UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES
EUROPEAN UNION OF MEDICAL SPECIALISTS
Association internationale sans but lucratif *International non-profit organisation*
RUE DE L'INDUSTRIE, 24
BE- 1040 BRUSSELS
www.uems.eu
T +32 2 649 51 64
info@uems.eu

European Training Requirements for the Specialty of Emergency Medicine

Preamble

The UEMS is a non-governmental organization representing national associations of medical specialists at the European Level. With a current membership of 34 national associations and operating through 39 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 encompass Continuing Medical Education, Post Graduate Training, and Quality Assurance. UEMS believes that the quality of medical care and expertise is directly linked to the quality of training provided to the medical professionals. Therefore, the UEMS is committed 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 when granted with UEMS certificate/diploma of the European Board Examination in Emergency Medicine (EBEEM).

Following the legal mechanism for ensuring the free movement of doctors within Europe through the recognition of their qualifications established in the 1970s by the European Union, in 2005, the European Commission suggested to the European Parliament and Council that there should be a single legal framework for the recognition of professional qualifications to facilitate and improve the movement of all workers throughout Europe. This directive (Directive 2005/36/EC) defined the mechanism for automatic mutual recognition of qualifications for doctors according to the training requirements within the individual member states; this is based on the length of training in the specialty and the type of qualification.

In 1994, the UEMS adopted its Charter on postgraduate medical training aimed at providing the recommendations to be applied within Europe. The six chapters of this charter set out the basis for a European approach to postgraduate medical training. Chapters 1-5 would be common to all specialties. "Chapter 6" would be completed by each Specialist Section according to the specific needs of each discipline. More than a decade after the introduction of this Charter, the UEMS Specialist Sections and European Boards have continued working on developing these European Standards in Medical training, reflecting modern medical practice and current scientific findings. In doing so, the UEMS Specialist Sections and European Boards aim not to supersede the National Authorities' competence in defining the content of postgraduate training in their own State, but rather to complement them and ensure that standardized high quality training is provided across Europe.

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 for appropriate training requirements. The UEMS values professional competence as "the 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. This document derives from the previous Chapter 6 of the Training Charter and provides definitions of specialist competencies, procedures and relate documentation.

Introduction

Medical practice is constantly evolving as is the nature and delivery of specialist medical training. In response to these changes, the European Training Requirement (ETR) for Emergency Medicine has been reviewed and updated, to remain consistent with current practice and the development of the specialty across Europe. This update is a revised version of the ETR first published in 2019, which itself was an update on the European Core Curriculum first published in 2002.

The process of the ETR update commenced in January 2022 and included an extensive review of the syllabus, clinical practice, and areas of specialist skills within emergency medicine. Extensive consultation was undertaken with the representatives to the UEMS Section and Board for Emergency Medicine (UEMS S&B) as well as the Chairs of the Sections and Working groups of the European Society for Emergency Medicine (EUSEM). A small working group coordinated and delivered the final documents made up of members from UEMS S&B, EUSEM education committee, the exam board for the European Board Examination for Emergency Medicine (EBEEM) and the Young Emergency Medicine doctors group.

Contents

Definition of Emergency Medicine

Emergency Medicine is a medical specialty based on the knowledge and skills required for the prevention, diagnosis, and management of the critical and acute aspects of illness and injury affecting all patients of all age groups. This includes the full spectrum of undifferentiated physical and behavioural disorders. It is a specialty in which time is critical.

The practice of Emergency Medicine extends from pre-hospital care to in-hospital reception, resuscitation, and onward management of undifferentiated emergency cases until discharge from the emergency department or transfer to the care of other physicians.

Emergency physicians care for patients of all ages from the neonate to the elderly with a wide range of pathology from the life threatening to the self-limiting and in all age groups. Patient care includes physical, mental, and social aspects.

The practice of Emergency Medicine includes leadership and mastery of the management of mass casualties and the development of pre-hospital and in-hospital emergency medicine systems.

Emergency Medicine overlaps with many other specialties and Emergency Medicine shares many competences with Anaesthesiology, Critical care, Internal Medicine, Trauma surgeons, paediatricians, general surgeons, radiologists, geriatrics, obstetrics and gynaecology specialist, clinical pharmacologists, and pharmacy as well as with Family Physicians. Within the pre-hospital sphere and emergency departments, emergency physicians function as leader, collaborator and communicator working within multispecialty teams to provide holistic and high quality care for patients.

Emergency Medicine within European healthcare systems

Across Europe there is considerable variation in the structure and delivery of healthcare within the national system. At the heart of all healthcare systems is a need to provide high quality immediate care to citizens with time sensitive conditions through an emergency care system. This ETR provides the framework to train physicians to deliver that care to patients and outlines the core competences required by the emergency physician. Whether a country has a fully established Emergency Medicine training programme or is yet to develop the formal structures around training, this document defines the recommended content and delivery methods.

The ETR working group and UEMS S&B recognise there are individual differences between countries that will impact on the ability to include all stated competences in a training programme. The extensive nature of the syllabus within this document remains the “gold standard” and constitutes the syllabus on which the European specialty examination (EBEEM) is based.

Individual countries may take an incremental approach to the inclusion of these competences and some healthcare systems may currently provide alternative pathways for patients where the Emergency Medicine provision is not comprehensive. The UEMS S&B and EUSEM recommend that all countries work towards ensuring the training and provision of Emergency Medicine meets the standards in this document.

Training in emergency medicine

The content of the syllabus in emergency medicine and the acquisition of the competences required is expected to take a minimum of 5 years of full time experiential learning. It may be possible to demonstrate competence at the required level (as defined by the competence/levels of independence on p6) in a shorter but more intensive time period, and similarly some learners may benefit from a longer period of training.

The document does not explicitly refer to age related differences in physiology, clinical presentation, symptomatology, or disease prevalence but programmes are expected to include and identify age-related aspects of clinical presentation and provide sufficient experience of caring for patients in all age groups throughout residency training. This ETR is a general Emergency Medicine ETR covering the provision of care to patients of all age groups and specifically includes children of all ages.

I. Training Requirements for Trainees

1. Content of training and learning outcomes

a. Competences required of the trainee

An Emergency Medicine Trainee is a doctor who has complete his/her general professional training and completed an initial general training period. The indicative time for this general professional training is usually 2 years full time training after completion of a primary medical degree. This will provide the trainee with the basic skills on which to build their expertise as an emergency physician.

An Emergency medicine trainee at the end of supervised training should be able to:

- Recognise and immediately manage time sensitive conditions including resuscitation and triage.
- Evaluate the signs and symptoms that patients demonstrate when suffering from potentially time sensitive conditions and manage those conditions appropriately.
- Perform specific procedures in appropriate patients.
- Request and interpret appropriate investigations to confirm the suspected diagnosis.
- Evaluate the contribution of different information and evidence regarding a patient and weigh up and make rational decisions about further investigations and treatment, documenting appropriately.
- Collaborate with other specialists, patients, and their families.
- Communicate effectively with a range of professionals, patients, and the public.
- Provide leadership in individual patient care as well as within the multi-specialty team.
- Demonstrate the principles of safety and quality in emergency medicine and recognise, understand, and manage the nature and degree of risk in their clinical practice.
- Promote the health and wellbeing of individual patients and societies in their practise and within the wider healthcare system.

- Teach and support others and demonstrate a personal commitment to lifelong learning.
- Use their academic skills to practise evidence-based care.
- Demonstrate professional behaviours within the workplace.

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These competences **may be applied to patients of all ages, from neonates to older adults. This includes the care of adolescents** (see appendix 3 for MJC adolescent framework).

b. Definition of competence/level of independence

The previous Emergency Medicine ETR refers to the development of competence from "novice" to "expert". Recognising the breadth of the curriculum and the challenge of being an "expert" in all areas, this ETR utilises the concept of developing independence to define the progression of the Trainee and the subsequent levels of competence required at the end of training.

These levels are:

Level	Applied clinical knowledge	Procedural skill
1	Knowledge /awareness of; observer only	Unable to perform, observer only
2	Knows basic concepts- direct supervision and confirmation required	Performs with direct supervision – supervisor present
3	Knows generally, can manage with distant supervision	Performs with distant supervision
4	Knows specifically and broadly, competent to treat with no supervision, knows own capacities and limitations	Performs with no supervision, can supervise others*

* Specific definitions for radiology interpretation

2. Organisation of training

a. Schedule of training

As a primary specialty in Europe recognised by the European Union of Medical Specialists under the European directive – Emergency Medicine training is 5 years in length. Time within this training programme may be spent in other departments including a dedicated children's emergency department as well as in anaesthetics and critical care and acute internal medicine departments. Some training programmes will include time in related specialties including some surgical specialties.

Appropriate clinical contact is required with patients of all ages. There is no defined number of patient contacts required but there must be sufficient cases to ensure exposure to the breadth of the syllabus as well as ensuring each presentation or condition is explored in appropriate depth.

Likewise, there is no defined numbers for each procedure, but national societies or training boards may specify the numbers for a specific training setting.

b. Curriculum of training

The learning environment

The ETR does not replace a national training curriculum but provides a complementary training framework based on European wide educational and clinical experience.

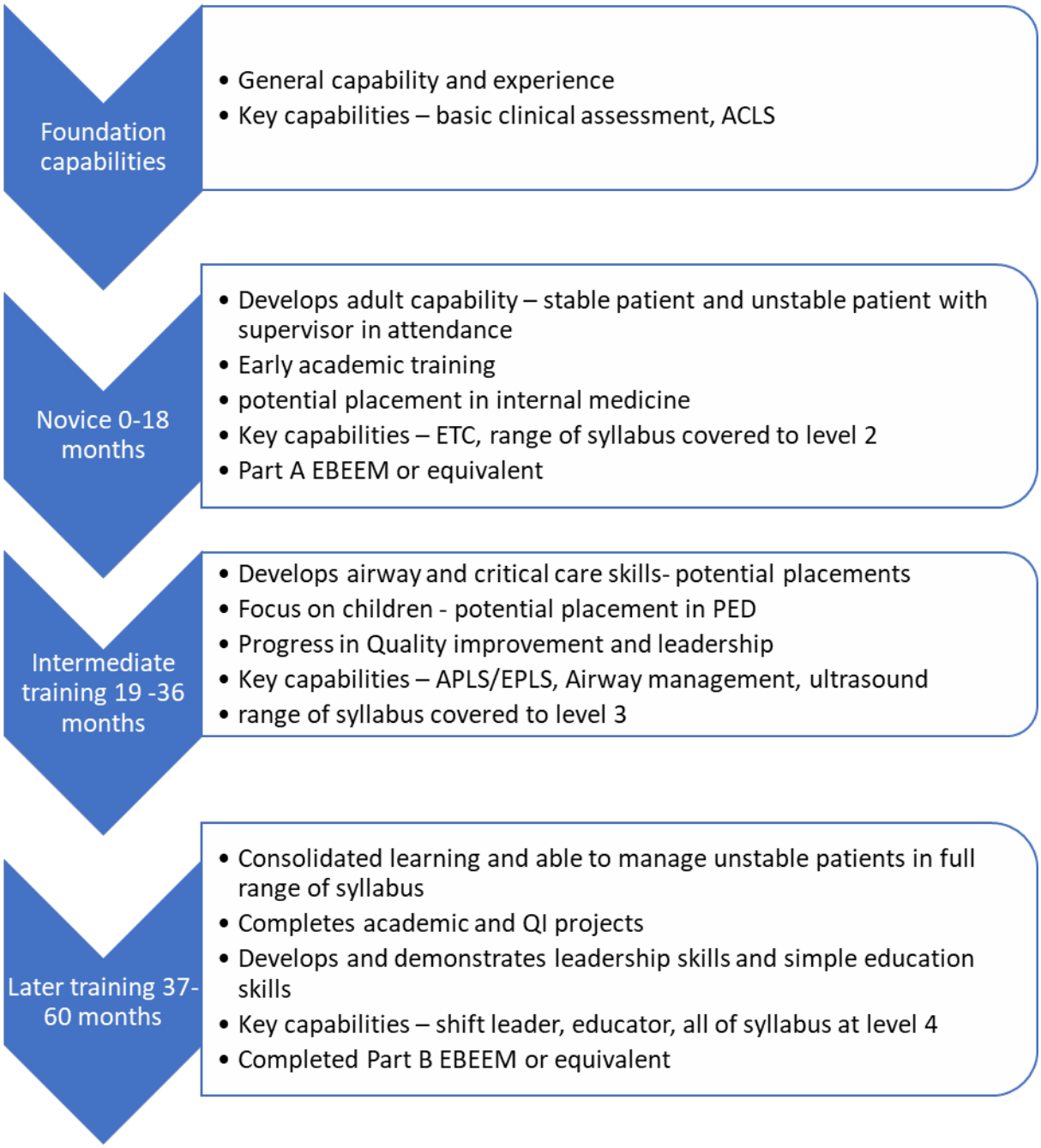
Training and learning in Emergency Medicine naturally occurs predominately in the Emergency department and pre-hospital setting when supervised by trained emergency medicine specialists. However, there are some competences or procedures which may be best learnt initially in a controlled and planned environment. In addition, when establishing competence in clinical reasoning and decision making, it may be useful for trainees to undertake attachments in other hospital settings including anaesthesia, critical care, and internal medicine. The need for these placements in other settings are dependent on the maturity, structure, and case mix of emergency departments.

Placements in other specialties should be planned carefully to allow access to experience that is directly related to the emergency medicine syllabus and specific learning objectives should be set before the placement. Indicative periods for such placements would be between three and six months. It is recommended that in any such placements, ongoing educational supervision from an emergency physician is in place to complement the clinical and educational supervision provided by other specialists.

Stages of training

An indicative training map is provided in figure 1 for illustration of the progression expected. Before entering emergency medicine, it is expected that the doctor will have had a period of basic training which includes consolidation of skills learnt at medical school. This includes general professional competences of eliciting history and examination under difficult circumstances, use of diagnostic tests, development of differential diagnoses and essential therapeutic decision making. Where this basic training is not provided the initial essential novice period may need to be prolonged.

Stages of training – an indicative pathway



Learning opportunities

Learning and training in the emergency department may include a variety of learning opportunities and training methods. The following are recommended modalities:

- bedside teaching,
- regular clinical assessments and focused feedback,
- case presentations and case based discussions,
- simulation for skills and non-technical skills/leadership,
- clinical skills demonstration and workshops,
- critical appraisal and evidence-based medicine and journal clubs,
- self-directed learning based on feedback from trainers,
- blended learning including electronic resources within EUSEM Academy,
- small group tutorials,
- quality improvement and audit presentations, mortality and morbidity meetings, management and leadership skills development,
- supported attendance at mandatory Life Support courses including ACLS, EPALS, ETC or equivalents,
- multispecialty case discussions and presentations,

Recommended courses

The ETR recommends that emergency medicine trainees will attend formal courses to cover:

- Advanced life support
- Major trauma management
- Advanced life support in children
- Management of mass casualties

Whilst there are internationally recognised courses for these topics, there are also suitable national courses which cover the same curriculum as the international courses.

c. Assessment and evaluation

Supervisor meetings

Trainees will meet with their educational supervisor on a regular basis, at a minimum this should occur at the beginning and end of any placement or training year. The function of such meetings is to allow the trainee and their supervisor to reflect on progress made and to define the objectives of the next phase of learning.

The end of year meeting is termed an appraisal meeting and should confirm the trainee is ready to progress to the next phase of training, or in terms of the final meeting – to progress to independent practise.

These objectives should be described in terms of the focus on clinical and procedural skills, topics within the syllabus, and non-technical professional skills. These objectives should be framed in accordance with feedback from other supervisors and colleagues. The trainee should own these learning objectives and hence should draft these before the meeting and a realistic time frame agreed for completion. Documentation of these meetings is critical, to enable reflection and planning and an exemplar form is provided in appendix 1.

Work place based assessments (WBAs)
The ETR framework includes the utilisation of workplace based assessment tools. Examples of these are given in appendix 2. Countries may already have a range of workplace based assessment tools which are appropriate for emergency medicine. The function of such tools is to provide a framework for feedback for the trainee and to allow reflection and setting of actions in response to the observed practice.

Workplace based assessments may be formative or summative, it must be clear to the trainee what the purpose of any assessment is.

Documentation of progression
Trainees should develop a personal portfolio of evidence of progression. This may be electronic in some countries. A portfolio should include:

- Records of appraisal meetings and other educational contact with supervisor,
- Workplace based assessments,
- Log book of experience, clinical cases and procedures,
- Personal reflection on learning,
- Reflection on teaching delivered,
- Personal projects completed (quality improvement, safety, academic, management),
- Personal development plans,
- Certificates of courses,
- Certificates for success in national examinations or EBEEM.

Confirmation of completion of training
The ETR recommends the European Board Examination in Emergency Medicine (EBEEM) as a summative final examination which confirms readiness to work independently as an EM specialist. The EBEEM examination is held twice yearly and consists of two parts – part A and part B. Examiners are recruited from all European countries. The examination is conducted by the Emergency Medicine Reference Group for Europe (EMERGE) a joint committee of the Section for Emergency Medicine and the European Society for Emergency Medicine. The examination is quality assured by the Section on behalf of UEMS.
There are also relevant national examinations for Emergency Medicine in some countries in Europe.
The examination success should complement other appropriate information such as workplace based assessments, records of appraisal meetings and annual progression in determining readiness for independent practice.

d. Governance

The governance of an individual training programme is a matter for the national or local institution in which the training programme is being delivered.
It is recommended that there is a training programme director who has responsibility for the training and that individual trainers and supervisors are responsible for delivering the required training in his/her department.
It is good practice that the training programme directors communicate with each other within a country to ensure consistency of the training delivered and the standards reached.

II. Training requirements for trainers

1. Process for recognition as trainer

a. Required qualification and experience

A trainer is a registered medical practitioner who has the required knowledge and skills in emergency medicine. In countries with an established specialty of emergency medicine, trainers should be recognised as emergency medicine specialists in that country. In countries where the specialty is still evolving, direct and comprehensive experience of independent working in an emergency department for at least 5 years is required before a practitioner can be recognised as an emergency medicine trainer. Trainers provide clinical supervision and assessment in the clinical department and pre-hospital setting. Trainers ensure patient safety is maintained whilst trainees are developing their skills. Trainers may provide educational and clinical supervision for more than one trainee at one time.

An educational supervisor is a trainer who has had additional specific training in mentoring, coaching and assessment and who provides ongoing individual professional development advice to a trainee. Educational supervisors also provide clinical supervision and undertake workplace based assessments. However much of the educational supervision activity occurs out of clinical working time.

Training programme directors are educational supervisors who have considerable knowledge and expertise in training and education and should be recognised by national authorities. Training programme directors must have been practising emergency medicine for at least five years.

Providing training to emergency medicine trainees takes time. Trainers should have this time recognised in their work contracts and it is likely to require at least one hour per week for each trainee supervised by an educational supervisor.

The provision of sufficient clinical supervision is paramount. Clinical supervisors can supervise multiple trainees at one time depending on the experience of those trainees. Educational supervision is more time intensive, and it is recommended that there are a maximum of 4 trainees provided with educational supervision by one educational supervisor.

b. Core competencies for trainers

Trainers must be:

- familiar with the content of the ETR and specifically the syllabus,
- able to practise independently in all areas of the syllabus unless specifically focused on training within one area,
- experienced in teaching and supporting learners,
- skilled in identifying the learning needs of the trainees and able to describe the goals to the trainee,
- familiar with assessment tools and the standard required and be able to give constructive and positive feedback to trainees,

- able to recognise trainees whose progress is unsatisfactory and initiate supportive measures as needed – this includes unsatisfactory professional skills as well as clinical skills,
- able to maintain a positive attitude towards clinical training and be able to create a positive learning environment.

2. Quality management for trainers

The training programme director has responsibility for ensuring the quality of training is maintained. Evaluation of the quality may occur by regular exploration with the trainees (surveys, interviews), requests for feedback and by monitoring the progress of trainees under the trainer's supervision.

An annual review of the contribution of the trainer should be conducted by the training programme responsibility using the evidence detailed above. Support for further development of the educational skills of the trainer should be available through national societies, national institutions and through EUSEM.

III. Training requirements for training institutions

1. Process for recognition as training centre

a. Requirement on staff and clinical activities

Emergency medicine training takes place in a single institution or across a network of institutions. Within a programme there must be sufficient opportunity for trainees to develop their competence across the full range of the defined syllabus. This may mean placements in different emergency departments to focus on specific aspects of clinical competence. Placement in an institution with a particular expertise in academic or quality improvement may be beneficial and within the programme there must be sufficient opportunity to focus on developing the competences in the care of children of all ages.

Most emergency departments suitable for training will see a minimum of 30,000-35,000 new undifferentiated attendances including 7,500-8,000 children under the age of 16. Smaller departments or those which are remote and thus may not receive the full range of clinical cases from the pre-hospital services, will nevertheless provide excellent opportunities for training. However, it is recommended that these smaller hospitals are integrated within a programme which also offers experience in larger departments.

In general, trainees should have contact with children for approximately 20% of their training time in order to gain appropriate general experience in children. This must be for all ages including adolescents and those under five years. A focused period in a children's emergency department will be required if the main training site does not have sufficient children's attendances.

Supporting specialties that should be available 24/7 in the hospital include anaesthetics, critical care, obstetrics, paediatrics, and internal medicine. Where these specialties (and others including surgical specialties) are not available on site, training is still excellent, but trainees must be protected by prompt, readily available supervisor presence, particularly in the early years of training.

An appropriate supervisor should be present for a minimum of 75% of the clinical working hours of the trainee and there must be a supervisor available for immediate advice and/or presence at all times. Remote supervision is only appropriate for senior trainees. Junior trainees may be clinically supervised by appropriately experience senior trainees as part of the senior trainee development.

The ability to provide appropriate clinical supervision depends on the presence of trainers (emergency medicine specialists) and it is recommended that there is at least one recognised trainer to 2 trainees within a department.

A department is expected to undertake quality improvement activity such as audit, mortality and morbidity meetings, performance monitoring and serious adverse incident investigation. In addition, there should be a named trainer responsible for training in scientific methodology including critical appraisal and statistical analysis.

Departments should consider the working environment and conditions and the impact of this on learning opportunities. Emergency Medicine imposes an intense workload on the staff and appropriate time between shifts, rest breaks within a shift and annual leave arrangements must be provided to ensure trainees are able to learn and develop their personal skills.

At commencement of working in a placement there must be appropriate induction including training in the use of clinical equipment if the trainee is unfamiliar.

All emergency departments must have policies in place to safeguard all children, adolescents, and vulnerable adults. These policies should include provisions, where appropriate, for implementing reasonable adjustments to accommodate vulnerable patients.

b. Requirement on equipment, accommodation

Appropriate rest areas within a department and access to refreshments are part of the training environment.

It is anticipated that appropriate training facilities include:

- An emergency department with a resuscitation area, trolley based cubicle area and ambulatory emergency medicine area,
- There must be sufficient desk space for trainees to have access to computers to access the electronic medical record as well as web based decision support materials as needed,

- There must be a quiet area for confidential consultations with patients and their families and carers,
- Appropriate medical equipment must be available to provide care for patients and there must be training in the use of this equipment for trainees when they commence a placement,
- Appropriate monitoring for patients must be available to provide assurance to trainees that their patients are stable.

For specific training opportunities there should be

- Space for private study including access to library facilities (electronic and physical),
- Appropriate teaching facilities including sim and skills labs,
- Support for IT and academic learning including statistical skills development.

2. Quality Management within Training institutions

Accreditation

Emergency departments are encouraged to engage with local, national or UEMS delivered processes for accrediting the training institution, placement and programme. This allows transparent demonstration of quality standard for training and supports trainees and trainers.

Sites are also encouraged to conform to local or national clinical standards, seeking accreditation where possible or relevant.

Clinical Governance

Sites should actively engage with clinical governance including mortality and morbidity sessions, risk management including critical incident reviews and management of complaints and legal cases. This activity is an important part of the syllabus for Emergency Medicine and trainees should be offered the opportunity to participate in these activities.

Manpower planning

There should be appropriate manpower planning for medical and other professions within the department to ensure service needs are met without undue burden on trainees. In order to create an appropriate learning environment, there must be a balance of service provision and learning opportunities. Appropriate manpower planning contributes significantly to this balance.

Transparency of training programmes

Trainees should be provided with a plan of their programme, the anticipated placements, and activities over the 5 years in order to allow them to plan their life. This is particularly important if the trainee is expected to move to another hospital site or city to gain particular experiences. These plans should be flexible and discussed at an annual review. There should be transparency about equity of access for all trainees on a rotation to highly valued/specialist placements.

Structure for coordination of training

Within a training programme, there should be sufficient administrative support to allow appropriate coordination of placements, assessments, local examinations etc where relevant. Oversight of the coordination is the role of the programme director but there should be administrative support for this role. There should be a central committee that oversees the programme with representation from all placements (including those outside EM) and trainees themselves.

Approval of placements

Feedback should be sought from trainees and trainers in relation to the educational value and learning opportunities for each placement. The training committee should consider this feedback as well as the evidence provided from the site on the requirements outlined previously. The purpose of the discussion and review of evidence is to allow transparent decision making about ongoing approval for the placement to be included in a programme.

EUROPEAN SYLLABUS FOR EMERGENCY MEDICINE-VERSION 3.0

1.1 Triage and resuscitation

1 Triage

Emergency physicians must be able to estimate and prioritize the urgency of the patient's need for treatment based on a short assessment and limited information. This process is referred to here as triage.

There are many triage systems in use. Which system is most suitable will depend on the context. Emergency physicians should be able to apply the principles of triage in the Emergency Department as well as in the pre-hospital arena, both during normal circumstances and during mass casualty situations.

2 Resuscitation

Patients of all ages (including preterm new-borns) that are critically ill or injured require immediate management, the focus being on rapidly delivering therapy that decreases morbidity and mortality. This process is referred to here as resuscitation.

Resuscitation combines assessments and interventions geared to identify and normalize abnormal physiological parameters (e.g., hypoxia, hypoglycaemia), as well as identify and initially manage life-threatening conditions in patients presented with acute illnesses or injuries (e.g., anaphylaxis, haemorrhagic shock). The recommended generic resuscitation algorithm follows the ABCDE structure, whereby:

- A refers to Airway and cervical spine, the focus being on ensuring that the upper airway is patent and that the cervical spine of patients with potential unstable fractures is stabilized,
- B refers to Breathing, the focus being on ensuring adequate blood oxygenation and ventilation,
- C refers to Circulation, the focus being on ensuring adequate perfusion and stopping haemorrhage,
- D refers to Disability, the focus being on assessing the patient's level of consciousness, identifying gross focal neurological deficits and treating hypoglycaemia if present,
- E refers to Exposure, the focus being on identifying diagnostic clues from an external examination of the body and treating or preventing hypo- and hyperthermia,

CABCDE – many authorities now advocate a CABCDE approach particularly for major trauma or massive haemorrhage on the basis that the circulatory actions will be the priority in these patients. The approach has its roots in military medicine and includes applications of tourniquet or other immediate action to stop catastrophic haemorrhage.

Depending on the number of personnel involved in the resuscitation, assessments and interventions may be performed sequentially or simultaneously. The assessments and treatments performed during resuscitation will depend on the context and available equipment. When available, judicious use of the following assessments is recommended:

- electrocardiogram
- point-of-care blood tests
- point-of-care ultrasound
- invasive monitoring of vital signs

1.2 Symptoms, signs and situations

Introduction

Within the realm of emergency medicine, patients of all ages present because of symptoms, signs or situations.

- "Symptoms" refer here to subjective complaints such as chest pain.
- "Signs" refer here to objective physical abnormalities (e.g. decreased level of consciousness, fever), abnormal laboratory results (e.g. hyperkalaemia) or other abnormal test findings (e.g. ST-elevation on the EKG).
- "Situations" refer here to circumstances whereby patients are deemed to require prompt assessment (e.g. following trauma, cardiac instability or when poisoning is suspected) or situations requiring a specific/tailored/non-standard response (e.g. simultaneous presentation of multiple emergencies).

With the patient's presenting symptom, sign or situation as starting point, the specialist in emergency medicine should be able to efficiently obtain information needed to:

- initiate immediate therapy if needed,
- estimate the likelihoods of potential time-sensitive conditions, i.e., conditions for which treatment within the scope of minutes to hours impacts on morbidity and mortality.

Emergency physicians are not expected to be able to list an exhaustive differential diagnosis for each symptom, sign or situation. Rather, the emphasis is on mastering approaches that allow for estimating the likelihoods of time-sensitive conditions using bedside information, i.e. information obtained from the history, the physical examination, and point-of-care tests such as the electrocardiogram, common blood tests, point-of-care ultrasound and urinalysis. For example, while chest pain may be caused by many conditions, the specialist in emergency medicine should be able to efficiently acquire the bedside information needed to estimate the likelihoods of time-sensitive conditions such as acute coronary syndrome, acute aortic dissection, and acute pulmonary embolism. Similarly, whilst a rash may be caused by many conditions, in febrile children the possibility of meningococcaemia and toxic shock syndrome must be considered. The local approach needs to take into consideration the local prevalence of time-sensitive conditions. Whilst analysing the information gathered, the emergency physician will be using relevant applied basic sciences evaluate the likelihood of a given condition.

1 Abnormal vital signs	2 Pain	3 Bleeding	4 Other symptoms
Apneoa	Abdominal pain	Bruising/skin bleeding	Atypical illness in frailty
Bradycardia	Anal pain	Epistaxis	Constipation
Bradypnoea	Back pain	Haematemesis	Cough
Hypertension	Chest/thoracic pain	Haematuria	Diarrhoea
Hyperthermia	Dysuria	Haemoptysis	Dizziness/vertigo
Hypotension	Ear pain	Rectal bleeding/melaena	Dysphagia
Hypothermia	Eye pain	Vaginal bleeding	Dyspnoea
Prolonged capillary refill time	Flank pain		Fatigue
Reduced level of consciousness/coma	Headache and facial pain		Fever /chills
Reduced peripheral oxygenation	Joint pain		Light headedness
Tachycardia	Limb pain		Limping child
Tachypneoa	Muscular pain		Nausea/vomiting
	Pelvic pain		Palpitations
	Scrotal pain		Paraesthesia
	Throat pain/odynophagia		Polyuria and oligo/anuria
	Tooth pain		Pruritus
	Vaginal/vulval pain		Seizures
			Transient loss of consciousness
			Vaginal/penile discharge
			Visual disturbances
			Weakness

5 Abnormal physical and mental state findings		
Abdominal	**Dermatological**	**Mental/psychiatric**
Bowel sounds	Bites and stings	Agitation/aggression
Distension	Burns	Confusion/delirium
Masses	Cyanosis	Deliberate self-harm
Organomegaly	Oedema	Suicidality
Rebound pain and guarding	Erythema	
Cardiac	Frostbite	**Neurological**
Abnormal heart sounds	Jaundice	Abnormal movement
Pulmonary	Nail abnormalities including splinter haemorrhage	Muscle tone disturbance
Abnormal breath sounds	Pruritus	Paresis/paralysis
Decreased breath sounds	Rash	Sensory disturbance
Urogenital	Ulcers	Speech disorder
Scrotal swelling	Wounds	**Ophthalmological**
		Nystagmus
		Red eye
		Visual disturbances

6 Situations
Acute functional decline
Agitated/violent patient/relative
Emergencies in the adolescent
Fall in older person
Found lying on the floor, "long lie" patient

Major trauma
Multiple simultaneous emergencies
Palliative /end of life care
Suspected contagious, virulent disease
Suspected poisoning/contamination

1.3 Diagnoses and syndromes

Introduction

Myocardial infarction, pneumonia and heroin overdose are examples of “diagnoses”. The term "syndrome" refers to a combination of symptoms, risk factors, physical findings and test results that together speak for a pathophysiological condition that can be managed in a specific manner, even though the diagnosis is yet unclear. Acute coronary syndrome, sepsis, and opioid toxidrome are examples of syndromes. Diagnoses and syndromes are jointly referred to as "conditions" hereafter.

The conditions are not limited to adults, but includes all diagnoses and syndromes of all ages, including preterm new-borns, and neonates (e.g. meconium aspiration, congenital diseases).

The conditions that are of primary focus in emergency medicine are time-sensitive conditions, i.e. those for which treatment within the scope of minutes to hours impacts on morbidity and mortality. Anaphylaxis, severe hyperkalaemia, and spinal epidural abscess are examples of such conditions. Conditions where prognosis does not hinge on the initiation of targeted therapy within the scope of minutes to days are not of primary focus in emergency medicine. Lung cancer and multiple sclerosis are examples of such conditions.

This section lists key time-sensitive conditions. The section also includes common, benign conditions since ruling-in such conditions can sometimes be sufficient to rule-out time-sensitive ones.

Emergency physicians should:

- initially evaluate, diagnose, and manage patients of all ages,
- know the condition's possible presenting symptoms, signs, and situations,
- know the risk factors for the condition to be able to assess its pre-test probability,
- be able to estimate the likelihood that the patient is suffering from the condition based on the history, physical findings, and point-of-care test results,
- know how to initially manage, within the realm of emergency medicine, patients potentially suffering from these conditions, including being able to estimate the risks and benefits of various investigations and treatments for the individual patient,
- know whom to contact for patient management outside the realm of emergency medicine and how to manage transfer of care.

Non-time-sensitive diagnoses (e.g., systemic lupus erythematous) are deliberately omitted in this section. Emergency physicians are not expected to be able to establish these diagnoses, yet they are expected to know whether suffering from these conditions impacts on the likelihoods of time-sensitive conditions. Neither does this section list established exposures (e.g. overdose with colchicine), since management information regarding established exposures can rapidly be obtained by contacting poison control centres or through on-line resources. Rather, the emphasis is on the recognition and treatment of toxidromes, with the exception of specific unintentional intoxications (e.g. digoxin toxicity resulting from acute kidney injury) and common poisonings (e.g. with alcohol and paracetamol).

1 Cardiac arrest	2 Airway	3 Lung	4 Heart
Cardiac arrest	Anaphylaxis	Acute respiratory distress syndrome	Acute coronary syndromes
	Angioedema	asthma	Acute heart failure syndromes
	Croup	Bronchiolitis	Acute valvular emergencies
	Deep space neck infections	Bronchitis	Arrhythmias – brady, tachy and irregular rhythms
	Epiglottitis	Chronic obstructive pulmonary disorder	Cardiac tamponade
	Foreign body	Empyema	Conduction disturbances
	Pharyngitis, tonsillitis, laryngitis	Haemothorax	Endocarditis
	Tracheitis	Pleural effusion	Myocarditis
	Thermal damage to the upper airway	Pneumomediastinum	Pericarditis
		Pneumonia	
		Pneumothorax	
		Pulmonary oedema	
5 Circulation and vascular	**6 Brain**	**7 Spinal cord and peripheral nervous system**	**8 Eye**
Acute limb ischaemia	Cerebral vein and sinus thrombosis	Cauda equina/conus medullaris	Acute glaucoma
Aortic syndromes	Meningoencephalitis	Discitis	Conjunctivitis

Carotid/vertebral artery dissection	Neuromuscular conditions presenting in emergency	Mononeuropathy	Corneal abrasions
Deep vein thrombosis	Primary headaches	Polyneuropathy	Foreign body
Hypertensive emergencies	Raised intracranial pressure	Radiculopathy	Globe rupture
Pulmonary embolism	Stroke syndromes	Spinal cord syndromes	Herpes zoster ophthalmicus
Ruptured abdominal aortic aneurysm	Subarachnoid haemorrhage	Spinal epidural abscess	Orbital and periorbital cellulitis
Shock: • Hypovolaemic • Cardiogenic • obstructive	Transient global amnesia	Trigeminal neuralgia	
Superior vena cava syndrome	Transient ischaemic attack		
Temporal arteritis	Viral meningitis		
Thrombophlebitis			
9 Ear and nose	**10 Gastrointestinal**	**11 Hepatobiliary and pancreatitis**	**12 Urogenital**
Acute otitis media	Appendicitis	Ascites	Acute kidney injury
Benign paroxysmal positional vertigo	Anorectal syndromes	Biliary colic	Balanitis
Foreign body	Bowel obstruction, small and large bowel	Cholangitis	Bartholin gland abscess
Mastoiditis	Diverticulitis	Cholecystitis	Cystitis
Peritonsillar abscess	Oesophageal rupture	Cysts/pseudocysts	Epididymitis
Vestibular neuritis	Foreign body	Fulminant hepatic failure	Fournier's gangrene
	Gastroenteritis	Hepatic abscess	Hydronephrosis
	Gastrointestinal bleeding, lower and upper	Hepatic encephalopathy	Nephrotic syndrome
	Hernias	Hepatitis	Orchitis
	Hirschsprung's disease	Pancreatitis	Ovarian torsion

	Inflammatory bowel disease	Spontaneous bacterial peritonitis	Ovarian cyst rupture
	Intestinal ischaemia		Paraphimosis
	Intussusception		Pelvic inflammatory disease / tubo-ovarian abscess
	Peptic ulcer disease		Priapism
	Pyloric stenosis		Prostatitis
	Viscous perforation		Pyelonephritis
			Sexually transmitted diseases
			Testicular torsion
			Ureterolithiasis
			Urinary retention
			Vulvovaginitis
13 Obstetric	**14 Musculoskeletal**	**15 Skin and soft tissue**	**16 Haematology and coagulation**
Abruptio placentae	Arthropathy	Abscess	Disseminated intravascular coagulation
Extrauterine pregnancy	Bursitis	Cellulitis	Neutropenic fever
HELLP (haemolysis, elevated liver enzymes, low platelets) syndrome	Compartment syndrome	Erysipelas	Sickle cell crisis
Hyperemesis gravidarum	Discitis	Mastitis	Transfusion reaction
Ovarian hyper-stimulation syndrome after in-vitro fertilisation	Dislocations	Necrotising fasciitis and myositis	
Peripartum cardiomyopathy	Osteomyelitis	Stevens-Johnson syndrome and toxic epidermal necrolysis	

Placenta praevia	Radiculopathy		
Pre-eclampsia and eclampsia	Rhabdomyolysis		
Spontaneous abortion			
Uterine rupture			
17 Metabolism, endocrinology, auto-immune	**18 Infection**	**19 Poisoning**	**20 Psychiatry**
Adrenal crisis	Botulism	Anticholinergic toxidrome	Conversion disorders
Diabetic ketoacidosis	Coronavirus disease 2019 (COVID-19)	Beta-blocker/calcium channel antagonist intoxication	Delusional disorders
Hyperosmolar hyperglycaemic syndrome	Herpes zoster /Chicken pox including complex cases	Cholinergic toxidrome	Mood disorders
Hypoglycaemia	Influenza	Coumarin and NOAC intoxications	Neurotic disorders
Metabolic bone disease including hypo and hyper-calcaemia	Lyme disease and neuroborreliosis	Digoxin intoxication	Personality disorders
Phaeochromocytoma crisis	Malaria	Ethanol intoxication and withdrawal	Substance use disorders
Pituitary apoplexy	Measles	Malignant hyperthermia	
Severe hyperthyroidism	Meningococcaemia	Mushroom poisoning	
Severe hypothyroidism	Mycobacterium/Tuberculosis	Neuroleptic malignant syndrome	
Wernicke's encephalopathy	Rabies	Opioid toxidrome	
	Sepsis	Paracetamol intoxication	
	Tetanus	Salicylate intoxication	
	Toxic shock syndrome	Sedative / hypnotic toxidrome	

		Serotonin syndrome	
		Sympathomimetic toxidrome	
		Sodium channel poisoning	
		Smoke inhalation, in particular carbon monoxide and cyanide poisoning	
		Toxic alcohol ingestion	
21 Trauma	**22 Exposure to external factors**		
Abdominal trauma	Animal or vector injuries including snakes (relevant to country of working)		
Barotrauma	Blast and crush injuries		
Chest trauma	Decompression sickness		
Crush syndrome	Drowning		
Cutaneous and soft tissue trauma	Electricity and lightning injuries		
Facial trauma	High-altitude exposure		
Head trauma	Hyperthermia		
High velocity penetrating trauma (missiles, firearms)	Hypothermia		
Limb trauma	Needle-stick injury		
Neck trauma	Nuclear, biological, chemical, and radiological (NBCR) exposures		
Ophthalmological trauma	Post exposure prophylaxis		
Pelvic trauma			

Polytrauma			
Spinal trauma			
Urogenital and anorectal trauma			
Trauma at extremes of age			
Trauma in pregnancy			

1.4 Procedures and diagnostic tests

Introduction

The ability to perform a procedure (hereafter referred to as "procedural competence") requires:

- knowledge, e.g., regarding the indications and for the procedure and how it is performed,
- psychomotor skills to carry out the procedure correctly and efficiently.

For each procedure, the physician should know:

- its indications and contraindications,
- the steps involved in the performance of the procedure including applied anatomy,
- its potential complications and how to initially manage these,
- post-procedure management.

When a procedure requires pharmacotherapy, the physician should know the indications, contraindications, interactions, side-effects and dosages of the relevant medications.

An emergency physician may struggle to acquire and maintain the psychomotor skills required to perform procedures that are rarely or never performed by the physician in his/her workplace. Such may be the case when:

- the procedure is seldom indicated (e.g., cricothyrotomy),
- the procedure is futile (e.g., resuscitative thoracotomy in a setting where access to an operating theatre for further care is unavailable),
- the equipment required to perform the procedure or diagnostic test is unavailable (e.g., transvaginal ultrasound in a setting lacking a vaginal ultrasound probe),
- the procedure is not carried out in the physician's workplace (e.g., delivery in a setting where women in labour do not present to the emergency department),
- the procedure is carried out by other specialists (e.g., rapid sequence intubation in a setting

where this procedure is performed by anaesthesiologists),

Notwithstanding the above, the competences required to perform certain procedures are sufficiently crucial to the initial management of critically ill patients that they qualify as "core" in emergency medicine. If core procedures are not regularly performed by emergency physicians, the local emergency medicine program should provide regular training with models, refresher courses and/or clinical exposure to these procedures in other settings to ensure that emergency physicians acquire and maintain a sufficient competence level (see Section 3–Requirements for Training Programs).

The competences required to perform procedures may instead be described as "aspirational." These competences are within the scope of emergency medicine and valuable for emergency physicians to master. While knowledge pertaining to these procedures (e.g., indications, steps, complications) may be expected from all specialists in emergency medicine, the psychomotor skills required to perform them are not. These are expected to be at level 3 of the levels described below.

Whether the emergency physician ought to perform a procedure or not hinges on multiple factors. The competence of any given physician to perform a given procedure lies on a spectrum ranging from observer to independent competence. The degree of difficulty to perform a given procedure in a clinical context lies on a spectrum as well, depending on patient characteristics and clinical setting. The risks and benefits for the patient of different management strategies depend on the condition's acuity, the patient's comorbidities and medications, the expected clinical courses, and the availability of local expertise and equipment. Judicious decision-making regarding procedure performance includes recognizing circumstances when it is in the patient's interest to have the procedure performed by someone with greater competence, or not at all.

Levels of independence expected from EM trainee

Level	**Procedural skill**
1	Unable to perform, observer only
2	Performs with direct supervision – supervisor present
3	Performs with distant supervision
4	Performs with no supervision, can supervise others

Regarding the diagnostic tests listed below, the physician should:

- know their approximate sensitivities and specificities for time-sensitive conditions,
- know the potential complications of invasive diagnostic procedures and exposure to ionizing radiation,
- be able to systematically interpret their results as appropriate,
- have an approach to the initial management of the patient with the abnormal test result.

Regarding point-of-care ultrasound, the pathological entities that a specialist in emergency medicine should be able to **identify to enable immediate care to be initiated** are listed below. The point of

care ultrasound is not expected to be a comprehensive examination. The interpretation is not expected to be at the formal diagnostic standard that will be provided by radiology specialists and wherever possible the emergency physician will wait for the formal report.

Procedure	Specific procedure	Level at early years training	Level at completion of training	Level if focused training available(aspirational)
Cardiopulmonary Resuscitation	Chest compressions and ventilation	2	4	
	Defibrillation	2	4	
	Open chest cardiopulmonary resuscitation	1	2	
	Point-of-care ultrasonography during cardiac arrest	1	3	4
	Resuscitative hysterotomy/Perimortem Caesarean section	1	2	4
	Resuscitative thoracotomy	1	2	4
Airway	Basic airway opening manoeuvres	2	4	
	Cricothyrotomy	2	4	
	Endotracheal intubation	2	4	
	Fibreoptic examination of the upper airway	1	3	4
	Needle cricothyrotomy and jet insufflation	1	4	
	Oropharyngeal and nasopharyngeal airway insertion	2	4	
	Rapid sequence intubation	1	4	
	Supraglottic devices	1	4	
	Tracheostomy replacement	1	3	4

Breathing	Bag-valve-mask ventilation	2	4	
	Blood gas analysis	2	4	
	Capnography	1	4	
	Chest tube insertion	1	4	
	Finger/needle thoracostomy	1	4	
	Invasive (mechanical) ventilation	1	3	4
	Non-invasive ventilation including CPAP and BiPAP	1	4	
	Oxygen therapy	4	4	
	Peak expiratory flow measurement	3	4	
	Pulse oximetry	4	4	
	Thoracocentesis	1	4	
Circulation	Arterial line placement and sampling	1	4	
	Blood product therapy	2	4	
	Cardioversion (electrical/pharmacological)	2	4	
	Central venous access	1	4	
	Control of active bleeding	2	4	
	EKG recording and interpretation	3	4	
	Fluid therapy	3	4	
	Intraosseous access	2	4	
	Pericardiocentesis	2	3	4
	Peripheral venous catheterization	4	4	
	TEG/ROTEM	1	3	4
	Transcutaneous pacing	1	4	
	Use of infusion devices for vasoactive drugs	1	4	
Disability	Neurological examination	3	4	

	Fundoscopy	2	4	
	Lumbar puncture and cerebrospinal fluid pressure measurement	1	3	4
Exposure	Body temperature assessment	2	4	
	Cervical spine clearance	2	4	
	Cooling techniques	1	3	4
	Decontamination	1	4	
	Escharotomy	1	3	4
	Log roll, transfer and spine immobilisation	2	4	
	Identification and management of suspected contagious virulent disease	1	4	
	Warming techniques	1	4	
	Isolation	3	4	
Analgesia and procedural sedation	Local and topical anaesthesia	1	4	
	Regional anaesthesia	1	3	4
	Procedural sedation and analgesia	1	4	
Musculoskeletal	Arthrocentesis	1	4	
	Fracture reduction	1	4	
	Joint examination	2	4	
	Joint reduction	1	4	
	Limb immobilisation	2	4	
	Pelvic binder application	2	4	
	Compartment pressure measurement	1	3	4
	Fasciotomy	1	3	4

Wound	Major burn wound management including immediate management and triage to burns centre,	1	4	
	Minor burn management	1	4	
	Incision and drainage	1	4	
	Nail bed repair	1	4	
	Peripheral neurovascular examination	2	4	
	Wound exploration, cleaning, irrigation, debridement, closure	2	4	
Ear nose and throat	Anterior rhinoscopy using nasal speculum	1	4	
	Dix-Hallpike and Epley's manoeuvres	1	4	
	Foreign body (nasal, aural and laryngeal) removal	1	4	
	Head impulse test and test of skew	1	4	
	Nasal cautery	1	4	
	Nasal pack insertion (anterior and posterior packing)	1	4	
	Peritonsillar abscess aspiration or incision/drainage	1	4	
	Oropharynx and larynx inspection direct or with fibreoptic	1	4	
	Otoscopy	1	4	
Ophthalmic	Corneal foreign body removal	1	4	
	Eye irrigation	1	4	
	Eye pad or shield application	2	4	
	Lateral canthotomy	1	4	
	Slit lamp examination	1	3	4
	Tonometry	1	3	4
Oral and Maxillofacial	Haemostasis following dental extraction	1	3	4

	Temporomandibular joint reduction	1	4	
	Temporary stabilisation of injured tooth	1	3	4
Gastrointestinal	Abdominal paracentesis or drain insertion	1	4	
	Gastric lavage	1	4	
	Hernia reduction	1	4	
	Management of dislodged percutaneous endoscopic gastrostomy tube	1	4	
	Nasogastric or orogastric tube insertion	1	4	
	Removal of rectal foreign body	1	4	
Genitourinary	Urethral catheter placement and patency evaluation	2	4	
	Reduction of Paraphimosis	1	3	4
	Suprapubic cystostomy	1	4	
	Testicular torsion reduction	1	3	4
Obstetric and Gynaecological	Vaginal examination using speculum	1	4	
	Measurement of foetal heart rate	1	4	
	Emergency delivery: Normal delivery Shoulder dystocia Breech	1	4	
	Removal of products of conception from cervical os	1	4	
	Removing vaginal foreign body	1	4	
Psychiatric	Assessment of suicidal ideation	1	4	
	Chemical/physical restraints in accordance with national laws	1	4	
	Mental status examination	2	4	

Transport and transfer	Basic communication modalities and protocols	1	4	
	Monitoring and treatment during transfer/transportation/retrieval	1	4	
Point of care ultrasound -core competences				
Technical knowledge and skills	Transducers, modes, planes, artefacts Orientation and semiotics Probe movements Storage and documentation Safety and material management	1	4	
Focused cardiac ultrasound:	Basic cardiac views Left ventricular function – visual assessment Right ventricular size, dilation and function – visual assessment Inferior vena cava size and collapsibility Pericardial fluid/tamponade	1	4	
Lung ultrasound:	Interstitial syndromes Pleural fluid Pneumothorax Pulmonary consolidation Lung oedema	1	4	
Abdominal ultrasound:	Abdominal and iliac aorta measurement Gallbladder and gallbladder wall assessment Acute cholecystitis Distended urinary bladder Quantitative bladder volume assessment	1	4	

	Free intraperitoneal fluid including in ectopic Gallstones Hydronephrosis Recognise sonographic appearance and location of other organs Recognise intra-uterine pregnancy Fetal heart in 2nd and 3rd trimester			
Soft-tissue ultrasound:	Confirmation of Fluid collection/abscess Air in necrotising fasciitis	1	4	
Proximal DVT	Proximal deep venous thrombosis- lower extremity 2 point compression	1	4	
Ultrasound-guided procedures:	Femoral nerve block for fracture Peripheral intravenous line placement Central venous line placement Pericardiocentesis Femoral nerve block	1	4	
Musculoskeletal ultrasound:	Confirmation of effusion in knee	1	4	
Trauma near patient ultrasound	Trauma - Systematic rapid identification of life threatening injuries (specified within other sections) in order to triage for theatre, interventional radiology or observation	1	4	
Point of care ultrasound – aspirational competences – to be developed depending on availability of equipment and trainers				
Abdominal ultrasound:	Confirmation of Intrauterine pregnancy Small bowel obstruction			
Soft-tissue ultrasound:	Cellulitis			

	Foreign body Free air in necrotising fasciitis	
Ultrasound-guided procedures:	Other nerve blocks Scalene – paravertebral Pericardiocentesis Peripheral/central vascular access Suprapubic bladder catheterisation	
Musculoskeletal ultrasound:	Fracture Dislocation Joint effusion Tendon injury	
Obstetric ultrasound:	Presence of a living embryo/foetus Position of the foetus Position of the placenta Presence of multiple pregnancies	
Ocular ultrasound:	Globe rupture Intraocular foreign body Retinal detachment Elevated intracranial pressure Eye movement Vitreous haemorrhage Pupillary reflex	

Radiology – independence levels

Regarding radiology, the pathological entities that a specialist in emergency medicine should be able to **identify to enable immediate care to be initiated** are listed below. The interpretation is not

expected to be at the formal diagnostic standard that will be provided by radiology specialists and wherever possible the emergency physician will wait for the formal report.

Levels of independence expected from EM trainee for plain radiography:

Level	**Procedural skill**
1	Unable to interpret , observer only
2	Interprets under direct supervision – can recognise normal – supervisor present
3	Interprets with distant supervision – can act on results to make referrals
4	Knows when to request radiology advice and awaits report where relevant, makes an initial interpretation and acts to take action where diagnoses are ruled in, providing supervision for others where appropriate

Diagnostic area and imaging modality	Rule in diagnoses	Level at early years training	Level at completion of training	Level if focused training available(aspirational)
Plain films				
Abdominal	Bowel obstruction	1	3	4
	Free air under the diaphragm	1	3	4
	Gastric dilatation	1	3	4
	Position of nasogastric tube	1	3	4
	Radio-opaque foreign bodies	1	3	4
	Renal calculus	1	3	4
	Volvulus	1	3	4
Cervical spine	Epiglottic swelling	1	4	4
	Facet joint dislocation	1	4	

	Jefferson fracture	1	4	
	Peg fracture	1	4	
	Radio-opaque foreign body in airway	1	4	
	Surgical emphysema	1	4	
	Vertebral fracture	1	4	
	Widened pre-vertebral space	1	4	
Extremities	Arthritis including degenerative, psoriatic and rheumatoid	1	4	
	Artificial joint – infection/loosening	1	4	
	Dislocations	1	4	
	Foreign bodies	1	4	
	Fractures and their configuration including pathological fractures	1	4	
	Lipo-haemarthrosis (elbow, knee)	1	4	
	Lytic and sclerotic lesions recognition and likely cause	1	4	
	Osteomyelitis	1	4	
	Soft tissue swelling	1	4	
	Stress fractures	1	4	
Pelvic	Foreign bodies	1	4	
	Fractures	1	4	
Thoracolumbar spine	Facet joint dislocation	1	4	
	Lytic and sclerotic lesions recognition and likely cause	1	4	
	Vertebral fracture	1	4	
	Widened pre-vertebral space	1	4	
Chest	Chest wall fracture- change to rib or sternal fracture	1	4	

	Mass lesion	1	4	
	Mediastinal widening	1	4	
	Pleural effusion	1	4	
	Pneumonia	1	4	
	Pneumothorax	1	4	
	Pulmonary edema	1	4	
	Subdiaphragmatic air	1	4	
	Surgical emphysema	1	4	

Levels of independence expected from EM trainee for US, CT and MRI:

Level	**Procedural skill**
1	Unable to interpret , observer only
2	Interprets under direct supervision – can recognise normal – supervisor present
3	Interprets with distant supervision – can act on results to make referrals
4	Able to make an initial interpretation, seeks help from radiology colleagues at the time of imaging, takes immediate action where time critical diagnoses are identified to enable rapid intervention, acts on radiology reports to discharge. Knows when to request radiology advice for interpretation

Computerised tomography				
Head	Haemorrhage	1	4	
	Hydrocephalus	1	3	
	Ischemia	1	4	
	Mass effect	1	4	
	Raised intracranial pressure	1	4	

	Skull fracture	1	4	
Facial bones/orbits	Fracture	1	4	
	Orbital entrapment	1	4	
	Sinusitis	1	3	4
CT thorax (with/without contrast)	Effusion or consolidation	1	4	
	Fracture	1	4	
	Infiltrative process	1	4	
	Lung consolidation	1	4	
	Major vessel aneurysm, dissection,	1	4	
	Pleural fluid	1	4	
	Pneumothorax/haemothorax	1	4	
Spine	Disc prolapse	1	4	
	Fracture	1	4	
Kidneys-urinary tract-bladder	Calculus	1	4	
	Signs of obstruction	1	4	
Abdomen/pelvis	Organ perforation/laceration	1	4	
	Inflammatory process	1	3	4
	Major vessel aneurysm, dissection	1	4	
	Mass lesion	1	4	
CT angiogram	Aortic dissection	1	4	
	Aortic aneurysm and leak	1	4	
	Extra-cranial arterial occlusion	1	4	

	Major organ disruption /haemorrhage	1	3	4
	Pulmonary embolism	1	4	
MRI- knowledge of indications and benefits in special circumstances	Inflammatory conditions	1	3	4
	Neurological conditions spinal and cerebral	1	3	4

Laboratory test and fluid analysis

Abnormality type	Conditions to be recognised	Level at early years training	Level at completion of training	Level if focused training available(aspirational)
Electrolyte disturbances	Hyper-/hypocalcaemia Hyper-/hypokalaemia Hyper-/hypomagnesaemia Hyper-/hyponatraemia	1	4	
Haematological disturbances	Anaemia Abnormal clotting including pharmaceutical related Leukocytosis Leukopenia Methaemoglobinaemia	1	4	

	Polycythaemia Thrombocytopenia Thrombocytosis			
Liver and pancreas test disturbances	Abnormal liver enzymes Abnormal liver synthesis Elevated amylase/lipase Elevated bilirubin	1	4	
Metabolic and respiratory disturbances	Abnormal anion gap Elevated lactate Hyper-/hypocapnia Hyper-/hypoglycaemia Hypoxia Hyperammonaemia Metabolic acidosis Metabolic alkalosis Respiratory acidosis Respiratory alkalosis	1	4	
Other test results	Abnormal Procalcitonin Abnormal urinalysis results Cerebrospinal fluid-analysis Elevated C-reactive protein or erythrocyte sedimentation rate Elevated creatinine/urea Elevated creatine kinase/myoglobin Elevated d-dimer Elevated INR Elevated troponin	1	4	

	Elevated BNP/NT pro BNP Synovial fluid analysis			

1.5 Clinical reasoning and decision making

Introduction

Following the acquisition of bedside information and the assessment of the likelihoods of time-sensitive conditions, emergency physicians need to decide on disposition, e.g. which further tests and treatments are in the patient's interest, and whether these tests and treatments can be delivered out-of-hospital /in the community or whether the patient requires hospital admission. Emergency physicians will use relevant applied basic sciences during the evaluation of the patient and decisions for further tests and required treatments.

These decisions are based not only on the likelihoods of conditions but also on the risks and benefits of investigations and treatments for the individual patient, taking into consideration the patient's comorbidities, wishes, values, social circumstances, and functional ability among others. While making these decisions, emergency physicians should bear in mind their responsibility to the population as a whole and the limitations of health care resources.

The emergency physician should be aware of how certain patient characteristics, comorbidities, and specific situations impact on decision-making. These specific situations are listed below.

Specific Situations

Cancer patient
Congenital and chronic diseases in children
Dementia
Drug-seeking patient
Frailty
Frequent visitors
Homeless patient
Immunocompromised patient
Low-income patient
Migrant
Neonate
Palliative/end-of-life care
Patient following return of spontaneous circulation
Polypharmacy
Potential organ donor

Pregnancy
Suspected/confirmed abuse/neglect

1.6 Professional competences (based on CANMEDS)

Emergency physicians are:

Medical experts who

- Apply basic science and clinical knowledge to provide excellent safe care to patients.
- Ensure their care is patient centred involving the patient, their family and carers, in planning that care adapting treatment according to patient need.
- Prioritise and deliver procedures and therapies for individual patients to ensure rapid improvement in health.
- Consult with other specialists and professions to ensure appropriate management of the patient and their ongoing care.
- Ensure a culture of safety is created and maintained within the department.
- Identify and provide appropriate support to vulnerable patients (including children, adolescents and adults) who – due to any number of reasons - may be unable to take care of themselves, or unable to protect themselves against significant harm or exploitation.

Collaborators who

- Work closely with other relevant specialists in delivering care to individual patients and in developing systems of care where emergency medicine is central in emergency care delivery.
- Ensure safe handover of patients to inpatient specialties or to their primary care provider.
- Work closely with the hospital administration team and other non clinicians.
- Work with and take handover from the pre-hospital personnel.

Communicators who

- Ensure their communication with patients is adapted to the patient needs particularly if there are language, ethnic, social or cultural issues or patient physical and mental needs that need adapting.
- Can communicate distressing information to patients and their relatives with empathy and clarity.
- Can demonstrate skills for managing and de-escalating conflict situations.
- Understand the legal and ethical boundaries of sharing information with patients, healthcare professionals and other interested parties.
- Utilise health records in a variety of different formats to contribute to the best care for patients utilising technology to reduce duplication and maximise sharing of information to the benefit of patients.
- Understand and manage communications with the press and other external agencies to best promote the specialty and public health interest.

Leaders who

- Can lead an individual patient resuscitation, a shift or a departmental team.
- Can contribute to the healthcare system including prehospital setting.
- Can understand the importance of, and limitations of, quality standards in emergency medicine.
- Can understand and apply the principles of quality improvement to optimise the healthcare delivery to patients in the ED facilitating the introduction of change and using appropriate validated tools.
- Utilise data on activity, performance and workforce to ensure continuous improvement in both service and clinical care delivery.
- Contribute to a culture that promotes patient safety within the emergency department
- Understand the importance of staff wellbeing, and as leaders can contribute positively to this within their teams.
- Analyse and take action on serious incidents and take action where there are other indicators that care has been unsatisfactory.
- Share information relating to patient safety incidents including actions taken in an accurate and appropriate manner and supporting staff involved in such incidents.
- Use health informatics to improve the quality of patient care and optimize patient safety.
- Understands and uses opportunities in digital medicine, such as an electronic patient record, digital decision aids etc., and uses them appropriately for patient treatment based on current evidence.
- Promote and use guidelines to support safe and quality care within the department.
- Contribute to quality improvement forums, including mortality and morbidity conferences.
- Engage with medicolegal and other patient related enquiries into care.
- Utilise healthcare resources appropriately to maximise the benefit to individual patients and populations.
- Understand the principles of, and Input into, planning for mass casualty, major incidents and disasters.
- Have essential knowledge of humanitarian relief/disaster management.
- Lead the debrief for events in the department such as major resuscitations or other demanding events such as major incidents.
- Identify and support colleagues in difficulty whether from clinical competence or personal health and other issues.

Advocates who

- Promote and petition for equitable emergency healthcare for all regardless of age, sex, gender, race, religion, disability and country of residence.
- Ensure the needs of their patients are considered including those who have experienced a violence of any kind.
- Respond and advocate for appropriate healthcare for specific groups including but not limited to patients requiring end of life care, transient populations, and those with alcohol or drug misuse.
- Advocate for system change and specialty development with governments and relevant legal entities.

Scholars who

- Continue to develop their clinical and professional skills.
- Develop other practitioners through expert education and supervision.
- Integrate the best available evidence into their practice of Emergency Medicine.
- Contribute to the creation and dissemination of new and existing knowledge and practice of emergency medicine.
- Understand and apply critical appraisal skills to the published literature and how this affects clinical practice including evaluation of statistical data.

Professionals who

- Understand, apply and work within the legal framework in their country of employment including management of vulnerable patients and information sharing.
- Understand, apply and work according to the ethical principles accepted by their profession and international conventions.
- Demonstrate appropriate professional behaviours as defined by their medical registration authority including self regulation.

Appendix 1 – Educational supervision record

Name of trainee **Year of training**

Date of disucssion

Placement location **Date of start of placement**

Educational supervisor name:

Progress in post – what has gone well
Any challenges and what has been done to overcome them
Curriculum cover – any issues or gaps
Learning objectives for next 12 months (SMART) Date for next meeting:

Appendix 2 – workplace based assessments

Mini clinical evaluation exercise MINICEX

Name of trainee	**Year of training**
Placement location	**placement specialty**
Assessor name	**assessor specialty**

Date of assessement

Case description
What did the trainee do well?

What are the plans for further practice/personal development in this matter?

What supervision does this trainee need in future in similar cases?

Level	Applied clinical knowledge
1	Knowledge /awareness of, observer only
2	Knows basic concepts- direct supervision and confirmation required
3	Knows generally, can manage with distant supervision
4	Knows specifically and broadly, competent to treat with no supervision, knows own capacities and limitations

DOPS

Name of trainee **Year of training**

Placement location **placement specialty**

Assessor name **assessor specialty**

Date of assessment

Case description – procedure
What did the trainee do well?
What are the plans for further practice/personal development in this matter?
What supervision does this trainee need in future for this procedure?

These levels are:

Level	Procedural skill
1	Unable to perform, observer only
2	Performs with direct supervision – supervisor present
3	Performs with distant supervision
4	Performs with no supervision, can supervise others

Case based discussion

Name of trainee **Year of training**

Placement location **placement specialty**

Assessor name **assessor specialty**

Date of assessment

Case description

What did the trainee do well?

What are the plans for further practice/personal development in this matter?

What supervision does this trainee need in future in similar cases?

Level	Applied clinical knowledge
1	Knowledge /awareness of, observer only
2	Knows basic concepts- direct supervision and confirmation required
3	Knows generally, can manage with distant supervision
4	Knows specifically and broadly, competent to treat with no supervision, knows own capacities and limitations

Faculty statement

Name of trainee **Year of training**

Placement location **placement specialty**

Date of discussion

Trainers present at discussion

What are the trainee strengths?

What is the recommendation of the faculty for this trainee- what are the learning objectives

What supervision does this trainee need in the department?

Level	Applied clinical knowledge
1	Knowledge /awareness of, observer only
2	Knows basic concepts- direct supervision and confirmation required
3	Knows generally, can manage with distant supervision
4	Knows specifically and broadly, competent to treat with no supervision, knows own capacities and limitations

Appendix 3- training objectives for UEMS specialist pertaining to the case of adolescents and young adults (AYAs).

The primary health care provider or specialist initiates and conducts the consultation with an AYA patient in a developmentally appropriate way (considering the patient's puberty, age as well as cognitive & affective level)

- Offers a setting that respects privacy and guarantees a trustful, empathetic and respectful relationship with the patient,
- Explains confidentiality and makes sure to get time alone with the patient for an appropriate part of the consultation. Agrees with the AYA what to disclose or not to disclose to the parent/guardians by the end of the consultation,
- Uses developmentally appropriate communication skills: adapts language and wording to the age/cognition, verifies that the patient understands the information,
- Clarifies the reason for the consultation and its goal and process. Gives the parents/guardians time to voice their worries,
- Is attentive to cues for undisclosed problems ("hidden agenda"),
- Involves the parents/guardians in the evaluation, treatment and further measures, balancing the importance of the patient's privacy and increasing autonomy in decision-making on one hand, and the communication within the family on the other hand,
- Collaborates with trained translator when meeting AYA & family of foreign origin.

The primary health care provider or specialist assesses and responds to the patient's lifestyle/behaviour in a non-judgmental way, paying extra attention to areas prone to be problematic in the age group and the AYA's resources (The HEADSSS1 acronym provides useful guidance in this regards)

- Assesse the patient's cognitive and affective development and his daily functioning,
- Identifies AYA's personal and environmental resources/protective factors, including the presence of trusted adult(s),
- Discusses daily leisure, sports and social activities as well as school/professional situation,
- Screens for overt and covert symptoms of depression and/or anxiety in exploring mood, behaviour and expectations. Identify self-harm, suicidal ideation and former or planned suicide attempts,
- Explores the value of substance use from the patient's viewpoint, the patient's use/misuse of drugs, the perceived range of consequences and the preparedness for change,
- Discusses screen/internet/social media misuse and its health consequences,
- Respectfully explores sexuality and reproductive life, including questions of gender identity and sexual orientation. Responds appropriately to common situations,
- Assesses safe/unsafe sexual behaviour and risk for sexually transmitted infection and treats or refers for treatment,
- Identifies need for contraception and responds emphatically to a suspected or verified pregnancy (pregnancy test, referral,

The primary health care provider or specialist performs a physical examination taking into account the adolescent situation and specificities

- Explains the process of any physical examination and the reasons for it,
- Adapts the examination to the AYA's complaints/symptoms, physical/sports activity, social and professional background,
- Follows a sequence that respects patient comfort and intimacy,

- Evaluates and comments the patient's pubertal stage (e.g., Tanner stage),
- Assesses systems that change particularly during puberty (skeletal, sight, skin etc.),
- Investigates body shape's representations and self-image within the cultural and social context,

The primary health care provider or specialist provides appropriate care to an AYA suffering from a chronic condition and facilitates transition and adaptation to adult health care settings

- Assesses the impact of chronic condition on patient's daily functioning,
- Fosters an inter-professional approach and collaborates with the appropriate resources and people to assist the patient in coping with the chronic condition and life,
- Promotes optimal adolescent development: minimizes the impact of the chronic condition on education and social life together with interdisciplinary team members,
- Promotes self-confidence and capacity in managing health and illness,
- Beyond the care of the chronic condition itself, addresses the primary health care needs of the patient; (HEADSSS, immunization, complaints regarding general health),
- Participates in the transition process from paediatric to adult health care settings : preferred age for transfer, adolescent's expectations, available support during transition (e.g. clinical nurse, social worker, psychologist), joint consultation with both paediatric and adult health care provider,

Appendix 4 Glossary of terms

Pre-hospital- activity that takes place in the community either public places or in a patient home, and in this context relates to specific skills and competences required to work outside of a clinical area.

Mass casualty- an incident for the health service causing casualties on a scale that exceeds normal resources such as personnel and equipment. Requires appropriate planning to ensure casualties are kept safe. Usually traumatic but occasionally medical – infectious or toxicological.

Training- the process by which learners are given opportunities to fulfil the requirements of a curriculum.

Curriculum – a document that states what competences and capabilities required to be a specialist in emergency medicine. This includes what will be learnt (the syllabus), where and how it will be learnt and how it will be assessed as well as how the quality will be evaluated.

Syllabus – the list of competences and capabilities studied in a training programme
Trainee – a learner who is following a prescribed curriculum.

Educational supervisor- a trained clinician (usually an emergency medicine specialist) who provides mentorship and support including assessments for a trainee over a period of time – ensuring the trainee meets the curriculum requirements. Educational supervisors should have access to training for this role.

Clinical supervisor- a clinician who provides clinical support for a trainee at any given time in the clinical area. They are usually but not always a trained specialist emergency physician.

Programme – a period of training which may include placements in multiple different clinical sites including emergency departments, anaesthesia and critical care and other inpatient specialty locations. The programme should be planned to meet the requirements of the curriculum.

Placement- an individual period of training in one site which provides a specified element of the curriculum – and may be outside emergency department for example for anaesthetic basis skills or special interest (toxicology, geriatrics etc).

Workplace based assessments – a set of assessment tools which evaluate trainee performance during clinical placements. These require direct observation of the trainee performance in the workplace with relevant feedback which supports reflective practice and ongoing professional development.

Appendix 5 -Abbreviations

ACLS – Advanced Cardiac Life Support
APLS - Advanced paediatric life support
CbD – Case based discussion
DOPS – direct observation of procedural skills
EBEEM- European Board Examination in Emergency Medicine
EPLS – European Paediatric Life support
EPALS - European Paediatric Advanced life support
ETC – European trauma Course
ETR- European Training Requirement
EUSEM- European Society for Emergency Medicine
MiniCEX – mini clinical evaluation exercise
UEMS- European Union of Medical Specialists
WBAs- Workplace based assessments

Appendix 6

Membership of the ETR committee:

EUSEM education committee: Gregor Prosen, Noel Bordon Garcia, Christoph Huser, Eris Dryver

Young Emergency Medicine Doctors: Anastasia Partinou, Marco Bonsano, Eugenia Lupan-Muresan-

UEMS section and Board for EM: Ellen Mccourt (EJD), Cem Oktay, Ruth Brown (chair)

EMERGE: Ashraff Butt, Adela Golea, Diana Cimpoesu