

State-of-the-art of clinical immunology in Europe[☆]

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1. Foreword

In many of our Universities, young medical students are wondering what they should do if they want to become Medical Immunologists, what kind of work it is, what they could expect from such training.

If some countries have, and mostly recently, nearly settled a path for such students, much remains to be done in many European Universities and Hospitals to provide a well defined and comprehensive image of what we all believe is a great profession.

With this goal in mind, a group of European representatives of Immunological Societies, under the patronage of EFIS, has begun a constructive reflection on Medical Immunology.

Here is a state of the art of the situation in European countries, and the common core that we agree defines Medical Immunology, what it should be and how training should be provided to future Medical Immunologists

2. Definition of medical immunology

The IUIS provided a definition of medical immunology several years ago. It reads: 'A combined clinical

and laboratory discipline dealing with the diagnosis and management of diseases in which the immune system is involved in either pathogenesis or treatment or both.'

In countries where some thought has been given to the definition of the discipline, there seems to be a consensus, also shared with relevant literature, to include in the scope of medical immunology immunodeficiencies, autoimmune diseases, allergy, transfusion and transplantation reactions, lymphoproliferative disorders, immune responses to microbes and cancers and immunotherapy or therapeutics involving the immune system.

The *bedside part* of medical immunology therefore overlaps a number of other medical disciplines, which probably explains why it has been difficult in most countries to clearly differentiate medical immunology as a clinical speciality. However, training in the immunological aspects of organ-related diseases is not often provided to physicians of other disciplines, which certainly impairs a proper immunological management of these disorders when physicians have not by themselves developed the necessary knowledge and practice required.

Understanding the underlying immunopathogenesis and familiarity with immunological tests, their relevance and interpretation, makes the medical immunologist invaluable to other physicians involved in organ-based immune diseases, (such as SLE, infections, glomerulonephritis,, chronic demyelinating neuropathies, etc).

The situation is clearer for *laboratory immunology*, identified as a medical speciality in several countries. Comprehensive definitions of this discipline have been established. There seems to be a consensual agreement on the list of tests relevant to medical immunology.

However, not all centres have specific Immunology laboratories, and in many hospitals, institutions or private laboratories, immunological tests are performed by non-immunologists.

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Finally, some immunologists may have dual responsibilities for laboratory management and patient care, with more medical involvement than the usual counselling often provided by laboratory immunologists.

3. State of the art of medical immunology training

3.1. Bedside immunology

The difficulty in identifying bedside immunology as a specific discipline, just stated above, has been perceived and discussed in most countries. This is highly visible in the literature from the USA and Australia, and these countries have proposed solutions and taken positive steps for the training and certification of medical immunologists.

The need for training and certification is also strongly felt in European countries. Defined curricula exist in Bulgaria and Romania. Among others, the UK is probably the most advanced in its project for the preparation of medical immunologists, and has also taken steps to provide relevant positions in universities and general hospitals.

Efforts should therefore perhaps be aimed at providing the specific training required for a proper exercise of medical immunology in other specialties. Immunology is part of the general education at medical school, yet with large differences in the amount of teaching between countries, leaving MDs with very different immunological knowledge within Europe.

Another option could be to better individualise allergists-immunologists, a position circumvented in the UK by proposing two parallel but different pathways, and partly obliterated in the Netherlands with the disappearance of the allergology specialty. In France, a specific training program is available for allergists while there is none for immunologists, although university positions exist for immunologists but not for allergists. In Italy, university positions exist for allergists and clinical immunologists, while hospital positions exist only for allergists.

3.2. Laboratory immunology

The situation of laboratory immunology is also confused. Training is well organised in several countries, with specific requirements both in laboratory and bedside practice. It is however often combined with a part of training in not strictly immunological disciplines, such as internal medicine, haematology, transfusion or molecular biology. This probably reflects the overlapping of immunology with other disciplines, which also exists within laboratories and diagnostic methods.

In most countries, this postgraduate education is associated with research activities, and the requirement

of obtaining a PhD in immunology is either clearly stated or strongly recommended. The duration of organised training varies between 2 and 8 years postgraduation depending on the countries. Similar positions are also obtained after 2–10 years in countries where the recruitment of laboratory immunologists is less clearly defined.

Continuing education is seldom considered, although Latvia only delivers permits valid for 5 years.

3.3. The role of national societies

Medical immunology is usually considered as important by national immunology societies. Their involvement is however variable. It can be the deliberate organisation of medical immunology sessions at national meetings, a more precise engagement in establishing specific courses, appointment of specialised committees or affinity groups, or even full responsibility for training programs and certification.

There seems however to be a possible role for supra-national societies, if only to try and homogenise training and professional criteria, taking into account the positive experiences developed in some countries. This is what EFIS is trying to do with this first article, and will hopefully pursue more specifically. The participation of European countries to the poll initiated as the basis of this document indicated that there is a real need for discussions and consensus proposals. EFIS also was the first immunological society to join the European Confederation for Laboratory Medicine (ECLM) and get involved in accreditation specifics (see below).

The Clinical Immunology Committee (CIC) initiated within IUIS and headed by John Fahey has published in the *Immunologist* in 1995 a comprehensive analysis of the situation of medical immunology in Australia and America. Owing to the very different structures in hospitals and universities over the world it may however be difficult to reach a world-wide consensus, while free circulation rules in Europe tend to render mandatory that Europeans homogenise their requirements. The IUIS-CIC has also initiated several general discussions where national representatives explained the situation in their country, and co-organised clinical Immunology meetings with the Clinical Immunology Society or as satellites of other immunology meetings.

3.4. Accreditation

Defining the training requirements and positions in medical immunology also implies that both people and structures receive accreditation to practice medical immunology.

Surprisingly, even in countries where the status of a medical immunologist is still somehow indistinct, positive steps have been taken at least for the accreditation of laboratory immunology.

Most countries have followed recommendations provided in the ISO regulation and implemented in EAL-ECLM proposals. National offices are affiliated to the EAL-ECLM in almost every European country. These structures however often are private institutions, and the laboratories seeking accreditation have to make a deliberate demand and pay for their evaluation.

In some countries, the specifications retained have been debated within the national immunological society. This is particularly clear for the ÖGAI and the Deutsche Gesellschaft für Immunologie. The participation of national societies, together with EFIS, to the work initiated by the ECLM could help getting a homogenised set of criteria in the near future. These structures could also provide a solid basis for ongoing revision of these recommendations as the discipline evolves.

4. Conclusions and perspectives

This document is a first attempt to compare national initiatives and solutions regarding the consensual need for a better definition of the status and specificities of medical immunologists. It was approved during the discussions that took place in Düsseldorf in November 1997 and by participating countries who were given ample time to amend and complete it. It can therefore be considered a consensual statement regarding medical immunology in Europe. The tables attached to this paper provide a summary of national idiosyncrasies and a good overview of the current situation. They may prove useful for countries less advanced in their reflection about medical immunology.

These are however only a first step towards a clinical immunology European network. The participation of national societies, and the interest expressed event by those without much involvement in clinical immunology at present, are very encouraging for continuing actions under the auspices of EFIS.

EFIS reflection on Medical Immunology

COUNTRY	DEFINITION	ORGANISATION POSITIONS	TRAINING	PROGRAMS	ACCREDITATION
AUSTRIA	<p>Scope: Research of human defence mechanisms, analysis of the immune system using serological, cellular, chemical and molecular biology test systems; interpretation of the data; advisory function for physicians; production and examination of immunological preparations.</p> <p>There are projects for the recognition of allergology as an additional branch of established specialties including dermatology, pneumology, paediatrics, internal medicine and otolaryngology.</p>	<p>Immunology was officially recognised as a separate branch of laboratory medicine in 1994 by an amendment of the law regulating medical practice.</p> <p>So far, 5 university institutions have been selected as main training units; it is intended that part of the training can be done in other yet to be defined medical institutions.</p>	<p>Six years post MD graduation: Four years in one of the 5 main training units; six months in internal medicine; 18 months in one or more defined medical disciplines (at least three months per discipline) Requirements for training units: 2 certified immunologists and the full range of training facilities.</p>	<p>Determination and characterisation of antibodies in body fluids and tissues. Characterisation and identification of antigens and allergens and their coding nucleic acids; analysis of the cellular components of the immune system and regulatory elements; immunohistological and immunochemical methods; preparation and analysis of sera, antibodies, antigens, allergens, cells, cytokines as well as reagents for immunological research, diagnosis and therapy of immune mediated diseases; animal experiments; radioactive work practice, information and communication with patients concerning indication and risk of immunological tests and treatment. Recently, a committee has been established by ÖGAI elaborating a detailed training program and examination catalogue.</p>	<p>Osterreichische Ärztekammer upon consultation of ÖGAI.</p>

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COUNTRY	DEFINITION	ORGANISATION POSITIONS	TRAINING	PROGRAMS	ACCREDITATION
BELGIUM		There is no structuration of Clinical Immunology in Belgium. This country has two Immunological Societies: <ul style="list-style-type: none"> • The Belgian Immunological Society, more involved in research • The Belgian Society of Allergology and Clinical Immunology. 	Individual initiatives are in progress in several Universities		
BULGARIA	Medical Immunology combines Clinical and Laboratory Immunology	Medical Immunology was recognised as a medical specialty in 1995. It is separated from allergology, which also is a medical specialty. Head of Laboratories are MDs with a specialty in Medical Immunology. There are diagnostic laboratories in Medical Universities, Medical Centres and Regional Hospitals. Clinical Immunology is yet less well positioned in hospitals.	Training in Medical Immunology lasts 48 months, is part of the postgraduate medical specialisation and is organised by the Department of Postgraduate Education at the Ministry of Health. The program includes 7 medical units for postgraduate medicine (28 months) and hospitals (20 months). Postgraduate medicine units include 10 months of basic Immunology, 8 months for laboratory methods and 8 months of Clinical Immunology. The work in hospitals includes 12 months of laboratory and 8 months of Clinical Immunology. There is a final examination.		Department of Postgraduate Education Ministry of Health

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CROATIA	Fields of basic and clinical Immunology that are implied in the diagnosis, patients care and research (allergy, immunodeficiencies, autoimmune diseases, transplantation, lymphoproliferative disorders and malignancies, immunotherapy). There is a need to define the benchside and bedside subspecialty in immunology.	Laboratories for clinical immunology are organised at Universities, in University hospitals and in Institutes of Immunology. Departments for bedside clinical immunology are associated departments of internal medicine (pneumology, rheumatology and pediatric clinical immunology departments). There are two national Societies : The Croatian Immunological Society (since 1968) The Society of Allergology and Clinical Immunology (since 1980)	<p><u>At Medical School</u> : immunology course in the second year of the curriculum, together with physiology and within other clinical disciplines).</p> <p><u>At the Faculty of Natural Sciences-</u> for Molecular Biologists- for immunology courses during the 4th year.</p> <p><u>Postgraduate training</u></p> <ul style="list-style-type: none"> • at Medical School : <ol style="list-style-type: none"> a) as subspecialty for specialists in internal medicine and pediatrics, 2 years after a basic 4 years program b) as a possible orientation in the Master's degree (2 yr.) or Ph.D. degree (3 yr.) program. • for immunobiology and physiology at the Faculty of Natural Sciences : <ol style="list-style-type: none"> a) B.Sc. in 2 years, b) Ph.D. in 3 years. 	Both for clinical and laboratory postgraduate training, programs include a list of mandatory and elective courses in the field of immunology and other overlapping biomedical subjects with research possibilities in the field.	
DENMARK		There is no specific organisation of Clinical Immunology in Denmark			

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ESTONIA		A Department (Chair) of Immunology was founded at the Medical Faculty of Tartu University in 1992. Teaching of Clinical Immunology (Laboratory, hospital) is under the general leadership of this department. Joining Clinical Immunology and Allergology curricula is in under discussion.	4 years training program for MDs in hospitals and Immunology laboratories, after 1 year of internship. After this period, clinical immunologists are ready to work as combined laboratory and bedside specialist.	The training program includes 2 years in a laboratory and 2 years in a hospital department dealing with patients with immunological ailments (infectious diseases, allergology, haematology, transplantation, nephrology, endocrinology, oncology, etc.).	Joint accreditation from the department of Immunology and the Estonian Society for Immunology.
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COUNTRY	DEFINITION	ORGANISATION POSITIONS	TRAINING	PROGRAMS	ACCREDITATION
FRANCE	<p>The scope of Medical Immunology has been defined and published in a "white book" in 1996. The definition is that of IUIS, and 7 specific fields have been designated, implied both in diagnosis and patients' care. These fields are:</p> <ul style="list-style-type: none"> • Autoimmune diseases • Transplantation • Primary Immunodeficiencies • AIDS and infections of immunodeficiencies • Lymphoproliferative disorders and cancers • Immunotherapy and vaccinations • Allergy 	<p>A full hospital-university career exists with tenures as "maître de conférences des universités (MCU)" or professor. One may remain MCU or become a professor. Candidates are selected by a national council depending from the Ministry of Education, composed of elected and nominated MCU and professors. Hospital practitioners, with no university duties can be appointed in Immunology wards or laboratories. The positions are opened by decision of the local hospital, approved by the Ministry of Health. Candidates are selected on the basis of their publications and hospital work, during specific examinations</p>	<p>There is no specific training in Medical Immunology, but most Clinical Immunologists are MDs who have followed the university hospital training of internship, in a medical specialty or in biology. It is almost mandatory to have a PhD in Immunology before applying for a university hospital position.</p> <p>There is a specific 2 years training followed by a national examination for general practitioners or specialists who wish to acquire the capacity to act as allergologists.</p> <p>A project has been proposed for a specific 4 years training through "Internship", and a modification of the training in allergology is under way.</p>		COFRAC Newly appointed ANAES

EFIS reflection on Medical Immunology

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GERMANY	Laboratory Immunology, Allergy and Molecular Biology are identified by a separate Checklist für Medizinische Laboratorien There has been progress in defining Immunology as a laboratory and bedside subspecialty <u>Immunological analyses are defined as:</u> Qualitative and quantitative assessment of functional parameters of the immune system, i.e. humoral and cellular functions, exploration of macrophages, granulocytes and the complement system, isolation, identification and differentiation of immunocompetent cells and their products. Clinico-biological interpretation of the data <u>Allergological tests are defined as:</u> Qualitative and quantitative assessment of hypersensitivities	Head of laboratories are MDs Most laboratory Immunologists are PhD with no medical training Immunology exists in 5 chairs of "Clinical Immunology" in Paediatrics or Internal Medicine	Project: 4 years of clinical practice + 2 additional years		Specific checklist within the scope of the ECLM EAL proposals Jointly proposed by the Zektokomitee Medizinische Laboratorien (ZLG) and the Deutsche Gesellschaft für Immunologie

EFIS reflection on Medical Immunology

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GREECE	Immunology : patient care with diagnostic tests for: <ul style="list-style-type: none"> • primary immunodeficiencies • AIDS • Lymphoproliferative disorders and cancers/immunophenotyping • Allergy • Immunogenetics • Transplantation • Autoimmune diseases • Reproductive immunology. Also implementation of new assays and of new clinical developments.	Since 1985, a new law of the National Health system has enabled the establishment of Immunology laboratories in all large hospitals of the country. Head of laboratories are MD's, either Biopathologists (Laboratory Medicine) or clinicians (Internal Medicine, Haematology), with a training in Medical Immunology. In each Immunology department, there are 1-3 registrars and 1-3 senior registrars. Additionally, immunological tests are performed in several University Departments, depending on their clinical and research interests.	The specialty of Laboratory Medicine (Biopathology) can be obtained after training in Internal Medicine (1 year), Microbiology (1.5 years), Clinical Biochemistry (1 year), Haematology - Transfusion Medicine (1 year) and Immunology (6 months). Very recently, the Scientific Societies of Laboratory Medicine, including the Hellenic Society for Immunology proposed a 3 year "common trunk" (one year of Internal Medicine and 2 years of additional training in Laboratory Medicine, 6 months in each of the laboratories of microbiology, biochemistry, haematology, Immunology) and 2 additional years in Immunology in order to obtain the speciality of Immunology. However, this proposal has not yet been adopted.	Medical Immunology is taught in Greek Medical schools as basic Immunology through Biopathology, and as Clinical Immunology through Internal Medicine and Paediatrics. The Hellenic Society for Immunology provides educational seminars every year, complementary to the existing training.	

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HOLLAND	<p>Immunology Laboratory <u>Laboratory- based patient care of:</u></p> <ul style="list-style-type: none"> immunodeficiencies autoimmune diseases allergy transfusion and transplantation reactions leukemias and malignant lymphomas <p><u>Implementation</u> of new assays and of new clinical developments</p>	<p>Bedside Immunology not yet individualised</p> <p>Laboratory Immunology</p> <p>University hospitals</p> <p>Local hospitals or regional medical diagnostic laboratories</p>	<p><u>At medical school</u></p> <p>Basic Immunology</p> <p>Integrated in medical biology</p> <p>Clinical Immunology</p> <p>As part of medical disciplines</p> <p><u>For specialists</u></p> <p>Master in medical biology, biochemistry or medicine</p> <p>Oriented PhD. Regulated by SMBWO.</p> <p>Bedside Immunology: <u>Project</u> :Set-up a 1-2 years special training program</p> <p>Laboratory Immunology</p> <p>2-3 years training in 8 units</p> <p>3 examinations:</p> <ul style="list-style-type: none"> Immunology immunopathology 1 of histopathology, immunoematology or microbiology <p>Note : There is a deliberate flux regulation. Aim: 4 immunologists per 10⁶ inhabitants</p>	<p>Laboratory Immunology training</p> <ul style="list-style-type: none"> Histopathology of Autoimmune diseases, Lymphoproliferative diseases, and other diseases of the immune system Diagnostic tests for autoimmune serology, paraproteins, immunoglobulins, complement, immune complexes, antibodies to allergens, cytokines and receptors. Immunophenotyping, DNA and mRNA of lymphocytes and leukocytes blood groups, tissue typing and hematological autoimmunity medical microbiology and virology in and outpatient clinics clinician-laboratory interactions laboratory management <p>Input of the National Immunology Society: Special committee for training programs and institutions (visits)</p> <p>Quality rounds, symposia and teaching practice of diagnostic Immunology</p>	<p>Code of practice for implementation of a quality system in health care sector: CCKL</p>

EFIS reflection on Medical Immunology

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HUNGARY	<p>Clinical Immunology includes diagnosis and care for autoimmune diseases, immunodeficiencies, lymphoproliferative disorders, transplantation, immunotherapy and vaccination.</p> <p>Allergology includes the diagnosis and care of allergic diseases.</p>	<p>There is a common society for Clinical Immunology and Allergology in Hungary. In the professional Advisory Board for the Ministry of Health, they are represented together.</p> <p>There are 5 clinical immunological and allergological centres in the country.</p>	<p>The majority of Immunologists are MDs who perform bedside Immunology or allergology, after passing an exam of specialisation in clinical Immunology and allergology, built on an initial specialisation in internal medicine, paediatrics, pneumology, dermatology, etc. Less numerous are those involved in laboratory Immunology, who are mostly MDs, chemists or biologists, who have passed the examination for specialisation in laboratory Immunology and haematology</p>		<p>The Professional Advisory Board of Clinical Immunology and Allergology and of Laboratory diagnosis have increased responsibilities in working out the criteria for accreditation towards the Ministry of Health and Insurance Companies.</p>
IRELAND		<p>There are 4 specific Immunology Departments in the Republic of Ireland, 3 in Dublin and 1 in Galway.</p> <p>There are 2 reference laboratories with clinical consultant Immunologists.</p>	<p>No official post-graduate training specific for Clinical Immunology for Medical students. A recently started MSc course on molecular medicine includes immunology.</p> <p>For Laboratory Immunology, Immunology is an option as a second subject in the degree for Biomedical Sciences. Post-graduates can then either prepare and MSc in clinical biotechnology or a research MSc/PhD thesis.</p>		

EFIS reflection on Medical Immunology

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ITALY	Clinical and laboratory diagnosis, therapy of immunodeficiencies, immune mediated and allergic diseases.	<p>The Italian Federation of Immunological Societies joins :</p> <ul style="list-style-type: none"> • the Italian Society of Immunology and Clinical Immunology • the Italian Society of Allergology and Clinical Immunology • the Immunology Cooperative Group <p>At Universities (Medical Schools), there are Chairs of Allergology and Clinical Immunology for full Professors or Associate Professors. In Hospitals, there are Allergology Services for clinical and laboratory diagnosis, as well as therapy of allergic diseases for outpatients.</p>	<p>In Medical Schools, basic Immunology, allergology and clinical Immunology are part of medical disciplines.</p> <p>A specialisation can be acquired after getting an MD degree, in:</p> <ul style="list-style-type: none"> • Allergology and Clinical Immunology : 4 years of bedside and laboratory Immunology • Clinical Immunology PhD : 4 years of research and laboratory Immunology. 		

EFIS reflection on Medical Immunology

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LATVIA	IUIS definition : "A combined clinical and laboratory discipline dealing with the diagnosis and management of disease in which the immune system is involved, either in pathogenesis, treatment or both"	<p>Medical speciality - Clinical Immunologist-physician graduated from the Medical Faculty. Laboratory Immunologists graduated from the Biological Faculty.</p>	<p>Special clinical and immunological courses are provided at the Institute of Immunology in Riga, Stradin's University for Internal Medicine, Stomatology, and Pharmacology.</p> <p>For the medical speciality of Immunologist-physician, training includes 3 years in Internal Medicine and 2 years training in Clinical Immunology.</p> <p>The certification committee within the Latvian immunological Society delivers certificates valid for 5 years - medical speciality immunologist-physician- This certificate is obtained after setting a written Examination comprising 150 to 200 questions out of a thesaurus of 1000. The thesaurus is disclosed 3 months before the examination. The score must be $\geq 75\%$ There is an additional oral test for physicians</p>	<p>Special programmes: 4th year of Medical faculty and Pediatric faculty 5th year Stomatology faculty and Pharmacology faculty 6th year of Medical Faculty and Internal Medicine</p>	<p>Special department. Based on the EN 45001 without specific mention to Immunology</p>

EFIS reflection on Medical Immunology

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LITHUANIA	<p>Clinical Immunology includes <u>diagnosis and care</u> for:</p> <ul style="list-style-type: none"> • primary and secondary immunodeficiencies • transplantation • auto-immune diseases • lymphoproliferative disorders. <p>Medical Immunology is identified as a <u>laboratory discipline</u>, performing immunological tests: determination of specific antibodies, including auto-antibodies assessment of cellular functions of lymphocytes, macrophages, neutrophils examining the complement system immunophenotyping tissue typing. Immunology and Allergology are separated, Allergology being defined as a bedside subspecialty.</p>	<p>Clinical and Medical Immunology, officially recognised in 1995 are separate subspecialties. The functions, duties, orders, competence and responsibilities of specialists, are identified by Lithuanian medical standards, for both subspecialties, and confirmed by order of the Ministry of Health in July 1997. Allergology had been recognised in August 1996. Immunology exists at 2 University hospitals and in specialised centres (oncology, transplantation, rheumatology, ...). In- and out-patient consultations are available at University hospitals. There are, in 1998, about 2 clinical immunologists per million inhabitants.</p>	<p>Currently, to become a Clinical Immunologist, one has to work at least 3 years in a Department of Laboratory or Clinical Immunology and then apply for an examination.</p> <p>A project is being discussed involving 3 Years training for Clinical Immunology, and 2 years training for Medical Immunology.</p> <p>Also in project is a program of continuing education for specialists, including 150 hours (courses, symposia,...) mandatory every 5 years.</p>		<p>Accreditation for Clinical and Medical Immunologists</p> <p>A new nomenclature of Laboratory Medicine Methods is in progress in Lithuania, which includes a separate paragraph for Immunology.</p>

EFIS reflection on Medical Immunology

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POLAND		<p>There is no specific organisation of Clinical Immunology in Poland</p>			
ROMANIA	<p>Includes diseases in which immune mechanisms fail to act appropriately, for genetic or acquired reasons (immunodeficiencies, Aids) or because of neoplastic transformation of the cells (malignancies), or where the action of specific antibodies and/or specifically sensitised lymphocytes, either directly or through various associated effector systems, results in host injury. (allergy, auto-immunity). It also includes conditions in which such injury may result from the action of the immune system in defence against micro-organisms (infection and immunity), or during the rejection of allografts (transplantation and transfusion). Finally, it includes the applications of immunogenetics and of immune-based therapies in clinical practice.</p>	<p>A National Commission for Immunology was created in 1971 and became the National Society of Immunology. Until 1997, Immunology was a competence within the specialty of Laboratory Medicine, and within the main medical and surgical specialties. Clinical Immunology has now been recognised as an independent main Medical specialty. A competence in Diagnostic Immunology can be obtained for MDs who already hold a main medical or laboratory speciality. Six Universities (Medical Schools) have a Chair of Immunology.</p>	<p>For the speciality of Clinical Immunology, five years after graduating at a medical university :</p> <p>1 year in internal medicine</p> <p>3 months in molecular biology and human genetics</p> <p>2 years of cellular and molecular Immunology</p> <p>21 months in clinical Immunology</p> <p>For Laboratory Immunology, 1 year of specialisation.</p>		<p>Commission of clinical Immunology of the Romanian Ministry of health and the Romanian Society for Immunology. A Guide of Good Laboratory Practice has been prepared.</p> <p>There is a project for a network of immunological diagnostic and monitoring laboratories (IDML), under the auspices of the Romanian Ministry of Health and the Romanian Society for Immunology.</p>

EFIS reflection on Medical Immunology

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RUSSIA	Clinical Immunology is a Bedside (Clinical) and Laboratory discipline especially related to the following fields: Immunodeficiencies, autoimmunity, allergy, tumours of the immune system, infections of the immune system, paediatric clinical immunology, transplantation, immunocorrection and immunorehabilitation.	A Medical University Educational Program in Immunology has begun since 1970 on the basis of Chairs of Immunology in the Russian State Medical University. There are 2 institutes, in Moscow (founded in 1979) and Novosibirsk (founded in 1981) Chairs of Immunology have been created by decree in 1986, and the medical speciality of Allergology and Immunology by decree in 1995.		Basic and Clinical Immunology with Allergology as a single separate discipline with educational training within the same chair (department). Specialisation in the area of Clinical and/or Laboratory Immunology with Allergology.	Specialised bodies of the Ministry of Public Health, Chairs and Departments of Immunology, both Immunology Institutes.

EFIS reflection on Medical Immunology

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SLOVAKIA		Approximately 200 people possess a specialisation in allergy an clinical Immunology for the 5 million inhabitants of Slovakia.	Training (theoretical and practical) is provided by the Chair for Clinical Immunology of the postgraduate institute in Bratislava. MDs must have first completed a specialisation in internal medicine, dermatology, biochemistry or microbiology. Training involves 3x2week courses organised by the Chair of Clinical Immunology, followed by 2 years in a clinic (allergology and clinical Immunology) ,1 year in laboratory and an examination. This training is also directly accessible to non-MDs.		

EFIS reflection on Medical Immunology

COUNTRY	DEFINITION	ORGANISATION POSITIONS	TRAINING	PROGRAMS	ACCREDITATION
SPAIN	Immunology is a discipline which includes Laboratory Immunology for the diagnosis and care of patients with disease with immunological involvement : immunodeficiencies, auto-immune diseases, hypersensitivities, immunological diseases involving the respiratory system and the nervous system, haematological diseases, lymphoproliferative disorders, cancer and immunotherapy, together with Basic Immunology. A program in Clinical Immunology is in the process of being completely established in Spain.	Immunology Units in Teaching Hospitals Laboratory-based Medical Immunologists. Consultant Clinical Immunologists can be found in a few teaching hospitals.	A post-graduate training program for the Specialty of Immunology has been established by the National Board of Medical Specialties (Ministry of Health and Ministry of Education and Culture). Training includes 4 years post-medical registration in an Immunology Unit, in Laboratory Immunology, Basic Immunology and training in Clinics related to Immunology, Immunology Clinics plus a research project. This training is achieved during Medical Internship Residence (MIR) and Biology Internship Residence (BIR).	Laboratory Immunology training : Immunochemistry, auto-immunity, cellular Immunology, immunopathology, immunogenetics, quality control and laboratory management of clinical laboratory Immunology. Clinical Immunology training.	Spanish Ministry of Health and Spanish Ministry of Education and Culture Accreditation : diploma of Specialist in Immunology.
SWEDEN		Only individual curricula exist in the different Swedish Universities			
SWITZERLAND		The organisation of Clinical Immunology is underway in Switzerland but has not yet been fully discussed and agreed upon			

COUNTRY	DEFINITION	ORGANISATION POSITIONS	TRAINING	PROGRAMS	ACCREDITATION
UK	Includes Allergy and Clinical Immunology together with Basic Immunology.	Regional and subregional Immunology centres in teaching hospitals. Consultant Immunologists Consultant Allergologists	<u>Clinical Immunologists</u> 7 years post medical registration: • 2 years general training : Member RC Physicians • 2 years in an Immunology laboratory : part I of MRCPath • 2 years in a recognised post: part II of Member RCPathologists and research degree • 1 additional year of clinical training <u>Allergists</u> <u>Allergy specialists</u> 7 years post medical registration: • 2 years general training : MRCP • 5 years specialist Allergy training including core Immunology and experience in an Immunology laboratory <u>Organ based specialists with approved training in allergy:</u> 8 years post medical registration: • 2 years general training : MRCP • 3 years organ based specialty • 3 years allergy	<u>Medical graduates:</u> Specialist committee for training programmes and institution visits and to recommend Certificate of Completion of Specialist Training. Oversees training in Clinical Immunology, and in Allergy and in Combined Allergy and Respiratory Medicine <u>Scientists:</u> After a PhD (or equivalent experience): can take the Membership of the RCPathologists [same exam] and then run Clinical Immunology Laboratory. <u>Trainee scientists:</u> Training programmes supervised by the British Society for Immunology for graduates with first degree. BSc have further training in house plus MSc and take viva. <u>Laboratory staff:</u> State registration 2 years after appropriate BSc, experience in Clinical Immunology laboratory and oral examination	Joint Committee for Higher Medical Training Royal College of Pathologists British Society for Immunology Council for Professions Supplementary to Medicine Clinical laboratories are accredited by the Clinical Pathology Accreditation (CPA) UK

Further Reading

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