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European Training Requirements for Pediatric Surgery

European Standards of Postgraduate Medical Specialist Training

Preamble

The UEMS is a non-governmental organization representing national associations of medical specialists at the European Level. With a current membership of 37 national associations and operating through 43 Specialist Sections and European Boards, the UEMS is committed to promote the free movement of medical specialists across Europe while ensuring the highest level of training which will pave the way to the improvement of quality of care for the benefit of all European citizens. The UEMS areas of expertise notably encompass Continuing Medical Education, Post Graduate Training and Quality Assurance.

It is the UEMS' conviction that the quality of medical care and expertise is directly linked to the quality of training provided to the medical professionals. Therefore, the UEMS committed itself to contribute to the improvement of medical training at the European level through the development of European Standards in the different medical disciplines. No matter where doctors are trained, they should have at least the same core competencies.

In 1994, the UEMS adopted its Charter on Post Graduate Training aiming at providing the recommendations at the European level for good medical training. Made up of six chapters, this Charter set the basis for the European approach in the field of Post Graduate Training. With five chapters being common to all specialties, this Charter provided a sixth chapter, known as "Chapter 6", that each Specialist Section was to complete according to the specific needs of their discipline.

More than 20 years after the introduction of this Charter, the UEMS Specialist Sections and European Boards have continued working on developing these European Standards in Medical training that reflects modern practice and current scientific findings. In doing so, the UEMS Specialist Sections and European Boards did not aimed to supersede the National Authorities' competence in defining the content of postgraduate training is provided across Europe. At the European level, the legal mechanism ensuring the free movement of doctors through the recognition of their qualifications was established back in the 1970s by the European Union. Sectorial Directives were adopted, and one Directive addressed specifically the issue of medical Training at the European level. However, in 2005, the European Commission proposed to the European Parliament and Council to have a unique legal framework for the recognition of the Professional Qualifications to facilitate and improve the mobility of all workers throughout Europe. This Directive 2005/36/EC established the mechanism of automatic mutual recognition of qualifications for medical doctors according to training

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requirements within all Member States; this is based on the length of training in the Specialty and the title of qualification.

Given the long-standing experience of UEMS Specialist Sections and European Boards on the one hand and the European legal framework enabling Medical Specialists and Trainees to move from one country to another on the other hand, the UEMS is uniquely in position to provide specialty-based recommendations. The UEMS values professional competence as habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served. While professional activity is regulated by national law in EU Member States, it is the UEMS understanding that it has to comply with International treaties and UN declarations on Human Rights as well as the WMA International Code of Medical Ethics.

Pediatric Surgery in Europe

The European Training Requirements (ETR) sets out standards and guidelines for Pediatric Surgery (PS) specialty and for the approval of training programs in the countries of EU/EFTA and **associated member states (Armenia, Israel, Serbia, Turkey)**. It is recognized that there is a number of structural and operational differences in the health care systems, appointment procedures and training systems in these different countries. This document provides the basis for the development of a harmonized, comprehensive, structured and balanced training program in PS.

The future of European PS will depend on the quality of training offered to the persons in PS specialist training. Apprentice style training, which has been at the heart of traditional training, is increasingly being threatened by regulation and legislation. Working time directives for both supervisors and trainees are putting increasing pressure on working hours. Moreover, many competing demands further fragment the training opportunities available.

Introduction

Pediatric surgery (PS) encompasses the surgical care of the growing individual: premature infants, newborns, children and adolescents (up to 18 years). PS requires specialized knowledge and practical skills in managing congenital and acquired diseases, and organ trauma and injuries, that require treatment, including management, perioperative care and rehabilitation. Only pediatric surgeons with a specific training may be able to achieve this competence.

It follows that PS is an important aspect of the surgical specialties that requires a broad surgical basis, for which the common surgical trunk is essential in order to get competence in the multiple areas covered by PS.

Patients older than 18 years, with special needs and/or rare diseases, where pediatric surgical expertise exists, could be treated by pediatric surgeons, preferably in collaboration with other specialists. Pediatric surgeons must be involved in the transitional care of pediatric surgical patients.

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All pediatric surgeons and surgeons with a complementary specialization in Pediatric Surgery (Fellowships) are encouraged to join the European Board of Pediatric Surgery, after passing the EBPS examination.

In the EU countries, where Pediatric Surgery is not a full-fledged discipline, pediatric surgical management should be performed by the most experienced surgeon that has been managing these conditions in children. Applicants for training in Pediatric Surgery must possess a medical degree recognized in one of the EU (EFTA) countries. Training institutions or responsible administrative bodies should select and/or appoint trainees suitable for this specialty in accordance to an established and recognized selection procedure. This selection procedure should be transparent and fair and should be open to all candidates fulfilling the criteria.

Goal of ETR for PS specialty

The goal of the training program is to provide the trainee with a broad basic knowledge, the necessary generic surgical and pediatric surgical skills and experience, as well as professional judgement for independent surgical practice. Furthermore, to promote critical evaluation and assessment, the ability of self-directed learning with the aim to achieve clinical expertise, professionalism, excellence in management and communication skills, as well as the ability to interact with other specialties and to conduct or being involved in research and/or critical appraisal of research evidence.

Training requirements for pediatric surgical trainees

The trainee should affirm her/his loyalty to the profession which she/he is about to enter (Paediatric Surgery). She/He should always be mindful of her/his great responsibility to preserve the health and the life of diagnosed and treated children, to retain the confidence and respect of their parents/legal guardians, to perform faithfully her/his professional duties, to employ only those recognized methods of treatment consistent with good judgment and with her/his best skill and ability, always keeping in mind nature's laws and the body's inherent capacity for recovery. She/He should be ever vigilant in aiding in the general welfare of the community, sustaining its laws and institutions, not engaging in those practices which will in any way brings shame or discredit upon her/him -self or her/his profession.

She/He should endeavour to work in accord with her/his colleagues in a spirit of progressive cooperation and never by word or by act cast imputations upon them or their rightful practices.

She/He should act with respect and esteem upon all those who have taught her/him the art. She/He should take care of her/his nontechnical skills, such as: clinical reasoning, appraisal of research evidence, appropriate patient assessment, record keeping, time management, patient safety, infection control, teaching and training, managerial aspects, teamwork, leadership, quality improvement, as well as aspects of probity and ethics.

It needs to be specifically underlined that a holistic vision of pediatric patients and good communication skills are particularly important for pediatric surgery trainees.

Commitment

Trainees must be fit to practice medicine.

Trainees must demonstrate their commitment in an ethical and professional manner.

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They should be dedicated to patient care at the highest standard and participate in all recommended activities.

They must abide by the rules and regulations of the training programs.

Professionalism

The trainee has to maintain integrity towards the patient during all stages of treatment.

The trainee has to exhibit compassion towards the patient and the families.

The trainee should demonstrate moral practice without altruism.

The trainee should be committed to continuous improvement towards patient care.

The trainee should be committed towards excellence.

The trainee should be working in partnership with members of the wider healthcare system including hospital management.

The trainee should be aware of safeguarding issues with children.

The trainee must respect the patient's privacy.

Communication

The trainee should have sufficient linguistic skills to communicate and be aware of international literature.

The trainees must have either sufficient linguistic skills to communicate with the patient and her/his family or through an interpreter if needed.

The trainees must obtain informed consents from patients, patient's parents or legal representatives having explained in detail the operative procedure(s), its benefits and risks involved as well as alternatives through an interpreter if needed.

The trainees must be able to communicate the medical information to patients, parents and relatives in a sensitive and caring manner.

The trainees must demonstrate the ability to document and convey the patient's medical information as well as to discuss these with supervisors and medical staff.

Theoretical knowledge

The field of PS requires specialized knowledge and decision making towards managing of congenital, acquired diseases and injuries as well as perioperative care and rehabilitation of premature infants, newborns, children and adolescents (up to 18 years).

The pediatric surgical trainee must have competent and up to date theoretical knowledge of the core and pediatric surgical subspecialties. This knowledge includes all phases of treatment: diagnosis, management, follow-up care and prevention.

It is recommended to acquire additional knowledge on theoretical aspects of paediatric anesthesia, intensive care, pain management, fetal and neonatal medicine.

This includes knowledge on surgical pathologies of:

- Digestive tract, including hepatobiliary system
- Head and neck
- Respiratory system
- Genitourinary system
- Endocrine system
- Vascular anomalies
- Musculoskeletal system and skin
- Central and peripheral nervous system

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- Cardiac and vascular system

The knowledge of equipment functioning/set up in minimal access surgery, simulators and other technologies (ultrasonography, fluoroscopy, electrosurgical devices etc.) is mandatory.

Training in **appraisal of research evidence** should be very much encouraged throughout training process, since it helps to select most proper and valid information in the critical manner helping the trainee to develop and shape own evidence-based approach.

Practical knowledge

The training program must expose the trainee to a sufficient number of procedures of sufficient diversity and complexity. Trainees must demonstrate competence in a number of areas. The degree of competence will be determined by the supervisor. Simulation/hands on courses should be incorporated in the training program.

The final objective of practical training is to enable trainees to practice PS to a reasonable extent unsupervised after completion of the training.

Practical skills (exposure to different grades of surgical procedure):

- Level 1 Assist any procedure
- Level 2 Perform the procedure under supervision
- Level 3 Being able to perform the procedure independently

Table 1: Minimal numbers to be achieved in 5 to 6 years of training

	Level		
	1 (number)	2 (number)	3 (number)
Core pediatric surgery (including day surgery)			
Basic Newborn surgery (stoma, pyloric ...)	20	20	10
Routine surgery (hernias, hydrocele, biopsies, ...)	20	20	60
Basic urology (UDT, Varicocele, foreskin surgery)	10	20	20
Basic gastrointestinal surgery (appendectomy, stoma formation, gastrostomy, bowel anastomosis, ...)	25	100	25
Basic emergency procedures (chest tubes, emergency laparotomy, central lines, laceration)	15	15	30
Minimal access procedures (Laparoscopy, thoracoscopy, surgical endoscopy, cystoscopy)	25	50	25
	115	225	170
	510		

	Level		
	1 (number)	2 (number)	3 (number)
Pediatric surgical subspecialty			
Advanced newborn surgery (Esophageal atresia, Congenital diaphragmatic hernia,	20	10	5

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duodenal/intestinal atresia, abdominal wall defects)			
Advanced gastrointestinal surgery (Anorectal malformation, Fundoplication, Hirschsprung, hepatobiliary)	30	15	5
Advanced pediatric urology (Pyeloplasty, PUV, Nephrectomy, Re-Implantation, hypospadias)	30	15	5
Pediatric oncologic surgery (Nephroblastoma, Neuroblastoma, Teratoma)	15	5	0
Thoracic surgery (Diaphragmatic plication, Chest wall deformities, lung resections, Sequestrations)	20	5	0
	115	50	15
	180		

	Level		
	1 (number)	2 (number)	3 (number)
If included in the national curriculum			
Musculoskeletal surgery	20	30	20
Reconstructive surgery	20	10	5
Neurosurgery	10	5	0
Selective vascular surgery	10	5	0
	60	50	25
	135		

The number of procedures required is to be considered as minimum and should be weighed against the guidelines of the national training programs.

If the minimum numbers of suggested index (advanced) procedures are not fully met, this can be replaced by comparable index procedures in the same area. It is expected that minimum operative totals of each area are attained.

Competency

Trainees must demonstrate competence in a number of areas. The degree of competence will be finally determined by the supervisor and national regulations should be followed whenever applicable.

The levels of competence should be defined as displayed in table 2a. Entrusted Professional Activity (EPA) concept should be used for this purpose (table 2b).

Table 2a: Levels of competence - definition

Level of competence	Level 1 (Novice)	Level 2 (Advanced beginner)	Level 3 (Competent)	Level 4 (Proficient)	Level 5 (Expert)
Teacher (level of supervision)	Provider	Direct (proactive supervision)	Indirect (reactive supervision)	No supervision needed	Trainee ready to supervise

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Trainee	Cannot be expected to perform without assistance	Performs under full supervision	No need for direct supervision	May perform independently (formal supervision)	Full knowledge and skills
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Table 2b: Levels of competence – requirements for trainees (after 5-6 years training)

	Competency Level				
	L1	L2	L3	L4	L5
Basic Newborn surgery (stoma, pyloric ...)				X	
Routine surgery (hernias, hydrocele, biopsies, ...)					X
Basic urology (UDT, Varicocele, foreskin surgery)					X
Basic gastrointestinal surgery (appendectomy, stoma formation, gastrostomy, bowel anastomosis, ...)				X	
Basic emergency procedures (chest tubes, emergency laparotomy, central lines, laceration)					X
Minimal access procedures (Laparoscopy, thoracoscopy, surgical endoscopy, cystoscopy)			X		
Advanced newborn surgery (Esophageal atresia, Congenital diaphragmatic hernia, duodenal/intestinal atresia, abdominal wall defects)			X		
Advanced gastrointestinal surgery (Anorectal malformation, Fundoplication, Hirschsprung, hepatobiliary)			X		
Advanced pediatric urology (Pyeloplasty, PUV, Nephrectomy, Re-Implantation, hypospadias)			X		
Pediatric oncologic surgery (Nephroblastoma, Neuroblastoma, Teratoma)			X		
Thoracic surgery (Diaphragmatic plication, Chest wall deformities, lung resections, Sequestrations)			X		
Musculoskeletal surgery				X	
Reconstructive surgery			X		
Neurosurgery			X		
Selective vascular surgery			X		

Competency should include also some other aspects (especially at L4 and L5 levels) which are Non-technical Skills e.g. Clinical thinking, Decision-making, Dealing with risk, Dealing with error, etc.

Organization of training

Schedule of training

Training must cover the full range of the specialty and lead to the ability for independent practice on completion of training.

Contents and schedule of training program should be detailed in a written document presented to the trainees at the beginning of the training period and updated annually in relation to the changing educational needs and the specific need of the training program.

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The duration of surgical training in PS should be a minimum of five years.

The training should involve the maximum in-hospital hours/week allowed by the EWTD/National regulations.

The training should be structured as a modular system, with modules inserted or omitted according to the national requirements (e.g. musculo-skeletal trauma, urology, etc.).

The program of training should be planned to maintain an ongoing educational activity, which includes:

Weekly clinical discussions and rounds

Regular program of teaching

Regular journal clubs

Regular clinical and experimental research meetings

Discussions of morbidity and mortality

Educational activity of the trainee should be recorded in the logbook, according to the template provided by the European Board of Pediatric Surgery (EBPS) or by National Regulations.

The logbook lists the cumulative operative totals actually done by the trainee and shows the competence level of each procedure expected at the end of the training. On completion of training the trainee logs their cumulative operative totals and indicates their level of competence.

The trainees are obliged to maintain their logbook of all procedures performed during the training program, which should be regularly assessed by the supervisors. Credit as operating surgeon can be claimed when the trainee has actively participated in competence level 2 and 3.

Assessment and evaluation

Knowledge is assessed by examination of the trainee, at least yearly, through an oral examination, MCQ or similar suitable method; skills are evaluated on the basis of the content in the logbook when the minimal requirements have been attained.

At the end of pediatric surgical training, the Program Director certifies the attainment of:

- Number of procedures
- Adequate competency level
- Assessment report for each year of training

The Degree/Diploma of specialization in Pediatric Surgery will be awarded, according to the national rules, only after final assessment of documented knowledge and competence.

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The role of European Examination as run by the EBPS is complementary to National Examinations. European Examination is a mark of excellence, regardless of its legal value in the view of national legislations and should be sought by every new specialist in PS.

Criteria for Program Director and Supervisor

a) Training Program Director

Program Director appointment is strongly recommended.

The Program Director must have completed the specialist training in PS recognized by their National Authority. It is strongly recommended, that the Program Director is a Fellow of the EBPS.

The Program Director must have practiced at least 5 years after completion of training. The Program Director should provide evidence of their continuing professional development (CPD) in the field of PS.

The Program Director must possess the necessary administrative, teaching, clinical and surgical skills required to conduct the program.

The Program Director must have sufficient protected time for their responsibilities.

A Program Director is responsible:

To follow the ETR and to coordinate the supervisors during the training.

To arrange a balanced training program with established rotations ensuring that the trainee will have complete exposure to all aspects of PS. The program must be clearly defined and available to trainers and trainees.

To ensure that there is dedicated time allocated for training and that the training supervisors are fulfilling their responsibilities to oversee, support and assess the trainees.

To ensure that the individual trainees' documentation (training portfolios) are up to date.

To advise trainees and ensure that they attend appropriate and approved courses.

To provide valid documentation as to the satisfactory completion of training.

To ensure the annual collection and compilation of the number and types of operative procedures performed in the department and also in participating units connected with the training program.

To provide opportunity for research, audit and other educational valid activities such as attending courses, scientific meetings and simulation laboratory.

To provide a yearly and the final report on each trainee.

Criteria for Training Supervisor

The Supervisor is a certified pediatric surgeon.

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The Supervisor has to provide documented teaching experience, in the form of a teaching assignment to a local university or teaching hospital, and/or a research attachment in PS.

Criteria for Additional Training Supervisor

The Additional Supervisor has expertise in particular aspects of PS but does not have to be an accredited Pediatric Surgeon, nor has to hold a university assignment or research affiliation. Their individual teaching competence in the training program is restricted to specific topics.

Responsibilities of training supervisors

To supervise the day to day work of the trainee in the ward, clinic, the operating theatre and during on-call commitments.

To support and assess the trainees' progress at the end of each rotation or training period.

To encourage the trainee to carry out research.

To ensure that there is appropriate balance between service commitment and training.

To ensure that the regular assessments and reports are completed and agreed upon both by the supervisor and the trainee (under the supervision of Program Director).

To keep the Program Director informed of any problems at an early stage.

To manage with the other supervisors under the guidance of the Program Director any inadequacies/deficiencies demonstrated by a trainee.

Periodic assessment of the training program by trainees should be encouraged.

Training Requirements for Training Institutions

a) Requirement on clinical activities

Training must take place in an institution or group of institutions, preferably based in a university hospital or associated with a university, otherwise in a recognized training centre, which together offer the trainee adequate practice in the full range of the specialty as defined in this document.

These Institutions must be formally recognized by their National Authority and can request further recognition by the UEMS Section and Board of Paediatric Surgery through a Site Visit.

Training institutions must include facilities for inpatient care, day care and ambulatory care, and shall be staffed by trained pediatric surgeons working full time (24/7).

Associated specialties must be present to a sufficient extent to provide the trainees the opportunity of developing their skills.

b) Requisites for training institutions

Training institutions must have adequate facilities for:
pediatrics and its subspecialties;
pediatric/neonatal intensive care;
pediatric anesthesia;
pediatric radiology;
laboratory services.

There must be:

Access to international journals and reference books;
Facilities for clinical investigations or experimental research
Education, simulation and research facilities

c) Quality Management within Training Institutions

Among the task of the UEMS is to support national authorities with guidelines on the planning of medical manpower in pediatric surgery.

Trainees' recruitment in the training centers should be subordinated to the results of this planning; in any case the number of trainees present at any time in a training institution cannot exceed its clinical capacity to expose the trainees to the minimal number of procedures detailed in this document.

The training institution must have an internal system of surgical audit / quality assurance including features such as mortality and morbidity conferences and structured incident-reporting procedures.

Furthermore, various hospital activities in the field of quality control such as infection control, patient safety, drugs and therapeutic committees should exist.

Assessment of training centers by the National Monitoring Authority should be conducted in a structured manner.

Certification of a European training center could be done through UEMS site visits and successful centers will be displayed on the UEMS website. Further information www.uemspaedsurg.org