European Program for Training in Paediatric Allergology

Preface

Paediatrics is an independent medical specialty based on the knowledge and skills required for the prevention, diagnosis and management of all aspects of illness and injury affecting children of all age groups from birth to the end of adolescence, up to the age of 18 years. It is not just about the recognition and treatment of illness in babies and children. It also encompasses child health, which covers all aspects of growth and development and the prevention of disease. The influence of the family and other environmental factors also play a large role in the development of the child, and many conditions require life-long management and follow-up before a smooth transition of care to adult services.

Allergic diseases in childhood and adolescence have been increasing in industrialized societies during the last decades and allergic disease is a major cause of morbidity in children. This growing prevalence and the advances in medical science led to the development in Europe and in all the world of Paediatric Allergology (PA) as a specific medical discipline within the broader field of Paediatrics, devoted to the diagnosis, treatment and prevention of allergic and immunologic diseases in children and adolescents.

This document describes the **European Training Program in Paediatric Allergology**. It is one of the subspecialist training programs in Tertiary Care Pediatrics, defined by the Tertiary Care Group of the European Academy of Paediatrics, itself the Paediatric section of the European Union of Medical Specialists (Union Européenne des Médecins Spécialistes - UEMS) The product of this training program is the **European Paediatric Allergist (EPA)**. It is expected that European Paediatric Allergists will practice their skills and apply their expertise within the framework of a specialized Tertiary Care Unit. Furthermore, such specialists will have commitment to train general paediatricians and paediatricians with an interest in Paediatric Allergology.

We believe that all doctors practising Paediatric Allergology (PA) require a solid basic training in General Paediatrics, as set out by many National Training Authorities (NTAs), and in the recommended European Common Trunk Syllabus, approved by the EAP-UEMS. This training, which should be of 3 year minimum duration, should act as a prelude to specialist training, and will underpin many of the principles set out in this training program.

Composition of the training program subcommittee

National delegates to the European Training Committee on Paediatric Allergology (ETC-PA)
Coordinators: Arne Høst (Denmark) José Lopes dos Santos (Portugal)
Other major contibutors: Sten Dreborg (Sweden), Kostas Priftis (Greece), Susanne Halken (Denmark), Antonio Nieto (Spain) M Martin Mateos (Spain)

Methodology for generating the program

The first version of the Syllabus was written by several members of the former European Paediatric Allergy and Clinical Immunology Society (ESPACI) in 1999, and revised in 2003

and 2011 by the European Training Committee on Paediatric Allergology (ETC-PA), a working group of the Section on Paediatrics of the European Academy of Allergology and Clinical Immunology (SP-EAACI). ETC-PA has also produced two further documents, defining the requirements for European Training Centres (2007) and the European Training Curriculum for PA (2013)
This is a comprehensive new text issued by ETC-PA, combining and updating the Syllabus, Curriculum and Training Centre Requirements for PA using the recent format for training programs suggested by UEMS and EAP
All these documents were patiently produced over the years, discussed by E-Mail, in telephone conferences, in small group meetings and in ETC-PA plenary meetings held during annual EAACI congresses

Contents

1-INTRODUCTION

In general, this program intends to achieve the following:

a. Harmonisation of training programmes in PA between European countries.
b. Establish clearly defined standards of knowledge and skills required to practice P A at the tertiary level.
c. Foster development of a European network of competent Tertiary Care Centres for PA.
d. Improved care of children within Europe with allergic disorders.
e. Enhanced European contribution to international scientific progress in the field of PA.

2.- AIM OF TERTIARY CARE TRAINING

The aim of tertiary care training in PA is to provide training to allow competent practice to be undertaken as a Tertiary Care Specialist in PA whose practice would be expected to deal with complex problems in this area including:

Atopic diseases
Bronchial asthma
Ocular and ENT Allergy
Skin Diseases
Food Allergy
Insect venom allergy
Drug Allergy
Anaphylaxis

Specialist competence in PA demands extensive knowledge and skills to serve children and adolescents suffering from, or at risk of allergic disease or non-allergic hypersensitive reactions at all levels of outpatient or hospital handling. In addition to investigation, treatment and care, the specialty includes the whole field of allergy prevention, both general and individual. An understanding of the environmental factors involved has become necessary for both primary and secondary prevention. This involves close cooperation not only with the child and its family but also with all the institutions and public bodies, which affect the child's daily living -day nurseries, kindergartens, schools, social services, environmental and building authorities and other bodies.

End Result of Training

The European Paediatric Allergist (EPA) at the end of training, should be able to:

- Provide competent clinical care within the framework of a specialised Tertiary Care Unit in the inpatient/outpatient setting using various specialised diagnostic and therapeutic modalities.
- Provide competent clinical care in as an autonomous paediatric subspecialist in a public or private community based outpatient setting.
- Liaise with the appropriate laboratories and similar departments
- Liaise with colleagues in Primary and Secondary Care Paediatrics in the provision of high quality local care.
- Provide technical assistance and consult with other Tertiary Care Specialists, namely, specialists in Paediatric Pulmonology, Paediatric Gastroenterology, Oto-Rhino-Laryngology, Dermatology, Clinical Physiology, Clinical Immunology
- Develop an integrated pattern of care with colleagues who are specialist in Adult Allergology and Pulmonology
- Establish and conduct a relevant research program.
- Establish and conduct a quality assurance program
- Be involved in regular teaching activities
- Serve in relevant administrative bodies

3. TRAINING PERIOD

Clinical training

A medical doctor who has successfully completed his/her training of at least 3 years in general paediatrics, including adolescent medicine, will be eligible for access to further specialist training in Paediatric Allergology. A clinical training period of full-time employment of 24 months, is considered adequate, but in some countries a longer training may be found.

The **Training Syllabus,** to be described later in this document**,** is structured in modules. Each module contains training requirements in a specific area, expertise, or skill.

The **Training Curriculum**, also to be described below, proposes convenient practical ways to achieve training in the different modules. Simultaneous training in several modules is possible, provided such a combination can be accepted as reasonable. A complete training can consist of modules acquired in several different training centres. At least one of these training locations should fulfil the criteria for a primary centre.

4. RESEARCH TRAINING

This program specifically contemplates a module concerning research training (see Module O in the Syllabus below)

5. REQUIREMENTS FOR TRAINING INSTITUTIONS

Accreditation of Centres

For each EU Member country, a list of centres, units, training directors, tutors and teachers should be compiled and updated on an annual basis. Each centre is characterised by the available modules or areas of teaching activity, tutors and teachers available and the size of the clinical practice as defined by the needs of the trainee.

Central Monitoring authority for Paediatric Allergology at EC level

It is expected that each country where PA is officially recognized has its own system of centre and specialist certification and training program accreditation. Although regulatory bodies in each country are autonomous in establishing their own rules, it is desirable that they follow as closely as possible European guidelines for training programs and centre certification.

The European certification of training institutions can be accomplished both in countries where PA is already recognized, in this case at the request or with the agreement of national regulatory bodies and in countries without a national recognition of PA in which case it may be a stimulus for the recognition of the sub-speciality. The European recognition of training institutions will ultimately be part of a joint process involving EAP-UEMS and the specialist society. It is anticipated that SP-EAACI and ETC-PA will be endorsed by EBP and EAP-UEMS to execute this task. A list of the names and characteristics of existing national training centres will be created and held by SP-EAACI/ETC-PA and EBP/EAP-UEMS who will oversee quality assurance of the recognised centres at periodic intervals (desirably every 5 years), using the guidelines suggested by the UEMS. In countries where national certification clearly meets European standards, this can be endorsed by SP-EAACI/ETC-PA and EBP-EAP/UEMS.

General Requirements´

A training centre can be a single institution or a group of related establishments.

Affiliation

Paediatric Hospitals, Paediatric Departments in University Hospitals, Paediatric Departments in other reference Hospitals and if not available, Allergy Units or Departments with significant Paediatric Allergology activity, preferably in an autonomous unit, may also be accepted.

Preferential denomination

Paediatric Allergy Department, Clinic or Unit.

Clinical Activity
The Training Centre should have the capacity to diagnose and treat paediatric patients of all ages, including adolescents, with any allergic disease in any organ system.

Outpatient clinic with a sufficient number of primary attendances and return visits to allow meaningful education of trainees and assure they get enough experience. The number of trainees must be adjusted to the number of attending patients. There must be also available hospital beds for admission of patients with allergic diseases.

There should be clinical conferences on specific subjects and patients on a periodic basis (optimally every week).

Scientific activity
The centre should have the capacity to perform clinical research and to cooperate in laboratory research, assuring that the trainees are involved in scientific activities and publications. They should, acquire and develop skills for critical evaluation of published studies. Thus, regular research seminars on paediatric allergology and related disciplines should be arranged.

Manpower
The Training Centre may consist of more than one centre in close collaboration and should include at least two paediatricians certified in Paediatric Allergology and desirably one in Paediatric Respiratory Medicine and one in Paediatric Gastroenterology. Part of the clinical and scientific training can also be located to other units, provided there is a close collaboration with the Training Centre.

The medical staff should have clinical, teaching and research activity.

It is important to have nurses and non-medical staff with expertise in allergy testing, pulmonary function, psychological and social work, nutrition, physiotherapy etc. and patient education, who might also participate in teaching and research activities.

Premises
Besides the general facilities assumed to be available in an average Hospital or Clinic, the Training Centre should provide:

- One consulting room for each doctor during his/her service in the outpatient ward
- Facilities for allergy skin testing
- Facilities for non-specific and specific allergy bronchial challenge testing with appropriate ventilation, i.e. with equipment for active evacuation of air at the site of the test, and safety prescriptions
- Facilities suitable for oral, nasal and conjunctival challenge testing
- Facilities for pulmonary function testing of different kinds
- Facilities for allergen immunotherapy in close proximity to the nurse/assistants room
- Meeting room for staff

- Access to specialized books and journals in a library and on the internet
- General teaching and learning facilities, like computers, internet, data-show etc

Equipment

Training Centres should have available the specific equipment necessary for the comprehensive care of allergic children, to be able to fulfil the learning objectives of the European Training Syllabus in Paediatric Allergology, including all relevant diagnostic and therapeutic methods

Basic essential

- Basic paediatric office equipment (stethoscopes, otoscopes, scales, etc)
- Allergen extracts for the different kinds of tests
- Preparations for direct and equipment for indirect bronchial challenge testing
- Peak-flow meters
- Spirometer/s
- Facilities for bronchial provocation tests with equipment for evacuation of allergen/methacholine/histamine-containing air
- Spacers and face masks
- Placebo inhaler devices
- Refrigerator(s) and freezers
- Facilities for exercise testing
- Equipment for the determination of exhaled Nitric Oxide

Emergency equipment

- Necessary equipment for cardio-pulmonary resuscitation and severe anaphylaxis treatment according to established good practice rules

Desirable

- Rhinomanometer
- Tympanogram equipment (Ex: Mycrotymp)
- Audiometry equipment (Ex: audioscope)
- Equipment for Plethysmography
- Infant pulmonary testing equipment
- Equipment for testing inert gas wash out
- Equipment for cold air hyperventilation tests
- Equipment for flexible bronchoscopy
- Equipment for testing pH in the oesophagus
- Equipment for oesophago-gastroscopy, colonoscopy and rectoscopy

Laboratory resouces

All relevant current laboratory studies to investigate allergic children should be available either in the Training Centre or in a clinical laboratory directly cooperating with the Training Centre.

Other resources in close collaboration

- An X-ray department with modern equipment should be available for close cooperation.
- ENT department with doctor(s) with an interest in paediatric allergology
- Dermatological department with dermatologist(s) interested in paediatric allergology
- Respiratory medicine department with a doctor trained in paediatric diagnostic techniques.
- Nutritionist experienced in paediatrics or preferably in paediatric allergology
- Child psychiatry or social worker and psychologist with training in family therapy and group therapy
- Physiotherapist and or other person trained in physical training

6- REQUIREMENTS FOR TRAINERS (TEACHERS) IN PAEDIATRIC ALLERGOLOGY

The training staff in a Centre should include at least two trainers. The Training Program Director (TPD) must have been practising Paediatric Allergology **for at least 5 years** and have specialist accreditation in this area.

There should be additional Educational Supervisors/Trainers who should provide training across all aspects of the speciality and be research active in Paediatric Allergology. When an aspect of training cannot be provided in one centre it will be necessary for the trainee to be taught at another suitable centre by a trainer approved for that purpose.

A Trainer is a person who holds acknowledged expertise in one or several aspects related to Paediatric Allergology. This person's contribution may be restricted to these areas of expertise. Both educational supervisors and trainers must have practised Paediatric Allergology (or in some cases the related medical speciality) for a **minimum of 2 years** after specialist certification in the area.

Trainers should work out a training programme for the trainee in accordance with the trainee's own qualities and the available facilities of the institution. Regular review will be required to allow for flexibility and for early identification of problems/deficiencies. The trainer should work with the Trainee to create a Personal Development Plan (PDP).

Trainers are expected to provide appraisal and assessment of progress. Appraisal consists of determining what is needed and what evidence is required to show that this has been achieved. Assessment evaluates progress against objectives. Trainee assessment should be provided in terms of:

- Training and career ambitions
- Training experience related to syllabus
- Achievements related to current plan

In order to provide a close personal monitoring of the trainee during his/her training, the number of trainees should not exceed the number of teachers in the centre.

Trainers will meet the trainee at the beginning of the programme to define the educational contract for that trainee. Reviews of progress should take place at 3 monthly intervals during the first year of training to appraise the individual.

An assessment should be undertaken after the first year, to review competencies achieved and to allow progress within the teaching programme. Assessments should be detailed and contain statements of theoretical and practical experience accumulated by the trainee. It is expected that the trainee will also provide an account of the training received and problems encountered (portfolio). Reports will be submitted to the TPD or national body.
Final assessment should ideally be at the national level

6- REQUIREMENTS FOR TRAINEES

In order to gain the necessary depth of experience each trainee should be actively involved in the management care of a range of patients during the whole period of his/her speciality training. This should include the care of outpatients, inpatients (including emergency admissions) and community care where appropriate.

Competency based assessment, as an adjunct to knowledge assessment and portfolio completion, is an important aspect of evaluation. Several countries have recently reformed their postgraduate medical education. New valuable pedagogic initiatives and blueprints have been introduced to improve quality and effectiveness of the education in line with outcome-based education. The CanMEDS framework, developed by the Royal College of Physicians and Surgeons of Canada, (http://www.royalcollege.ca/rcsite/canmeds-e), is an excellent tool to achieve this evaluation.

CanMEDS consists of the following competencies

- Medical expert: integration of all CanMED roles applying medical knowledge, clinical skills and professional attitudes
- Communicator: effectively facilitates doctor-patient relationship and dynamic exchanges before, during and after medical encounter
- Collaborator: effectively work within healthcare system to achieve optimal patient care
- Manager/integral participant in health care organisations, allocating resources and contributing to health care system
- Health advocate: responsibly use expertise and influence to advance the health of individual patients, communities or populations
- Scholar: demonstrates lifelong commitment to reflective learning and to creation, dissemination, translation of medical knowledge
- Professional: committed to the health and wellbeing of individuals and society through ethical practice, professional led regulation and high personal standards of behaviour.

Log-book

The trainees should keep a written log-book of patients they have seen, procedures conducted, diagnosis and therapeutic interventions instigated and followed-up. This will constitute part of their portfolio.

The trainee will be required to keep his/her personal logbook or equivalent up-to-date according to National guidelines and European Union directives. The logbook must be endorsed by his/her tutor or authorised deputy. The trainee should attend and provide evidence of attendance at local, regional and national meetings.

Attendance at International Meetings is considered essential for Tertiary Care training. It is recommended to give at least 2 - 3 presentations at these meetings. Attendance at summer school or winter school is strongly encouraged.

Competency assessment

Competencies should be evaluated throughout the training period. There are a number of different tools for this, describing different aspects of training. Some of these are set out below with a recommendation for the number that should be completed during each year of training. Formal and informal reflection on these assessments is an important aspect of their success.

Assessment	**Purpose**	**Method**
MiniCeX (Mini clinical examination)	Provides feedback on skills needed in clinical care	Trainer observes a trainee examining a patient and explaining the management plan to the parents
CbD (Case based discussion)	Assesses clinical reasoning or decision making	Trainee presents a more complex case to the trainer and has a discussion about the evidence or basis for diagnosis or treatment.
DOPS (Directly observed procedural skills)	Assesses practical skills	Trainee undertakes a practical skill whilst being observed
LEADER	Focuses on leadership skills	A trainee is observed leading a team (eg during a resuscitation)
HAT (Handover assessment tool)	Evaluates handover skills	Handover episodes are supervised and discussed
DOC (Discussion of correspondence)	Assesses letter writing skills	Clinic letters or discharges are reviewed and discussed
MSF (Multi-source feedback)	Provides wider feedback on the performance of the trainee	Confidential comments from a wide range of colleagues, patients and the trainee are sought

A good example of a guide to workplace-based assessment can be found here: http://www.rcpch.ac.uk/system/files/protected/page/Trainees%20Guide%20to%20assessment%20web.pdf

Knowledge base

A knowledge base assessment is desirable, preferably included in a national final exam. If and when there is a European knowledge based exam on Paediatric Allergology, it is desirable that it may be accepted by the national authorities as an optional replacement for the national knowledge base assessment

Participation in Audit project

The trainee should conduct at least one systematic style review of a topic and in addition prepare a detailed evidence based appraisal of a diagnostic test or a therapeutic intervention.

7- TRAINING SYLLABUS

The present Syllabus is addressed to the training of Tertiary Care Specialists in Paediatric Allergology

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)

K – Knowledge
S – Skill

Modules A – Q	mandatory
Modules R – S	optional

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 and allergenic composition of the source materials	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, aerobiology and distribution of inhalant allergens in the environment	H	
5.	Allergens, latex and drug allergens	H	
6.	Allergens, food allergens (including additives) and cross-reactivity of food allergens	H	
7.	Allergens/modified allergens/hypoallergenic allergens	H	
8.	Polyclonal and monoclonal antibodies against IgE and IgG epitopes	I	
9.	Methods for determination of indoor allergens, moulds etc. in dust and air	I	
10.	Methods for determination of mould spores and pollens in the air outdoors	I	
11.	Distribution of allergens in the environment	H	
12.	Hidden allergens in foods	H	
13.	Mollecular Allergy diagnosis in clinical practice	H	
14.	Cross-reactive molecules and their clinical relevance	H	
15.	Allergen families and databases	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.	Basophil activation Test (BAT)	I	
4.	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
5.	Methods for *in vitro* IgE (singleplex and multiple assays) and IgG testing and their interpretation	H	
6.	Methods for determination of mediators of allergic inflammation (MC mediators, Eosinophile cell derived mediators, interleukins and other cell markers).	H	
7.	Indications for *in vivo* and *in vitro* allergy testing.	H	
8.	*In vivo* test for delayed hypersensitivity (allergy patch test, intradermal tests)	H	H
9.	*In vitro* 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 clinically similar paediatric disorders	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 and clinically similar paediatric disorders	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. Paediatric disorders mimicking rhinitis	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 with clinically similar paediatric disorders 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 dermatitis (physiology, pathology, diagnosis, differential diagnosis, and treatment; long term management of persistent cases with special emphasis, on quality of life and school performance)	H	H
5	Contact dermatitis and other type IV reactions	H	I
6	Mastocytosis (diagnosis and treatment; long term management)	H	H
G Food Allergy (mandatory)		**K**	**S**
1.	Epidemiology, types and natural history of food allergy	H	
2.	Manifestations of food allergy: a. Gastrointestinal symptoms (vomiting, gastro-oesophageal reflux, eosinophilic oesophagitis/gastritis, eosinophilic gastro-enteropathies, enteropathies, gastroenterocolitis, proctitis/proctocolitis, diarrhoea, chronic constipation, failure to thrive b. Extra-gastrointestinal symptoms (atopic dermatitis, urticaria, anaphylaxis, rhino-conjunctivitis, asthma) c. Food-dependent exercise induced anaphylaxis	H	

3.	Non-allergic adverse reactions to foods. Paediatric disorders mimicking food allergy	H	
4.	Most common food allergens and labelling regulations	H	
5.	Implications of egg allergy with vaccination (MMR, Influenza, Yellow Fever) and current recommendations	H	
6.	IgE mediated food allergy: diagnosis of causal food allergen by history	H	H
7.	IgE mediated food allergy: diagnostic relevance of determination of specific IgE, skin prick tests and atopy patch tests	H	H
8.	Use of molecular diagnosis in the management of food allergy	H	H
9.	Diagnostic challenge procedures in food allergy, including additives a. Open oral food challenges b. Double-blind placebo-controlled food challenge	H	H
10.	Diagnostic elimination diet and supervised reintroduction	H	H
11.	Oral allergy syndrome (pollen-food syndrome)	H	
12.	Coeliac disease	H	
13.	Treatment of food allergy a. Elimination diet (nutritional aspects, education, EU regulative re. labelling etc.) b. Symptomatic treatment c. Treatment of anaphylaxis (see I)	H	H
	c. SOTI (Specific Oral Tolerance Induction) – no established recommendation d. EPIT (Epicutaneous Immunotherrapy) – still experimental	optional	
14.	Nutrition in food allergy/intolerance	H	H
15.	Prognosis of food allergy; need for follow-up and re-challenges	H	H
H Insect venom and body allergy [1] (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.	IgE mediated insect venom and body allergy: Diagnosis of causing insect allergen by history	H	H
4.	IgE mediated insect venom and body allergy: Diagnosis of causing insect allergen by skin tests, and *in vitro* IgE tests	H	H
5.	IgE mediated insect venom and body allergy: Confirmation of the diagnosis of causing insect allergen by challenges?	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.

6.	Prophylactic measures in insect allergy	H	
7.	Non allergic adverse reactions to insect venom and body material	H	
8.	Immunotherapy in *Hymenoptera venom* allergy (VIT), see K - Immunotherapy	H	H
9.	Non-immunological treatment of IgE mediated insect venom and body allergy	H	H
I Drug Allergy (mandatory)		**K**	**S**
1.	Definition and types of drug allergy in children. Paediatric disorders mimicking drug allergies	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, *in vitro* 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	H
6.	Acute desensitization in drug allergy	H	H
J Anaphylaxis (mandatory)		**K**	**S**
1.	Definition of anaphylaxis and its main causes, namely foods, oral drugs, injected drugs, insect venoms, SCIT (injected drugs) and SLIT	H	
2.	Mechanisms of anaphylaxis: immunologic (IgE and non IgE mediated) and non immunologic	H	
3.	Clinical manifestations of anaphylaxis (cutaneous, respiratory, gastrointestinal, cardiovascular, neurological) and the importance of its early identification	H	H
4.	Acute treatment of anaphylaxis emphasizing early adrenalin administration and life support measures	H	H
5.	Complementary treatment of anaphylaxis besides adrenaline, post-treatment observation, guidelines for medical discharge	H	H
6.	Absolute indications and recommended indications for prescription of an adrenaline auto-injector	H	H
7.	Training with adrenaline auto-injector	H	H
8.	Relevant patient and caregiver education. Written emergency plan. Personalised individual plan	H	H
9.	Anaphylaxis at school. Preventive measures and emergency plans	H	H

K Preventive measures (mandatory)		K	S[)]
1.	Definition of prevention ▪ 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 ▪ Primary prevention in all infants a. Breast feeding ▪ Primary dietary prevention in high risk infants 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 ▪ Preventive measures against starting smoking ▪ Measures to help stop smoking ▪ Measures to prevent second-hand exposure to smoke	H	H
7.	The possible role of pre-biotics, pro-biotics and symbiotics in allergy prevention	H	
8.	The possible role of specific nutrients (D- vitamin, E-vitamin, antioxidants, n3/n6 PUFA, etc)	H	
9.	Principles of treatment of exercise induced asthma	H	
10.	Physical training for asthmatics	H	H
11.	Skin care for eczema	H	H
12.	Occupational guidance	H	H
L Allergen Immunotherapy[2] **(mandatory)**		**K**	**S**
1.	Organization of allergen vaccination/immunotherapy, the facilities, personnel, education and continuous training	H	H
2.	Methods used for allergen vaccination/immunotherapy (IT)	H	H

[2] Subcutaneous immunotherapy = SCIT; Sublingual immunotherapy = SLIT; *Hymenoptera* venom immunotherapy = VIT; Epicutaneous immunotherapy = EPIT; Intradermal immunotherapy = IDIT; Allergen immunotherapy in general =IT.

3.	Allergen vaccines/extracts used for immunotherapy (extracts, recombinant allergens, modified allergens) and their pharmacokinetics	H	
4.	Mechanisms of IT	H	H
5.	Indications and contraindications for IT	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.	Subcutaneous immunotherapy (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 *Hymenoptera* venoms	H	
10.	Sublingual immunotherapy (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.	Possible new methods for Immunotherapy with allergen extracts: Epicutaneous immunoherapy (EPIT) see G-Food Allergy) Intradermal immunotherapy (IDIT)	Optional	
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,	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	H	H
10.	Anaphylaxis during SCIT, VIT and injected drugs: Acute treatment of anaphylactic reactions to injected allergens See J	H	H

M Drugs and biologics used for children and adolescents with allergic diseases (mandatory)		K	S
1.	First and second generation anti-histamines – indications, efficacy, pharmacokinetics, side effects, food and drug interactions	H	H
2.	Bronchodilators - indications efficacy, pharmacokinetics, side effects, drug delivery devices	H	H
3.	Adrenaline - indications efficacy, pharmacokinetics, side effects, drug delivery devices (see J- Anaphylaxis)	H	H
4.	Topical and systemic steroids - indications, efficacy, pharmacokinetics, side effects	H	H
5.	Use of anti-leukotrienes, anti--IgE and other biologic modulators in the treatment of allergic diseases	H	H
6.	Indications, efficacy and safety of Immunosuppressive drugs in the treatment of allergic diseases (eg. Calcineurine inhibitors, methotrexate)	H	H
7.	Understand the importance of clinical trials in advancing therapeutic knowledge about allergic diseases.	H	
N Approach to the allergic child and his family (mandatory)			
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
O 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
P 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	

Q 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, plethismograpy, 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	
R Paediatric Respiratory Medicine: Disorders (optional)		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
S 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

T 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	

8- TRAINING CURRICULUM

The **Training Curriculum**, proposes convenient practical ways to achieve training in the different modules. Simultaneous training in several modules is possible, provided such a combination can be accepted as reasonable. A complete training can consist of modules acquired in several different training centres. At least one of these training locations should fulfil the criteria for a primary centre.

Organization of training

The following training periods should provide training and give understanding in the indicated modules of the training Syllabus. Training in some modules is provided in more than one Department or Unit

Paediatric Allergy Department or Unit (minimum 18 months)
Modules A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P (in some hospitals also Q and R)

ENT outpatient clinic
Module E

Paediatric Dermatology outpatient clinic
Module F

Paediatric Respiratory Medicine Department or Unit (minimum 3 months)
Modules Q, R

Immunology oriented Laboratory (optional - minimum 1 months)

Modules A,B,C,T

Adult Allergy or Pulmonology Department (optional-minimum 1 month)
Module S

Other requirements

Mandatory

Certified training in Advanced Paediatric Life Support

At least four presentations in scientific meetings (oral or posters) two of them as first author

Teaching experience with medical students or younger colleagues

Desirable

At least one scientific paper published in a peer reviewed Journal, preferably as first author