ongoing allergic inflammation, recent exposure to known or non-diagnosed allergens, i.v. injection etc.	H	H
16.	Anaphylaxis during SCIT and SLIT and injected drugs: Acute treatment of anaphylactic reactions to injected allergens	H	H
17.	Anaphylaxis during SCIT and SLIT: Prevention of further anaphylactic reactions	H	H

K Preventive measures (mandatory)		K	S'
1.	Definition of prevention <ul style="list-style-type: none"> • Primary prevention • Secondary prevention • Tertiary prevention 	H	
2.	Information and education	H	H
3.	Discussion of possible effect of avoidance/reduction of exposure to inhalant allergens (mites, molds, dander, pollens, other)	H	
4.	Environmental treatment including diagnosis and measurement of allergen exposure	H	
5.	Dietary prevention <ul style="list-style-type: none"> • Primary prevention in all infants <ul style="list-style-type: none"> a. Breast feeding • Primary dietary prevention in high risk infants <ul style="list-style-type: none"> a. Breast feeding b. The role of documented hypoallergenic formulas • Secondary dietary prevention in individuals with food allergy 	H	H
6.	Prevention of exposure to tobacco smoking <ul style="list-style-type: none"> • Preventive measures against starting smoking • Measures to help stop smoking • Measures to prevent second-hand exposure to smoke 	H	H
7.	Nutrition in food allergy/intolerance	H	H
8.	The possible role of pre-biotics, pro-biotics and symbiotics in allergy prevention	H	
9.	The possible role of specific nutrients (D- vitamin, E-vitamin, antioxidants, n3/n6 PUFA, etc)	H	
10.	Principles of treatment of exercise induced asthma	H	
11.	Physical training for asthmatics	H	H
12.	Skin care for eczema	H	H

13.	Occupational guidance	H	H
L Allergen Immunotherapy² (mandatory)		K	S
1.	Organization of allergen vaccination/immunotherapy, the localities, personnel, education and continuous training	H	H
2.	Methods used for allergen vaccination/immunotherapy (IT)	H	H
3.	Allergen vaccines/extracts used for immunotherapy (extracts, recombinant allergens, modified allergens) and their pharmacokinetics	H	
4.	Mechanisms of IT, see A Immunology	H	H
5.	Indications and contraindications for IT See also G a, Insect Allergy	H	H
6.	Information to patients and parents in advance of a decision to start IT		H
7.	Allergy diagnosis (history, skin tests, in vitro allergen specific IgE, provocation tests), see B 1, Allergy Diagnosis, and asthma diagnosis, lung function, optimal asthma therapy, allergen avoidance, before the start IT (SCIT, SLIT and VIT)	H	H
8.	SCIT): Dosing, dose schedules, top doses, intervals, duration long term prognosis preventive effects etc.		H
9.	SCIT, with allergen extracts/preparations of house dust mites, pollens, animal danders, food and <i>Hymenoptera</i> venoms	H	
10.	SLIT: Dosing, dose schedules, top doses, intervals, duration long term prognosis preventive effects etc.		H
11.	SLIT, with allergen extracts/preparations of house dust mites, pollens, animal danders and foods	H	H
12.	Rush "Immunotherapy" with drugs, see G, Drug Allergy	H	H
13.	IT: Supervision of asthma, environmental control, medication and allergen exposure	H	H
14.	IT: Evaluation by annual clinical, immunological investigation	H	H
15.	IT: Long-term follow up of clinical and immunological results in children given IT.	H	H
16.	Acute treatment of IgE-mediated drug allergic patients by modified rush desensitization, see also J, Anaphylaxis	H	H
17.	Anaphylaxis during SCIT, SLIT and VIT Investigation of causes such as subclinical asthma, other ongoing allergic inflammation, recent exposure to known or non-diagnosed allergens, i.v. injection etc See H	H	H
18.	Anaphylaxis during SCIT , VIT and injected drugs: Acute treatment of anaphylactic reactions to injected allergens See H	H	H

² Subcutaneous immunotherapy = SCIT; Sublingual immunotherapy = SLIT; *Hymenoptera* venom immunotherapy = VIT; Allergen immunotherapy in general =IT.

M Approach to the allergic child and his family (mandatory)		K	S
1.	History taking in allergic patients		H
2.	Recognizing clinical symptoms and signs of allergy	H	
3.	The “allergic march” and child with multi-systemic allergy	H	
4.	Communication with children of all ages and their parents, placing emphasis on counselling skills and provision of appropriate disease education in order to optimize patients' compliance	H	H
5.	Proper assessment and handling of family interactions and their impact on clinical symptoms and signs	H	H
6.	Social and psychological issues relevant for children and families with allergic diseases	H	H
N Research (mandatory)		K	S
1.	Scientific literature appraisal		H
2.	Training in planning, conducting, evaluating and publishing research projects		H
3.	Practical experience in presenting results to national and international audiences in form of oral or poster presentations		H
O Teaching (mandatory)		K	S
1.	Informal teaching of junior doctors or nurses in Paediatric Allergology during clinical work	H	
2.	Formal lectures in PA to medical students, junior doctors or nurses	H	
3.	Knowledge and application of educational programmes for parents and patients in PA	H	

P Paediatric Respiratory Medicine: Physiology and Assessment (mandatory)		K	S
1.	Developmental anatomy and physiology of the respiratory system including ventilation–perfusion and gas exchange	H	
2.	Physiology and evaluation of cough, shortness of breath and noisy breathing	H	H
3.	Respiratory function testing in infants, preschool aged and cooperative children: measurement and interpretation of spirometry and lung volumes, interruption technique, impulse oscillometry, plethysmography, lung diffusion, rapid thoraco-abdominal compression	H	I
4.	Performance and interpretation of reversibility and bronchial provocation testing	H	H
5.	Indication, interpretation and basic principles of conventional radiography, computed tomography, magnetic resonance imaging, ultrasonography and isotope imaging methods	H	I
6.	Indications and interpretation of the various airway endoscopy procedures in children: flexible and rigid bronchoscopy, broncho-alveolar lavage, bronchial biopsies	I	
7.	Indications and interpretation of cardio-respiratory poligraphy	I	
8.	Bronchial responsiveness: measurement, affecting factors, mechanisms, epidemiology and clinical application. Unspecific and specific challenge tests. Exercise Challenge test	H	H
9.	Non invasive inflammation markers (including performance and interpretation of exhaled nitric oxide measurements)	H	H
10.	Invasive inflammation markers	I	
Q Paediatric Respiratory Medicine: Disorders (mandatory)		K	S
1	Diagnosis and management of congenital malformations affecting the respiratory system	I	I
2	Prevention, diagnosis and management of Bronchopulmonary Dysplasia and chronic lung disease of infancy	I	I
3	Diagnosis and management of Cystic Fibrosis lung disease	H	I
4	Allergic bronchopulmonary Aspergillosis and hypersensitivity Pneumonitis	H	
5	Diagnosis and management of other infrequent or rare lung diseases (gastroesophageal reflux associated lung disease, bronchiolitis obliterans, primary ciliary dyskinesia, neuromuscular diseases, etc)	H	H
6	Rehabilitation in chronic respiratory disorders	H	I
7	Diagnosis of and screening for obstructive sleep apnoea and upper airway resistance syndrome and hypoventilation	H	I
8	Non-invasive mechanical ventilation	H	I

R Adult Pulmonology/Allergology (optional)		K	S
1.	Experience in long term course of allergic diseases and asthma into adulthood.		I
2.	Ability to ease transfer of adolescent patients to adult care		H
S Laboratory (Immunology oriented) (optional)		K	S
1.	Quantification of total and specific IgE	I	
2.	Identification and characterization of antigens	B	
3.	Preparation of antigens	B	
4.	Detection and quantification methods for other antibodies	B	
5.	Quantification of cytokines and inflammation markers	B	
6.	Morphological and functional examination of cells and molecules involved in the mechanisms of hypersensitivity and immunopathology	B	
7.	Study of immune complexes	B	
8.	Quantitative and functional study of complement	B	
9.	Studies of cell populations and cellular immunity	I	
10.	Aerobiology and environmental studies	I	