



European Training Requirement ETR In Endocrinology

*FROM THE STANDING COMMITTEE ON EDUCATION AND PROFESSIONAL
DEVELOPMENT (EPD) OF THE SECTION AND BOARD OF ENDOCRINOLOGY*

Monospecialist Section of Endocrinology of UEMS and European Board of Endocrinology

**DEFINITION OF ENDOCRINOLOGY AND OUTLINE OF THE
TRAINING NEEDS OF ENDOCRINOLOGISTS, IN ACCORDANCE WITH
CHAPTER 6 (ENDOCRINOLOGY) OF THE UEMS CHARTER¹**



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1. DEFINITION : The specialty of Clinical Endocrinology, Diabetes and Metabolism (including Nutrition, Andrology, Reproductive and Sexual Medicine, but henceforth abbreviated to Endocrinology) is that branch of Medicine concerned principally with structural and functional disorders of the endocrine glands, of hormone action and the metabolic consequences thereof.



Part 2. General information about the ETR

ETR update preparation

The constant development of specialist training and practice dictates the need for a periodical review of the ETRs to ensure that they are consistent with current practice and fit for purpose. According to the *Guidelines for the Development of UEMS European Training Requirements* (published on 3.4.2017) and updated from the original training curriculum in ENDOCRINOLOGY 1991 LEUVEN DOCUMENT), this document by the European Board and Section of ENDOCRINOLOGY (EBE) under the auspices of the Union Européenne des Médecins Spécialistes (UEMS) has been revised.

Timelines in current ETR update preparation

The process of the ETR update development started in-depth in 2016 and has included an extensive review of the current status in care delivery and experiences regarding training requirements across European countries. Extensive internal consultation within the Standing Committee on EPD, and the Section and European Board of Endocrinology (EBE) was followed by a review of overlapping areas of practice, specifically in Diabetes, Endocrinology, Metabolism, laboratory medicine and radiological investigations. All national Endocrine Societies as well as the European Society of Endocrinology were invited to contribute to this document and to offer critiques that were subsequently taken into consideration. The document has been submitted for the approval of ESE, pending UEMS ratification. In February 2018, consensus was obtained within the EBE committee regarding the ETR update. Finally, the ETR update has been submitted to the UEMS ETRs Committee for comments and approval in February 2018.



Scope of the ETR update

The UEMS ETR update does not aim to be imposed over established national curricula (if prepared under consideration of the United Nations declaration on Human Rights and World Medical Assembly International Code of Medical Ethics) but may complement them by offering a comprehensive and robust overall training framework created by medical specialists and based on assembled EU-wide educational and training experience. The advantage of specialists trained according to the competency based UEMS ETR is professional mobility across Europe; qualifications will automatically be recognised in other EU countries as established by EU law (Directive 2005/36/EC).

The ETR update represents current training practice in most European countries and supports high level of a medical training standard that will pave the way to first class patient safety and quality of care for the benefit of all European citizens. The ETR competencies in general core domains should be achievable by most national training programmes, even in the presence of considerable national variations due to, e.g. infrastructure, resources, manpower, working laws, financing, and traditions. Basic competence levels proposed in specific core domains may stimulate implementation of education and training plans in clinical bottleneck areas. European hospitals not offering training possibilities in specific core domain competencies may search for upgrading training quality, e.g. by forming training units with training hospitals. Thereby, the ETR update may foster future clinical exchange programmes between hospitals (e.g. European fellowship) and may encourage the utilization of novel learning modalities, e.g. medical simulation centres.

Not all competencies listed in this document will be met. Attaining full competencies in all domains of the broad discipline of Endocrinology, Diabetes & Metabolism in the minimum training timeframe would be an ideal but an utterly impossible demand in any European country. In-service training after completion of medical training will enrich both the number and level of competencies.



Description of professional development in knowledge, skills and attitudes is beyond the scope of the current UEMS ETR update.

The Implications of the UEMS ETR update are aimed at the content of the European Diploma / Board Exam in Endocrinology (first EXAM being held June 6, 2018) as well as for the Hospital Training Accreditation Programmes.

3. The Practice of Endocrinology (including Diabetes, Metabolism, etc.)

The ETR shall reflect the holistic approach (expert clinician, academic scholar, professional leader, inspired humanitarian)

Since hormones act on virtually every organ and cell type in the body, the Endocrinologist has to apply a wide experience in general medicine. Some disorders lie very clearly and completely within the domain of the Endocrinologist (as for example diabetes or thyroid disease). Other disorders are not exclusively endocrine in origin, but have important endocrine aspects (as for example osteoporosis, infertility and cancer). The endocrinologist as a physician is thus often the most appropriate person to provide medical care, or where a multidisciplinary approach is appropriate, to co-ordinate it. The Endocrinologist will thus generally need to develop and maintain skills in acute and chronic aspects of General Internal Medicine. Faced with an increasing proliferation of tests and new therapeutic procedures, the Endocrinologist often has an important role in defining the most efficient and cost-effective strategy for their use in patient care. High-level communication and negotiation skills are thus central to the practice of Endocrinology, both in relation to direct patient care and to the workings of multidisciplinary teams.



4. Training Needs of European Endocrinologists

- The training of the Clinical Endocrinologist should involve the principles, the practice and ethical aspects of the following:
 - Foundation or core training in general internal medicine
 - Higher training in core areas of Endocrinology, diabetes, metabolism and nutrition
 - Multidisciplinary training in a number of areas where the trainee should have responsibility for the care of patients
 - Ideally some relevant research , or the competence and ability to review and interpret relevant research as well as and clinical laboratory experience-
 - Training as a maturing process

5. Foundation or Core Training in General Internal Medicine

The training should be based on

- Syllabus, curriculum and assessment
 - Reference to published guidelines from EASD, ESE, ETA, ADA, ATA & American Endocrine Society (as it is not in the scope of this ETR to produce guidelines)
- One uniform way not possible
- Defined competencies
- Variety of training activities
- Defined accredited National centers
 - UEMS and or UEMS CESMA charter on appraisal of training centers
- Assessment should be linked to outcome, specialty knowledge and overall professional development



It is of great importance that training involves adequate experience in General Internal Medicine after general medical registration. This must be in the capacity of a practitioner working in a hospital, with an accepted postgraduate training programme, where he or she should have responsibility for the care of patients with a wide variety of medical disorders. It may also usefully include shorter periods of practice in other disciplines such as Paediatrics and Obstetrics and Gynaecology.

6. The Training in Core areas of Endocrinology

should involve the following:

6.1. Background

A thorough modern grounding in the normal physiology of the endocrine system, including the physiology and biochemistry of hormones and their actions, and reflecting advances in molecular medicine.

6.2. Endocrinology

Extensive first-hand practical experience in a recognised training centre, of the management of diseases primarily involving the endocrine system.

6.3. Diabetes mellitus

Extensive practical experience in all aspects of diabetes mellitus and its complications.

6.4. Metabolism and Nutrition

Extensive first-hand practical experience in a range of metabolic and nutritional disorders including:

Lipid disorders

Obesity

Malnutrition

6.5. Laboratory Endocrinology

An understanding of the principles and practice of hormone assay methods and the use of diagnostic tests is essential. Training should therefore include some exposure to endocrine laboratory services.

6.6. Multidisciplinary Training



This is particularly important and mandatory, because Endocrinologists typically function at the centre of a network of other specialists and allied health professionals

6.7. Research Experience

The above training should preferably be supplemented by a period of direct involvement in scientific research into one or more of the subject areas outlined. Selected Endocrinology trainees with the correct aptitude and potential, would be encouraged to pursue the path of research and clinical laboratory experience.

7. Content and Duration of training

Specialist training should only start after one year of supervised hospital clinical practice. The minimum total duration of such training before accreditation as a specialist should be 6 years full-time (or recognised equivalent) in a mixture of General Internal Medicine and Endocrinology and Diabetes.

Endocrinology has evolved as a single specialty to include numerous subspecialties, all having important contributions to and responsibilities in various areas of Internal medicine. The traditional role as a medical specialty, included assessment and evaluation, appropriate investigation in that target area and recommendation of appropriate diagnostic, therapeutic and interventional surgical procedures. The practice of Endocrinology has significantly changed towards more holistic competencies in the ambulatory setting, in intensive care medicine, emergency medicine management, in surgical & procedural care (pre, peri and post) as well as the in-hospital setting. Thus, training requires a very broad base training in Internal medicine (which is fundamental) and common principles, as well as newer generic competencies to be defined for the European specialist.



The process of training, attaining defined competencies and applying them safely and efficiently in clinical practice requires time so that trainees can mature and develop.

7.1. The Common Trunk

The training should start with a period of practical experience (Foundation and/or Core) in General Internal Medicine and the major medical disciplines. The specialty of Diabetes and Endocrinology requires at least two years of full-time practical experience of General Internal Medicine in nationally approved training centres. Since this trunk will be common with other medical specialties, high priority should clearly be given to definition of the requirement and duration of the Common Trunk.

7.2. Specialist Training in Endocrinology

This involves a minimum of a further four years of training. This time should include the equivalent of two years full-time in Endocrinology (including Diabetes, *etc.*), as defined under paragraphs 6.2, 6.3 and 6.4. The remaining two years should provide a balance of further experience in relevant medical disciplines and in other clinical laboratory and research activities as defined under paragraphs 6.5, 6.6 and 6.7

According to the UEMS basic principles, specialist training is competence-based and not number- or count-based. Scientific Endocrinology societies of EU member states may define minimum average numbers required for imparting and internalizing clinical skill at a recommended competence level in the specific local / national training setting.

ETR-based training may include a variety of training activities including procedures, clinics, ward rounds, multidisciplinary meetings, clinical research, attendance of training courses, and medical simulation training. Training activities are not uniform throughout Europe and depend on the national



structures and processes. However, the common goal of specialist training should always be the development of professional competency in the fields of generic competencies and roles as described below. Trainers should accompany trainees monitoring and ensuring the gradual attainment of sufficient competence that would allow to entrust activities to trainees by continuous assessments (EPA).

8. Generic competencies and roles

The ETR reflects the holistic qualifications of the European specialist. The following generic competencies and roles have been identified as the most important for any European specialist in Endocrinology.

- Knowledge of medico-legal aspects of Endocrinology practice, with particular emphasis on the management and prevention of conflicts of interest;
- Appropriate management of endocrinology incidents and accidents, including near misses.

Domains and competencies in the ETR

Definition of domains

In order to fulfil the four professional roles of a specialist in Endocrinology, the following list of domains of expertise and related competencies within these domains are to be obtained during medical training:

6.2. Domains of specific core competencies

Intensive care medicine

- Endocrine and metabolic disorders
 - Diabetes mellitus and insipidus
 - Addison's disease, Cushing and Conn syndrome
 - Thyroid disorders
 - Pheochromocytoma
 - Malnutrition



- Carcinoid crisis in relation to neuroendocrine tumours
- Acid-base and electrolyte disturbance

Insulin Pumps and new technologies (sensors etc.)

Endocrine Emergencies & Management

- Hyponatraemia & seizure
- DKA
- Thyroid Storm
- Pituitary apoplexy
- Hyperosmolar Non Ketotic Hyperglycaemia (HONK) & Hyperosmolar Hyperglycaemia Syndrome(HHS)
- Addisonian crisis
- Myxoedema coma
- Severe hypercalcaemia
- severe hypocalcaemia

Learning objectives

Training includes acquisition of knowledge and expertise in all patient groups as well as in all patients groups with critical illness and trauma.

For each domain, learning objectives are divided into “knowledge, skills and attitudes” that are deemed necessary to achieve the required level of competencies, as defined by the UEMS:

- **A:** observer level (has knowledge of, describes)
- **B:** performs, manages, demonstrates under direct supervision
- **C:** performs, manages, demonstrates under distant supervision
- **D:** performs, manages, demonstrates independently
- **E:** trainee can reliably trusted to independently carry out the procedure or task

a. Knowledge competencies are per definition required at a level of competence A.

b. Clinical skills:

Skills uniform in all clinical settings are reported only here and apply throughout.

- Management electrolyte emergencies DKA, HHS, HONK, HYPO-NATREMIA, HYPERCALCEMIA, HYPOCALCEMIA
- Accurate record keeping



Skills required at various locations (intraoperatively in the OR, postoperative in the recovery room, in the emergency room, prehospital) are listed only once upon first appearance,

Levels of skill competence are reported in the description of the domains.

c. Specific attitudes: Attitudes common to all clinical settings are reported only here and apply throughout

Effectively communicate and interact with patients and their relatives, including patients with impaired capacity of discernment and consent, and language barriers, treat them with respect and courtesy in answering all questions and concerns they may have

- Effectively communicate with other health care providers
- Team work together with other health care professionals to ensure smooth patient care and safety
- Vigilance and situational awareness
- Respecting basic ethical and legal principles
- Promoting safety and well-being of staff

e. Independence : The trainee can be reliably trusted to independently carry out the procedure or task (EPA). This would be in line with the previous comment

New aspects in the ETR update 2018

By eliminating redundancy and self-evident content, reporting the domains of general and specific core competencies, the ETR update has made this document applicable

- Knowledge already gained during undergraduate medical studies are not explicitly listed (e.g. anatomy, physiology, pathophysiology, pharmacology, toxicology, hygiene, physics, chemistry, biochemistry, psychology, statistics) but are understood as a prerequisite and requirement for ENDOCRINOLOGY-specific knowledge. During residency, basic medical knowledge has to be refreshed and enlarged by endocrinology-specific content.
- General skills already gained during undergraduate trainings are not explicitly listed (e.g. ECG monitoring and interpretation).



- Redundancy has been avoided in listing uniform skills and specific attitudes only once in the document.

Constant revision should include:

- International clinical guidelines and standards of high quality and prepared according to high methodological standards.

10. Domains of Specialty: Details

a. Knowledge

- Anatomy, physiology, pharmacology, toxicology, hygiene, physics, chemistry, biochemistry
- Aetiology, pathophysiology, diagnosis and treatment plans / bundles according to international standards of specific critical conditions in all patient cohorts including paediatric patients, geriatric patients, perioperative patients after elective and emergency surgery, (burn) trauma patients

6.1.2. Endocrinology

Extensive first-hand practical experience in a recognised training centre, of the management of diseases primarily involving the endocrine system, including all disorders of inadequate or excess hormone secretion or action, and specifically including disorders of the following:

- the thyroid gland, including an understanding of:
 - o extrathyroidal features of autoimmune thyroid disease
 - o the roles of sonography, cytology and histology in characterising thyroid nodules
- parathyroid glands
-



- adrenal glands
-
- endocrine and reproductive function of the gonads
-
- neuro-endocrine system: including hypothalamus, pituitary gland and gastrointestinal hormones.
-
- disorders of blood pressure physiology and endocrine causes of pathophysiology
-
- the endocrine system in pregnancy, growth and development.
-
- genetic predisposition to endocrine gland neoplasia (including MEN1, MEN2, VHL syndromes)
-
- mass lesions within the endocrine glands and their investigation
-
- ectopic hormone secretion syndromes (eg. Neuro Endocrine Tumours, tumour-hypercalcaemia , tumour- osteomalacia, ectopic Cushing's).

6.1.3. Diabetes Mellitus

Extensive practical experience in all aspects of diabetes mellitus and its complications. This includes:

- differentiation between subtypes of diabetes mellitus, reflecting advances in our knowledge of genetic and autoimmune markers
- all the complications of diabetes
- multidisciplinary approach to delivering diabetes foot care
- preconception and antenatal management of type 1 and type 2 diabetes and gestational diabetes
- care of diabetic children and adolescents transitioning into adulthood
- care of the diabetic patient undergoing surgery



- in-patient management of acute diabetes-related emergencies (ketoacidosis, hyperglycaemic hyperosmolar state, severe hypoglycaemia)
- in-patient management of glycaemic control in diabetic patients on intensive care units, those undergoing nasogastric feeding regimes and total parenteral nutrition
- delivery of basic diabetes education, including insulin initiation, blood glucose testing, identification of hypoglycaemia and treatment, nutrition
- basic pharmacology of the drug classes used in the management of diabetes
- insulin pumps
- basic principles of pancreas and islet transplantation surgery, and post-pancreatectomy diabetes
- understanding of the different models of delivery of diabetes care, *i.e.* primary and secondary care
- use of new technologies (*e.g.* smartphone-based continuous blood glucose monitoring) to advance diabetes care and increase patient empowerment.
- fitness to drive different classes of vehicle in relation to diabetes subtype, glycaemic control and complications.

6.1.4 Metabolism and Nutrition

Extensive first-hand practical experience in a range of metabolic and nutritional disorders including:

- fluid and electrolyte disorders
- metabolic bone disease and disorders of calcium homeostasis
- lipid disorders



- obesity, including environmental and genetic influences
- eating disorders and re-feeding syndrome

6.1.5 Laboratory experience and dynamic tests

An understanding of the principles and practice of hormone assay methods and the use of diagnostic tests is essential. Training should therefore ideally include some exposure to endocrine laboratory services. The Endocrinologist should have access to an up-to-date hormone assay service and, if trained to do so, contribute to its management.

Endocrinologists should also understand the growing availability and impact of molecular biology and genetics

6.1.6 Multidisciplinary Team Training (MDT)

This is particularly important (as example) in the following areas:

- reproductive Endocrinology and the endocrine basis of infertility including use of gonadotrophic stimulation therapy and assisted reproduction.
- growth disorders, Disorders of Sexual Differentiation, and
- precocious/delayed puberty (jointly with paediatric Endocrinologists).
- surgical Endocrinology: involvement in pre- and post-operative management of pituitary, adrenal, thyroid/ parathyroid disease and diabetes.
- radioisotopes: diagnostic and therapeutic uses.
- imaging techniques relevant to Endocrinology, including ultrasound-, cross-sectional- and isotope-based- scanning.
- Endocrinology of oncology.
- hormone pharmacology and treatment.

6.1.7 Research Experience



The above training should ideally be supplemented by a period of direct involvement in scientific research into one or more of these areas.

ALL OF THE ABOVE ASSUME THE FOLLOWING

- Evaluating and taking into consideration the difficulty and complexity of the tasks in relation to resources, qualifications, as well as local organization.
- Identifying patients with need for treatment beyond local competencies according to national organization and take initiative to organize transport for these patients.
- Coordinating the multidisciplinary approach of patients and providing cooperation with all relevant partners, with proper respect for their medical competences and roles in specific situations.
- Contribute to the holistic vision of a homogeneous team interaction both with patients and peers, and providing consensual information.
- Medical auditing

Specific attitudes

- Effectively communicate with patients, treat patients with respect of basic ethical principles such as autonomy, privacy, dignity, confidentiality, including discussing end of life decisions
- Establishing effective interaction with patients, including patients with impaired capacity of discernment and consent and their relatives
- Effectively communicate with patients with language barriers
- Effectively communicate with other health care providers
- Team work together with other health care professionals to ensure smooth patient care and safety
- Vigilance and situational awareness
- Respecting legal constraints
- Promoting safety and well-being of staff
- Promoting infection control measures



11. ENDOCRINOLOGY NON-TECHNICAL SKILLS

a. Knowledge

- Psychological aspects of team performance for successful task performance
- Crisis resource management
- Human error research, relevant for the perioperative setting
- Behavioural marker systems, relevant for successful training

b. Clinical skills

- Task management
 - Planning and preparing
 - Prioritizing
 - Providing and maintaining standards
 - Identifying and utilizing resources
 - Ensuring effective joint task completion
- Team working
 - Coordinating activities with team members
 - Exchanging information
 - Effective communication
 - Using authority and assertiveness
 - Assessing capabilities
 - Supporting others
 - Assessing team satisfaction
- Situation Awareness
 - Gathering information
 - Recognizing and understanding
 - Anticipating
- Decision making
 - Identifying options: individual case plans, long-term scheduling plans
Under normal conditions and time-pressure crisis situations
 - Balancing risks and selecting options
 - Re-evaluating
- Leadership
 - Organizing tasks **D**



Expert clinician

As a central role, the one of medical expert states that all endocrinologists must be familiar with device and medical technology, general medicine, including diagnostic and therapeutic methods based on thorough knowledge of applied renal, respiratory, cardiovascular and CNS-associated physiology and pharmacology.

An expert in endocrinology should acquire all necessary competences enabling him/her to fulfil this expert role and function in the multidisciplinary settings in intensive care, critical emergency medicine, OBGYN, peri-surgical care inpatient hospital management.

b) The domain of perioperative medicine comprises the continuum in patient care, starting before the operative procedure and lasting well into the postoperative period; it concerns all patient categories and comprises the following tasks, which practice should be evidence-based:

- Preoperative evaluation and preparation of the patient, appropriate choice and relevant use of preoperative laboratory tests and all other complementary examinations/investigations, as well use of and referral to interdisciplinary consultations when required;
- Preoperative discussion and information of patients,
- Multidisciplinary team (MDT) discussion with both anaesthetist (as appropriate) and surgeon, as best suited to the medical conditions of the patient and to the operative procedure planned (e.g. phaeochromocytoma / carcinoid resection) ;
- Knowledge and appropriate use of clinically relevant devices (e.g. insulin pumps);
- safe and appropriate perioperative clinical management of problems, incidents and complications (e.g. hyponatremia, Hyperglycaemia);
- Appropriate selection of postoperative management and care, including transfer to other specialized surveillance structures such as ICUs (e.g. Post pituitary surgery & risk DI);
- Postoperative fluid management (e.g. Diabetes Insipidus)

c) Other major domains of competences are:



- Intensive care medicine (e.g. DKA infusion protocols)
- Pre- and in-hospital resuscitation and emergency management of critical conditions, including DKA, acute hyponatraemia , pituitary apoplexy , thyroid storm
- Acute and chronic glycaemia management (DM1 & 2)

Professional leader

The specialist in Endocrinology should have competences in communication that enables him/her to deal with different aspects of human interactions and relationships. Furthermore, he/she should have competences that permit effective organization and management tasks to take place during professional activities.

The main aspects are:

- Effective, open empathic and respectful communication with patients and family/relatives
- Effective and professional communication with colleagues and other collaborators to ensure optimal patient care
- Multidisciplinary and inter-professional team working in acute care (operating theatre, intensive care unit, emergency room, labour wards), as well as in the context of protocol implementation
- Effective communication in the setting of multidisciplinary teams in the resolution of conflicts, decision-making skills, giving feed-back, taking and assuming leadership
- Implementation and use of quality assurance programs according to recognized national and international standards
- Implementation and use of local, national and international practice guidelines and standards while complying with national healthcare policies
- Promotion of and participation in better and safer patient care
- Knowledge of administrative, medico-legal, ethical, and economical aspects of endocrinology practice , as well as inpatient and outpatient management principles
- Cost-effective and relevant use of diagnostic, prophylactic and therapeutic means and measures (health economics)



Academic scholar

It is the specialist's responsibility to develop and maintain a high degree of professional competence, to facilitate development of colleagues and other groups of professionals, and to promote development of the specialty itself.

Different aspects comprise:

- Life-long learning and reflective thinking; critical reading and appraisal of up-dated information relevant to clinical Endocrinology as well as inpatient and ambulatory medicine;
- Acquisition of basic tools for teaching (including supervision), skills for research and education presentations, teaching of young colleagues, residents and allied healthcare professionals;
- Contribution to research, development, and implementation/transmission of new medical knowledge as well as auditing;
- Contribution to education of patients, students and healthcare professionals

Inspired humanitarian

The specialist in endocrinology will exhibit irreproachable behaviour and be aware of duties and responsibilities inherent to his/her role as a professional:

- Provision of high quality care with empathy, integrity, honesty and compassion;
- Recognition of one's personal limits and abilities, and appropriate consultation with/ or delegation to others when caring for the patient;
- Medical decision-making based on thorough consideration of ethical aspects in patient care, management of ethical conflicts;



Professionalism and ethics

a. Knowledge

- Principles of medical ethics: autonomy, beneficence, non-maleficence, and justice
- The Geneva Declaration and Helsinki protocol
- Legal principles and medico-legal obligations defining medical practice and the use of patient data
- Governmental regulations relevant for anaesthesia practice
- Principles of communication with patients and physician-patient “contract” including:
 - Rights and responsibilities of patient, doctors and other medical staff
 - Informed consent
 - Patient confidentiality and privacy
 - Error and incidents disclosure
- Principles of communication with colleagues including:
 - Methods (verbal, written, consultation or referral)
 - Manner (courtesy, integrity, respect)
 - Adequate record keeping (including medico-legal implications)
- Personal issues including:
 - Balancing family and work, and the importance of non-professional activities
 - Depression; recognition and care plans
 - Substance abuse; recognition and access to appropriate referral
 - Mentoring and teaching
- Leadership responsibilities and styles; team behaviours
- Stress and crisis management
- Principles underpinning conflict resolution
- Principles of role model
- Principles of teaching and patient empowerment

b. Clinical skills

- Applying principles of medical ethics to problem solving; for example in the following areas:
 - End-of-life and palliative care;
 - Withholding and withdrawing treatment;
 - Jehovah’s witnesses;



- Patient unable to display judgment
- Attaining attributes in the 4 roles of a specialist in Endocrinology: medical expert, leader; scholar; professional
- Applying the principles of evidence-based medicine to clinical practice
- Use of information technology in order to optimize clinical care, conducting literature searches
- Basic appraising journal articles including the interpretation of study design, statistics, results, and conclusions
- Awareness and management according to medico-legal obligations related to medical practice
- Commitment to the main ethical principles and professional values, such as altruism, fidelity, social justice, honour, integrity, and accountability
- Commitment to the rights of patients to autonomy, confidentiality, informed consent, comprehension of the risks of medical techniques (patient-centeredness) irrespectively of race, culture, gender, sexual orientation, and socio-economic status

a. Specific attitudes

- Commitment to lifelong continuing professional education, perpetual refreshment of competencies in reflective learning, and maintaining an inquisitive attitude
- Commitment to responsibility in local ethics committee



– **Patient safety and health economics**

a. Knowledge

- Recommendations of quality of care and patient safety from national, European and international authorities
- Fundamentals in patient safety including:
 - Error-model, system failure
 - The so called Swiss cheese model by James Reason or nowadays the threat and error model
 - Human limitations
 - Stress, fatigue, decision making, fixation errors, prospective memory
 - The role of the teams, hierarchy
 - Safety culture, principles of High Reliability Organizations (HROs), the five common principles of HROs:
 - Preoccupation with failure
 - Reluctance to simplify interpretation
 - Sensitivity to operations
 - Commitment to resilience
 - Deference to expertise
- Tools for quality assurance and error management:
 - Analysing the problem:
 - Reporting systems,
 - Critical incident monitoring,
 - Different methods of event-analysis,
 - Root-cause analysis,
 - London-protocol
 - Tackling the problem:
 - Main topics in safety problems,
 - Medication error (prescribing: wrong drug, wrong dose),
 - Wrong side/site procedures,
 - Hospital acquired infections,
 - Patient-handover
 - Open disclosure communication
- Economic aspects:
 - Demographic data and resource utilization data relevant for anaesthesia practice
 - Basic knowledge on financial aspects of anaesthesia practice



- Basic knowledge on organizational and budgeting aspects of endocrinology practice (Principles of business management)

b. Clinical skills

- Application of standards of quality of care and patient safety in daily practice
- Use of checklists and guidelines
- Providing data for both local and national data systems
- Considering cost-effectiveness

c. Specific attitudes

- Commitment to critical incidents reporting
-

Domain 1.11: Education, Self-directed Learning, Research

a. Knowledge

- Trainees will understand the scientific approach to analysis and solving questions worthy of scientific investigation.
- Information search and literature review
- Proposing a hypothesis; research design, bias and appropriate methods of measurement; data collection and storage; good record keeping
- Common statistical tests and application of statistics relevant to the project; Interpretation of results
- Know and adhere to the content of the Declaration of Helsinki and ICH Guideline for Good Clinical Practice
- Monitoring of studies and post study surveillance
- Copyright and intellectual property
- Responsibilities of Institutional Review Board/independent ethics committee, and of investigator to the ethics committee; ethical principles
- Principles of writing a scientific paper, and of oral or poster presentation of a paper
- Principles of evidence-based medicine (including levels of evidence)
- The process of obtaining funding and writing a basic grant application

b. Clinical skills

- Conducting and appraising literature searches
- Appraising journal articles including the application of statistics
- Applying the principles of evidence-based medicine to clinical practice
- Carrying out oral presentations and professional communication



- Presenting quality assurance exercises or projects
- Developing facilitation skills, such as tutoring in small-group learning and conducting small-group meetings

c. Specific attitudes

- Valuing rigorous educational and scientific processes
- Distinguishing between practice with a sound scientific basis and that which requires further objective assessment
- Committing to informed consent, confidentiality and all other ethical principles of research
- Critical appraisal: to have insight into one's own limitations, abilities and areas of expertise
- Committing to lifelong continuing professional development

Assessment

For each trainee there should be a structured programme supervised by a trainer and all the steps properly documented in a portfolio.

Portfolio

In the portfolio, the trainee keeps a record of all the activities and perspectives related to his/her development.

Data are collected from:

A) Learning experiences: depicting the learning achievements of the trainee

* Logbook summarizing clinical experience, including specific diagnoses and treatments.

* Courses;

* Academic experience, scholarly work, presentations, scientific articles.

* Personal development plan, with regular updates of progress in training, reflective reports and reports of discussions with the tutor.



B) Assessment

Supervision of Training Trainees requires continuing supervision of their clinical duties. In addition, supervision of their training programme and schedule is required to ensure they are making sufficient progress, that milestones are being achieved and that the training curriculum is being covered. Thus the trainee needs both Clinical Supervision and Educational Supervision. One supervisor may undertake both roles or the roles may be undertaken by separate individuals depending on local arrangements. It is advisable, however, that if there is a separate Educational Supervisor, he or she should be a clinician in the specialty team and not be remote from the clinical environment in which the trainee works.

A Clinical Supervisor may be responsible for one trainee and the Educational Supervisor ideally should supervise no more than three trainees. If there is difficulty in recruiting an Educational Supervisor for trainees rotating through a number of Training Centres, the local National Delegate to the European Section and Board of Endocrinology should be contacted to provide advice .

A Clinical Supervisor oversees the trainee's ongoing work and provides constructive feedback. Although all elements of work in training posts must be supervised, as training progresses the trainee should have the opportunity for increasing autonomy, consistent with safe and effective patient care.

An Educational Supervisor oversees the trainee's educational progress in the context of the specialty curriculum. He or she reviews the trainee's logbook or e-logbook, sets goals and provides direction and advice on a regular basis. Educational Supervisors should be familiar with the use of assessment tools, how to support trainees in difficulty and how to give effective feedback including goal setting and career advice. Ideally, Educational Supervisors should have attended a 'Train the Trainers' course. Assessment and Appraisal of Training Educational Supervisors should have an induction session with their trainees soon after enrolment, during which the training programme and curriculum are explained and the means by which the various clinical aspects of training can be completed. . In addition, each trainee should, on a yearly basis,



discuss and document a detailed training plan for the forthcoming year with their Educational Supervisor.

In the first year of specialized Endocrinology training, after common trunk/general medicine training, the trainee will require frequent formal feedback from their Clinical and/or Educational Supervisor up to 2-3 times in that year. Established assessment tools for appraisal of clinical knowledge, skills and professional attributes should be used on an ongoing basis during training, and documentation of these appraisals should be maintained in association with the trainee's logbook. The assessment of clinical skills, especially problem orientated history taking, physical examination, diagnostic decision making ability, appropriate selection of investigations, investigation interpretation and overall clinical judgements, is particularly important. Different workplace assessment instruments may be used in various countries or institutions to document these clinical skills. Workplace assessment of trainee's behaviour and professionalism is normally carried out by patient surveys and feedback from colleagues and other members of the relevant multidisciplinary teams. Assessment of procedural skills, need to be documented by each trainee in conjunction with his/her trainer this is normally performed by direct observation of the trainee's procedural skills.

Appraisal of training progression should be performed formally on a yearly basis jointly by the trainee and Educational Supervisor by reviewing the trainee's logbook and confirming evidence of the attainment of competencies in knowledge, clinical skills and professional attributes and discussing other matters of relevance to completion of training. The appraisal of training before entering into the final year of training is particularly important as deficits in training can be identified and plans made for correction.; for this reason it is advisable that this particular appraisal involves an external/ assessor as well as the usual Educational Supervisor. Governance of Training

The governance of an individual's training program is the responsibility of the Program Director and the institution(s) in which the training program is being delivered. A trainer will be responsible to the Program Director for delivering the required training in this/her area of practice. Training requirements for trainers and a Process for recognition as a trainer will be expected. Trainers will be expected to have achieved the appropriate



nationally recognized qualification to allow them to practice as a specialist/consultant in Endocrinology.

A Program Director would be someone who has been or still is a trainer and who has considerable knowledge and experience in training doctors. Experienced Trainers and Program Directors must be in active clinical practice and engaged in training in the trainingcentre or network. The Director of Training should have at least five years of experience, .post Specialist accreditation. He/she must have a sound practical knowledge of the broad field of endocrinology and must be recognized by the national authority. Likewise, the medical staff acting as educational supervisors should be actively practicing endocrinology and be committed to residency training.

Core competencies for trainers include that the trainer should:

- 1) Know all aspects of the overall endocrinology curriculum and the problems related to its clinical implementation.
- 2) Have experience in teaching theoretical aspects of endocrinological diseases and acquisition of skills in procedures.
- 3) Be familiar with modern medical education principles and receive regular updates in leadership and mentorship.
- 4) Understands the needs of the trainee to achieve the goals of the training programme and helps him/her to progress throughout the training period.
- 5) Be able to promote in his/her mentee scientific curiosity as well as professionalism, ethical behaviours and humanistic values.

Quality management for trainers should show itself to be committed to specialist education and provide appropriate time, space, facilities and funding to protect the needs of education from the demands of service. The members of the faculty should be experienced both as endocrinologists and teachers, committing time, effort and enthusiasm to the training programme. They should regularly attend interdisciplinary meetings with surgeons, pathologists and radiologists. The faculty should be large enough to supervise the clinical and practical work of the trainees. Training requirements for training institutions and the Process for recognition as a training centre Training in Diabetes & Endocrinology should be based in a University department, a University affiliated



institution or in those with an equivalent educational, and/or research programme, with the full complement of Medical, Surgical and diagnostic services commensurate with a University Hospital.

The Training Centre should be housed in quality buildings which are well maintained. The Training Centre must have facilities for inpatients and outpatients and must contain an Diabetes Unit and a Endocrine Clinical Investigation room/laboratory. Satisfactory premises for education are needed with teaching space, library, and contemporary information technology and audio-visual teaching aids. The equipment in the endocrine, surgical, radiological and pathological departments must be of a standard to provide good clinical and education training.

The Endocrine Training Centre should be located in a Hospital or Institution, which also has surgical, intensive care, radiology and access to histopathology, biochemistry, and microbiology and haematology laboratory facilities. The Hospital/Institution should also have a broad array of other medical subspecialty services such as cardiology, pulmonary, gastroenterology, haematology, nephrology, infectious disease and oncology. Rotations- Training Centres and One Centre Training Training Centres may be recognized by The European Section and Board of Endocrinology to be of such quality as to provide sufficient training for the total four-year period of specialty endocrinology training.

However some Units, with high quality endocrine clinical facilities and training, may lack the full complement of training facilities and opportunities. These Units may be recognized by the ESE / EBE as a Rotation Training Centre of sufficient merit such that a Endocrine Trainee will receive sufficient training for either a period of one year or a period of two years. A trainee may therefore fulfil the four-year programme of training by rotating between a numbers of recognized training centres.

Other aspects can include structured feedback from supervisors, colleagues and patients;

E.g. 360 degree feedback, Workplace-based assessments; Knowledge and skills assessments; e.g. exam results where applicable

Above all, we want to inspire our trainee not only to be leaders but to be an inspired humanitarian, and academic scholar.



¹. The present document is an update of the originally agreed version, dating from 1991, known as “The Leuven/Louvain Document” (<http://uems.dk/files/CHAPTER-6.htm>).