SECTION FOR
EMERGENCY MEDICINE

EUSEM
EUROPEAN SOCIETY FOR EMERGENCY MEDICINE

EUROPEAN CORE CURRICULUM FOR EMERGENCY MEDICINE

VERSION 1.2

This is the revised document of the ECCEM (European Core Curriculum for Emergency Medicine) revision group which consists of members of the **Educational Committee of EUSEM (**European Society for Emergency Medicine**)** and **EMERGE** (Emergency Medicine Examination Reference Group in Europe) on behalf of the **UEMS Section of Emergency Medicine**.

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ADDENDUM

The core curriculum exists to identify the knowledge, skills and behaviours that the physician must possess. This naturally changes as the specialty evolves and in the light of experience of using the curriculum to guide training and assessment. This updated curriculum includes new topics or clarifies existing topics where they are relevant or pertinent to current emergency medicine practice. The new items and all other changes are in *blue* for ease of recognition. Some items have been removed from the curriculum.

This allows alignment of the curriculum to the topics tested in the EBEEM (European Board Examination in Emergency Medicine) and ensures that the developing emergency physician knows all the competences required for the scope of practice of emergency medicine.

We would like to highlight the addition/changes of following (new) topics/ chapters in section 3:

- 3.1.1.5 Clinical reasoning and decision making
- 3.1.1.6 Clinical documentation
- 3.1.3. Communication, collaboration and interpersonal skills
- 3.1.4.10 Legislation and ethical issues in Emergency Medicine
- 3.1.4.11 Global health
- 3.1.6.2 Teaching skills
- 3.1.7 Leadership and management
- 3.2.18 Complications of medical care
- 3.2.19 Palliative (end of life) care in the ED
- 3.4.11 Psycho-social problems
- 3.5 Core Clinical Procedures and Skills in adults and children
    - 3.5.6 Diagnostic procedures and skills
    - 3.5.17 Wound management
    - 3.5.19 Oral and maxillofacial procedures
    - 3.5.20 Ultrasound

April 2017
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1. PREFACE

Emergency Medicine has long been established as a primary medical specialty in Australasia, Canada, Ireland, the United Kingdom and the United States but the title of the specialty can cause confusion when translated into one of the many other languages of Europe. It is thus sometimes seen to be synonymous with emergency medical care and within the province and expertise of almost all medical practitioners. However, the specialty of Emergency Medicine incorporates the resuscitation and management of all undifferentiated urgent and emergency cases until discharge or transfer to the care of another physician. Emergency Medicine is an inter-disciplinary specialty, one which is interdependent with all other clinical disciplines. It thus complements and does not seek to compete with other medical specialties.

The European Society for Emergency Medicine (EuSEM) was established in 1994 and incorporates a Federation of 30 European national societies of Emergency Medicine with more than 14,000 medical members. EUSEM is the scientific organisation for Emergency Medicine. The Union Européenne des Médecins Spécialistes/The European Union of Medical Specialists (UEMS) section and board for Emergency Medicine has been established in 2012 and represents the professional organisation for Emergency Physicians. The Emergency Medicine Examination Reference Group for Europe (EMERGE) was established 2014 as a working group under UEMS/EBEM (European Board of Emergency Medicine) to oversee and deliver an examination for Europe. The European Board Examination in Emergency Medicine (EBEEM) asses the competences

in this curriculum and indicates the successful candidates has acquired al the relevant competencies.
Emergency Medicine is currently recognised as a primary medical specialty in nineteen member states of the EU/EEA (although only nine are listed in the relevant EU Directive from 2005 [1] and in two EU countries it exists as a [1]supra-specialty. The recommended minimum period of training is five years even though it is now accepted that the duration of a training programme should be determined more by the length of time needed to acquire the necessary competencies.

The essential features of a clinical specialty include a unique field of action, a defined body of knowledge and a rigorous training programme. Emergency Medicine has a unique field of action, both within the Emergency Department and in the community, and this curriculum document not only incorporates the relevant body of knowledge and associated competencies but also establishes the essential principles for a rigorous training programme. Not all European countries may choose to pursue the path of a primary medical specialty at this stage but those that do so choose should be encouraged to adopt this curriculum and to train Emergency Physicians to a European standard which will enable them to transfer their skills across national borders. European countries where Emergency Medicine is developed or continues as a supra-specialty are encouraged to ensure that the competencies identified in this curriculum are achieved by the end of supra-specialty training.

EuSEM first published a *European Core Curriculum for Emergency Medicine* in 2002 [2]. The expanded version of the Curriculum from 2009 presented a guideline for the development and organisation of recognised training programmes of comparable standard across Europe. The document was developed by a Curriculum Task Force of EuSEM which included representatives of 17 European National Societies of Emergency Medicine. It has been reviewed, amended and approved by the Multidisciplinary Joint Committee of the Union Européenne des Médecins Spécialistes (MJC-UEMS) and was endorsed by the Council of UEMS at a plenary meeting in Brussels on 25 April 2009. This document (version 1.2) represents a further update that reflects advance and current practice standards.

2.INTRODUCTION

2.1.THE SPECIALTY OF EMERGENCY MEDICINE

Emergency Medicine is a medical specialty based on the knowledge and skills required for the prevention, diagnosis and management of the acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioural disorders [3]. It is a specialty in which time is critical. The practice of Emergency Medicine encompasses the pre-hospital and in-hospital reception, resuscitation and management of undifferentiated urgent and emergency cases until discharge from the Emergency Department or transfer to the care of another physician. It also includes involvement in the development of pre-hospital and in-hospital emergency medical systems.

2.2.THE EUROPEAN CURRICULUM FOR EMERGENCY MEDICINE

Any curriculum must state the aims and objectives, content, experiences, outcomes and processes of the educational programme of a specialty [4]. It should include a description of the training structure, such as entry requirements, length and organisation of the programme including its flexibilities, and assessment system and a description of the expected methods of learning, teaching, feedback and supervision. The curriculum should cover both generic professional and specialty specific areas [4]. This document describes the recommended curriculum for Emergency Medicine training in Europe.

3.COMPETENCIES, KNOWLEDGE AND SKILLS

The curriculum covers knowledge, skills and expertise which the trainee in Emergency Medicine must achieve and includes:

- *Core Competencies of the European Emergency Physician*
- *System-Based Core Knowledge*
- *Common Presenting Symptoms*
- *Special Aspects of Emergency Medicine*
- *Core Clinical Procedures and Skills.*

3.1.CORE COMPETENCIES OF THE EUROPEAN EMERGENCY PHYSICIAN

Some of the competencies identified in this curriculum are those required of a hospital specialist in any medical discipline whilst others are more specific to the practice of Emergency Medicine. However, it is accepted that the levels of competence required of an Emergency Physician in specialised areas of medical practice should be limited to those which determine whether and when urgent or immediate more specialist referral is appropriate. Emergency Medicine complements and does not seek to compete with other hospital medical disciplines.

The areas of competency in Emergency Medicine, as previously defined [5,6,7] are:

- *Patient care*
- *Medical knowledge*
- *Communication, collaboration and interpersonal skills*
- *Professionalism, ethical and legal issues*
- *Organisational planning and service management skills*
- *Education and research.*

3.1.1.PATIENT CARE

Emergency Physicians care for patients with a wide range of pathology from the life threatening to the self limiting and from all age groups. The attendance and number of these patients is unpredictable and they mostly present with symptoms rather than diagnoses. Therefore the provision of care needs to be prioritised, and this is a dynamic process. The approach to the patient is global rather than organ specific. Patient care includes physical, mental and social aspects. It focuses on initial care until discharge or referral to other health professionals. Patient education and public health aspects must be considered in all cases. To ensure the above patient care, EPs must particularly focus on the following:

3.1.1.1.Triage
EPs must know the principles of triage which is the process of the allocation and medical prioritisation of care for the pre-hospital setting, the Emergency Department and in the event of mass casualties. It is based mainly on the evaluation of vital parameters and key symptoms to prioritise and categorise patients according to severity of injury or illness, prognosis and availability of resources.

3.1.1.2.Primary assessment and stabilisation of life threatening conditions
The ABCDE approach must be the primary assessment tool for all patients and does not require a diagnostic work-up. It is a structured approach with which to identify and resuscitate the critically ill and injured. EPs must be able to assess, establish and maintain: Airway [A], Breathing [B], Circulation [C], Disability [D] and Exposure [E] of the patient.

3.1.1.3.Focused medical history
EPs must focus the initial medical history on presenting complaints and on clinical findings as well as on conditions requiring immediate care.

3.1.1.4.Secondary assessment and immediate clinical management
EPs must perform secondary assessment with a timely diagnostic work-up focusing on the need for early action. Clinical management must also include further aspects of health (physical, mental and social).

3.1.1.5.Clinical reasoning and decision making
EPs must be able to make clinical decisions including:
- re-triaging
- developing a list of possible diagnoses based on probabilities
- understanding the pathophysiology linking diagnoses to clinical findings
- generating an investigational/treatment plan taking into consideration the likelihoods of conditions requiring urgent management and the risks/benefits to the patient
- revising the treatment/management plan based on additional information, clinical course and response to treatment

3.1.1.6.Clinical documentation
EPs must make contemporaneous medical records which focus on:
- main complaints and abnormal findings
- relevant past medical history, medications, allergies, risk factors and social circumstances
- relevant history and physical findings
- relevant test results
- diagnosis or differential diagnosis
- treatment
- plan for further investigations and/or treatment
- patient information
- patient handover when appropriate

3.1.1.7.Re-evaluation and further management
EPs must perform continuous re-evaluation of the patient, with adjustment of the provisional diagnosis and care when it becomes necessary.

3.1.2.Medical Knowledge and Clinical Skills
Emergency Physicians (EPs) need to acquire the knowledge and skills described in sections 3.2, 3.3, 3.4 and 3.5.

3.1.3.Communication, Collaboration and Interpersonal Skills
Emergency Medicine is practised in difficult and challenging environments. Effective communication is essential for safe care and for building and maintaining good relationships, avoiding barriers such as emotions, stress and prejudices. EPs must be able to use both verbal and non-verbal communication skills, as well as information and communication technology. In the case of a patient who is incompetent by virtue of age or mental capacity, communication should be with a parent or other legal representative. EPs must be able to demonstrate communication and interpersonal skills that include the following:

3.1.3.1.Patients and relatives
When communicating with patients and relatives, EPs should use language adapted to the circumstances and confirm understanding. EPs should give special consideration to:
- obtaining informed-consent prior to diagnostic and therapeutic procedures
- informing patients and/or relatives about test results
- involving the patient and/or relatives in decision making
- providing clear instructions upon discharge, ideally in writing
- the challenges associated with language barriers and receptive/expressive difficulties (e.g. secondary to stroke)

3.1.3.2.Colleagues and other health care providers
Important skills for an EP are sharing information on patient care, working as a member or the leader of a team, referring and transferring patients.

3.1.3.3.Other care providers such as the police, the fire department and social services
EPs must give attention to respecting patient confidentiality.

3.1.3.4.Mass media and the general public
EPs must be able to interact with the mass media in a constructive way, giving correct information to the public and at the same time respecting the privacy of the patient with the aid of the standard hospital communication process.

3.1.4.Professionalism and other Ethical and Legal Issues
3.1.4.1.Professional behaviour and attributes
The general professional behaviour and attributes of Emergency Physicians must not be adversely influenced by working in stressful circumstances and with a diverse patient population. They must learn to identify their educational needs and to work within their own limitations. They must be able to self-motivate even at times of stress or discomfort. They must recognise their own as well as system errors and value participation in the peer review process [8,9].

3.1.4.2.Working within a team or as a leader of a team
EPs must understand the role of colleagues in other specialities and must be able to lead or to work effectively even in a new or large team often under considerable stress. In particular non-technical skills such as situational awareness, judicious task delegation.

3.1.4.3.Delegation and referral
EPs must understand the responsibilities and potential consequences of delegating, referring to a colleague in another discipline or transferring the patient to another doctor, health care professional or health care setting.

3.1.4.4.Patient confidentiality
EPs must understand the law regarding patient confidentiality and data protection. They must know what confidentiality problems arise when dealing with relatives, the police, EMS communication, telephone discussions and the media.

3.1.4.5.*Autonomy and informed consent*
EPs must respect the right of competent patients to be fully involved in decisions about their care. They must also value the right of competent patients to refuse clinical procedures or treatment. They must understand how the ethical principles of autonomy and informed consent affect emergency practitioners.

3.1.4.6.*The competent/incompetent patient*
EPs must be able to assess whether a patient has the competence to make an informed decision. They must also understand the legal rights of a guardian or adult with power of attorney and when they treat minors. They must be familiar with those aspects of mental health legislation which relate to competence.

3.1.4.7.Abuse and violence
EPs must be able to recognise patterns of illness or injury which might suggest physical or sexual abuse or domestic violence to children or adults. They must be able to initiate appropriate child or adult protection procedures. They must also learn to prevent and limit the risks of violence and abuse to staff working in an emergency setting.

3.1.4.8.*Do not attempt to resuscitate (DNAR) and limitations of therapeutic interventions*
EPs must learn to discuss with colleagues and in a professional and empathic manner with relatives, the initiation or possible discontinuation of active interventions when this is considered to be medically appropriate [10].They must understand when and how they should use advance directives such as living wills and durable powers of attorney.

3.1.4.9.Medico-legal issues
EPs must operate within the legal framework of the country in which they are working.

3.1.4.10.Legislation and ethical issues in Emergency Medicine
EPs should have an understanding of ethics and law, as well as the legal aspects of bioethical issues in Emergency Medicine. They must be able to make a reasoned analysis of ethical conflicts and develop the skills to resolve ethical dilemmas in an

appropriate manner. They must also look to the law for guidance, although the law does not always provide the answer to many ethical problems.

Ethics in Emergency Medicine help to prepare EPs to face new ethical dilemmas in their practice [9,11]. The use of ethical analysis provides the framework for determining moral duty, obligation and conduct. EPs must learn to identify, refine, and apply general moral principles to their practice related to:

- *Patient autonomy* (informed consent and refusal, patient decision-making capacity, treatment of minors, advance directives, the obligations of the Good Samaritan statutes).
- *End of life decisions* (limiting resuscitation, deciding on appropriate goals of care and delivering appropriate palliative care to the dying patient).
- *The physician-patient relationship* (confidentiality, truth telling and communication, compassion and empathy).
- *Issues related to justice* (duty, ethical issues of resuscitation, health care rationing, moral issues in disaster medicine, research, resuscitation issues in pregnancy).
- *Organ donation* (identifying a patient as a potential organ donor, notifying the local organ donation organisation, communicating appropriately with inpatient critical care clinicians, eliciting patient and caregivers wishes regarding organ donation when appropriate).

3.1.4.11 Global health

EPs should have general knowledge about international situations that might lead people to seek asylum or refugee status in Europe. They should be able to list and explain the health disparities commonly experienced by people who seek asylum or are refugees. They must enquire sensitively about refugee status when appropriate. EPs should be able to incorporate their knowledge about the medical conditions that disproportionally affect refugee populations when formulating a diagnosis and differential diagnosis. EPs should coordinate emergency care with the involvement of appropriate refugee support services to provide holistic care for a refugee patient as well as promote and sustain relationships with external organisations to improve the delivery of health care to the refugee patient.

3.1.5. Organisational Planning and Service Management Skills

This competence is needed to enhance the safety and quality of patient care and the work environment. Emergency Physicians must continuously adapt and prioritise existing and available resources to meet the needs of all patients and maintain the quality of care.

3.1.5.1. Case management

EPs must be able to provide and balance the different care processes between the individual patient and the total case-mix. After primary and secondary assessment, they may refer a patient to another point of contact within the health care or social network. They must provide clear guidance to those patients discharged without formal follow up.

3.1.5.2. Quality standards, audit and clinical outcomes

It is important that EPs use evidence-based medicine and recognise the value of quality standards to improve patient care which is effective and safe. They must be able to

undertake audit and use clinical outcomes, including critical incident reporting, as ways of continuously improving clinical practice.

3.1.5.3. Time management
EPs must be able to manage the individual patient as well as the overall patient flow in a timely manner which is dependent upon available resources, accepted medical standards and public expectation. EPs must also learn to manage their own time in an effective way.

3.1.5.4. Information management
EPs often manage patients for whom limited information is available. They may need to communicate with other agencies to obtain relevant information whilst respecting the confidentiality of the patient. Patient data collected during the process of care must be accessible to all involved health care professionals through adequate documentation.

EPs need a broad knowledge of the latest advances in medicine and must be able to access and manage information relevant to the specific care of an individual patient.

3.1.5.5. Documentation
EPs are responsible for clear, legible, accurate, contemporaneous and complete records of patient care where the author, date and time are clearly identified. Documentation is a continuous process and all entries must be made in real time as far as possible.

3.1.6. Education and Research

3.1.6.1. Self education and improvement
EPs must develop their knowledge and practice in EM by continuous education. They have to identify areas for personal improvement and learn to implement patient care based on scientific evidence.

3.1.6.2. Teaching skills
EPs must be involved in teaching undergraduate, graduate and post graduate health care students, and the general population. They must also continuously develop the skills to be effective teachers. An EP must be able to supervise more junior staff and other professionals giving guidance and feedback on clinical care in the Emergency Department.

3.1.6.3. Critical appraisal of scientific literature
EPs must be able to investigate and evaluate their own practice. They must learn to use evidence-based medicine and guidelines, where applicable, and become familiar with the principles of clinical epidemiology, biostatistics, quality assessment and risk management.

3.1.6.4. Clinical and basic research
EPs must understand the scientific basis of EM, the use of scientific methods in clinical research and the fundamental aspects of basic research. They must be able to critically review research studies and be able to understand, present and implement them into

clinical practice. They should understand the process of developing a hypothesis from a clinical problem and of testing that hypothesis. They should also understand the specific aspects of obtaining consent as well as the ethical considerations of research in emergency situations.

3.1.7 Leadership and management

An Emergency Physician will be able to lead, supervise and manage care within the emergency medical setting to ensure optimal patient safety and outcomes.

- managing teams in daily work, prioritising, delegating and being able to resolve conflict as it arises
- supporting colleagues in difficulty, understanding how to access support to improve resilience and where performance is unacceptable, working with appropriate colleagues in the disciplinary process
- providing supervision within the department giving advice and guidance but also supporting the development of others independent practice, always keeping patient safety as a priority
- providing longitudinal supervision and mentorship to trainees and other learners and completing an annual appraisal to confirm an individual's progression
- understanding the benefit of measuring key performance indicators and contributing to the action plan to improve quality of care against those performance indicators
- completing a medico-legal report as a statement of fact which accurately describes the events and outcomes for a patient in the department
- recognising where care has been unsatisfactory and contributing to the analysis of the reasons, determining what actions can be taken to avoid replication
- contributing to a mortality and morbidity meeting
- completing an audit cycle including actions with demonstrable outcomes
- following the departmental/hospital plan for mass casualties and providing leadership within the clinical team in the event of an incident being declared
- describing and following quality improvement principles that improve patient care in the department
- responding verbally or in writing to a complaint from a patient or their relative/ caretaker

3.2.SYSTEM-BASED CORE KNOWLEDGE

This section of the curriculum gives an index of the system-based core knowledge appropriate to the management of patients presenting with undifferentiated symptoms and complaints. This list is mostly given in the following sequence: congenital disorders; inflammatory and infectious disorders; metabolic disorders; traumatic and related problems; tumours; vascular disorders, ischaemia and bleeding: other disorders. These lists cannot be exhaustive.

3.2.1.Cardiovascular Emergencies in Adults and Children

- *Arrhythmias*
- *Congenital heart disorders*
- *Contractility disorders, pump failure*
    - ¥ cardiomyopathies, congestive heart failure, acute pulmonary oedema, tamponade, valvular emergencies
- *Inflammatory and infectious cardiac disorders*

- ¥ endocarditis, myocarditis, pericarditis
- *Ischaemic heart disease*
  - ¥ acute coronary syndromes, stable angina
- *Traumatic injuries*
- *Vascular and thromboembolic disorders*
  - ¥ aortic dissection/aneurysm rupture, deep vein thrombosis, hypertensive emergencies, occlusive arterial disease, thrombophlebitis, pulmonary embolism, pulmonary hypertension

3.2.2. Dermatological Emergencies in Adults and Children

- *Inflammatory and Infectious disorders*
- *Skin manifestations of*
  - ¥ immunological disorders, systemic disorders, toxic disorders

3.2.3. Endocrine and Metabolic Emergencies in Adults and Children

- *Adrenal insufficiency and crisis*
- *Disorders of glucose metabolism*
  - ¥ hyperosmolar hyperglycaemic state, hypoglycaemia, hyperglycaemia, ketoacidosis
- *Thyroid disease emergencies*
  - ¥ hyperthyroidism, hypothyroidism, myxoedema coma, thyroid storm

3.2.4. Fluid and Electrolyte Disturbances

- *Acid-Base disorders*
- *Electrolyte disorders*
- *Volume status and fluid balance*

3.2.5. Ear, Nose, Throat, Oral and Neck Emergencies in Adults and Children

- *Bleeding*
- *Complications of tumours*
  - ¥ airway obstruction, bleeding
- *Foreign bodies*
- *Inflammatory and Infectious disorders*
  - ¥ angio-oedema, epiglottitis, laryngitis, peritonsillar abscess, mastoiditis
- *Traumatic problems*

3.2.6. Gastrointestinal Emergencies in Adults and Children

- *Congenital disorders*
  - ¥ Hirschsprung's disease, Meckel's diverticulum, pyloric stenosis
- *Inflammatory and Infectious disorders*
  - ¥ appendicitis, cholecystitis, cholangitis, diverticulitis, exacerbations and complications of inflammatory bowel diseases, gastritis, gastroenteritis, gastro-oesophageal reflux disease, hepatitis, pancreatitis, peptic ulcer, peritonitis, pilonidal abscess, perianal abscess
- *Metabolic disorders*
  - ¥ hepatic disorders, hepatic failure
- *Traumatic and mechanical problems*
  - ¥ foreign bodies, hernia strangulation, intestinal obstruction and occlusion
- *Tumours*

- *Vascular disorders: Ischaemia and Bleeding*
    - ischaemic colitis, upper and lower gastrointestinal bleeding, mesenteric ischaemia, haemorrhoids, thromboses external haemorrhoids
- *Other problems*
    - complications of gastrointestinal devices and surgical procedures

3.2.7. Gynaecological and Obstetric Emergencies

- *Inflammatory and Infectious disorders*
    - mastitis, metritis, pelvic inflammatory disease, vulvovaginitis, toxic shock syndrome, sexual transmitted diseases, herpes simplex virus infection, Bartholin gland abscess
- *Obstetric emergencies*
    - spontaneous abortion in early pregnancy, abruptio placentae, pre-eclampsia, eclampsia, ectopic pregnancy, emergency delivery (including perimortem c-section), HELLP syndrome during pregnancy, hyperemesis gravidarum, placenta praevia, postpartum haemorrhage,
- *Traumatic and related problems*
    - ovarian torsion
- *Tumours*
- *Vascular disorders: Ischaemia and Bleeding*
    - vaginal bleeding

3.2.8. Haematology and Oncology Emergencies in Adults and Children

- *Anaemias*
- *Complications of lymphomas and leukaemias*
- *Congenital disorders*
    - haemophilias and Von Willebrand's disease, hereditary haemolytic anaemias, sickle cell disease
- *Inflammatory and Infectious disorders*
    - neutropenic fever, infections in immunocompromised patients, severe sepsis and septic shock
- *Vascular disorders: Ischaemia and Bleeding*
    - acquired bleeding disorders (coagulation factor deficiency, disseminated intravascular coagulation), drug induced bleeding (anticoagulants, antiplatelet agents, fibrinolytics), idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura
- *Transfusion reactions*
- *Metabolic disorders*
    - hypercalcaemia, tumour lysis syndrome, SIADH
- *Neurological disorders*
    - spinal cord compression, brain metastases, raised intracranial pressure
- *Cardiovascular disorders*
    - malignant pericardial effusion, superior vena cava syndrome

3.2.9. Immunological Emergencies in Adults and Children

- *Allergies and anaphylactic reactions*
- *Angioneurotic oedema*
- *Inflammatory and Infectious disorders*
    - acute complications of vasculitis

3.2.10. Infectious Diseases and Sepsis in Adults and Children

- *Common viral and bacterial infections*
- *Food and water-born infectious diseases*
- *HIV infection and AIDS*
- *Common tropical diseases*
- *Parasitosis*
- *Rabies*
- *Sepsis and septic shock*
- *Sexually transmitted diseases*
- *Streptococcal toxic shock syndrome*
- *Tetanus*
- *Ebola, MERS, Tuberculosis, Measles, Influenza outbreak*

3.2.11. Musculo-Skeletal Emergencies

- *Congenital disorders*
    - ¥ dislocated hip, osteogenesis imperfecta
- *Inflammatory and Infectious disorders*
    - ¥ arthritis, bursitis, cellulitis, complications of systemic rheumatic diseases, necrotising fasciitis, osteomyelitis, polymyalgia rheumatica, soft tissue infections
- *Metabolic disorders*
    - ¥ complications of osteoporosis and other systemic diseases
- *Traumatic and degenerative disorders*
    - ¥ back disorders, common fractures and dislocations, compartment syndromes, crush syndrome, osteoarthrosis, rhabdomyolysis, soft tissue trauma
- *Tumours:*
    - ¥ pathological fractures

3.2.12. Neurological Emergencies in Adults and Children

- *Inflammatory and Infectious disorders*
    - ¥ brain abscess, encephalitis, febrile seizures in children, Guillain-Barrè syndrome, meningitis, peripheral facial palsy (Bell's palsy), temporal arteritis
- *Traumatic and related problems*
    - ¥ complications of CNS devices, spinal cord syndromes, peripheral nerve trauma and entrapment, traumatic brain injury
- *Tumours*
    - ¥ common presentations and acute complications of neurological and metastatic tumours
- *Vascular disorders: Ischaemia and Bleeding*
    - ¥ carotid artery dissection, stroke, subarachnoid haemorrhage, subdural and extradural haematoma, transient ischaemic attack, venous sinus thrombosis
- *Other problems*
    - ¥ acute complications of chronic neurological conditions (e.g. myasthenic crisis, multiple sclerosis), acute peripheral neuropathies, seizures and status epilepticus

3.2.13. Ophthalmic Emergencies in Adults and Children

- *Inflammatory and Infectious disorders*
  - conjunctivitis, dacrocystitis, endophthalmitis, iritis, keratitis, orbital and periorbital cellulitis, uveitis, scleritis, episcleritis
- *Traumatic and related problems*
  - foreign body in the eye, ocular injuries, perforating injuries of the globe
- *Vascular disorders: Ischaemia and Bleeding*
  - retinal artery and vein occlusion, vitreous haemorrhage
- *Others*
  - acute glaucoma, retinal detachment

3.2.14. Pulmonary Emergencies in Adults and Children

- *Congenital*
  - cystic fibrosis
- *Inflammatory and Infectious disorders*
  - asthma, bronchitis, bronchiolitis, pneumonia, empyema, COPD exacerbation, lung abscess, pleurisy and pleural effusion, pulmonary fibrosis, tuberculosis
- *Traumatic and related problems*
  - foreign body inhalation, haemothorax, tension pneumothorax, pneumomediastinum
- *Tumours*
  - common complications and acute complications of pulmonary and metastatic tumours,
- *Vascular disorders*
  - pulmonary embolism
- *Other disorders*
  - acute lung injury, atelectasis, ARDS, spontaneous pneumothorax

3.2.15. Psychiatric and Behaviour Disorders

- *Behaviour disorders*
  - affective disorders, confusion and consciousness disturbances, intelligence disturbances, memory disorders, perception disorders, psycho-motor disturbances, thinking disturbances, altered mood, delusion, situational crisis, social crisis
- *Common psychiatric emergencies*
  - acute psychosis, anorexia and bulimia complications, anxiety and panic attacks, conversion disorders, deliberate self-harm and suicide attempt, depressive illness, personality disorders, substance, drug and alcohol abuse

3.2.16. Renal and genitoUrological Emergencies in Adults and Children

- *Inflammatory and Infectious disorders*
  - epididymitis, orchitis, glomerulonephritis, pyelonephritis, prostatitis, sexually transmitted diseases, urinary tract infections, balanitis
- *Metabolic disorders*
  - acute renal failure, nephrotic syndrome, nephrolithiasis, uraemia
- *Traumatic and related problems*

- ¥ urinary retention, testicular torsion, torsion of the appendix testis, paraphimosis, phimosis, scrotal hydrocele, testicular haematoma
- *Tumours*
- *Vascular disorders: Ischaemia and Bleeding*
- *Other disorders*
  - ¥ comorbidities in dialysis and renal transplanted patients, complications of urological procedures and devices, haemolytic uraemic syndrome

3.2.17.Trauma in Adults and Children

- *Origin of trauma:*
  - ¥ burns, blunt trauma, penetrating trauma
- *Anatomical location of trauma:*
  - ¥ head and neck, maxillofacial, thorax, abdomen, pelvis, spine, extremities
- *Polytrauma patient*
- *Trauma in specific populations:*
  - ¥ children, elderly, pregnant women.

3.2.18 complications of medical care

- *Abnormal test results*
- *Complication of (recent) treatment and/ or procedure*
- *Drug/ Medications related presentation*

3.2.19 palliative (end of life) care in the ED

3.3.COMMON PRESENTING SYMPTOMS

This section of the Curriculum lists the more common presenting symptoms of patients in the emergency setting. The differential diagnoses are listed according to the systems involved and then in alphabetical order. The diagnoses requiring immediate attention, in terms of potential severity and need of priority, are highlighted in bold. These lists of possible diagnoses cannot be exhaustive.

3.3.1.Acute Abdominal Pain/ distension in adults and children

- *Gastrointestinal causes*
  - ¥ appendicitis, cholecystitis, cholangitis, acute pancreatitis, complications of hernias, diverticulitis, hepatitis, hiatus hernia, inflammatory bowel disease, intestinal obstruction, ischaemic colitis, mesenteric ischaemia, peptic ulcer, peritonitis, viscus perforation, intussusception
- *Cardiac/vascular causes*
  - ¥ acute myocardial infarction, aortic dissection, aortic aneurysm rupture
- *Dermatological causes*
  - ¥ herpes zoster
- *Endocrine and metabolic causes*
  - ¥ Addison's disease, diabetic ketoacidosis, other metabolic acidosis, porphyria
- *Gynaecological and Obstetric causes*
  - ¥ complications of pregnancy, ectopic pregnancy, pelvic inflammatory disease, rupture of ovarian cyst, ovarian torsion
- *Haematological causes*
  - ¥ acute porphyria crisis, familial mediterranean fever, sickle cell crisis

- *Musculo-skeletal causes*
  - ¥ referred pain from thoraco-lumbar spine
- *Renal and Genitourinary causes*
  - ¥ pyelonephritis, renal stones
- *Respiratory causes*
  - ¥ pneumonia, pleurisy
- *Toxicology*
  - ¥ poisoning
- *Trauma*
  - ¥ abdominal

3.3.2. Altered Behaviour and Agitation

- *Psychiatric causes*
  - ¥ acute psychosis, depression, hallucination, anxiety, panic attack
- *Cardiac/Vascular causes*
  - ¥ hypertension, vasculitis, ischaemic or hemorrhagic stroke
- *Endocrine and metabolic causes*
  - ¥ hypoglycaemia, hyperglycaemia, electrolyte imbalance, hyperthermia, hypoxaemia, myxoedema coma or crisis, thyrotoxicosis
- *Neurological causes*
  - ¥ cerebral space-occupying lesions, dementia, hydrocephalus, intracranial hypertension, CNS infections, extradural, subdural, subarachnoid or intracranial haemorrhage
- *Toxicology*
  - ¥ alcohol and drug abuse, poisoning
- *Iatrogenic causes and non-compliance*
  - ¥ missed essential therapy, e.g. dialysis, faulty medication doses

3.3.3. Altered Level of Consciousness in Adults and Children

- *Neurological causes*
  - ¥ cerebral tumour, epilepsy and status epilepticus, meningitis, encephalitis, stroke, subarachnoid haemorrhage, subdural and extradural haematoma, traumatic brain injury
- *Cardiovascular causes*
  - ¥ hypoperfusion states, shock
- *Endocrine and metabolic causes*
  - ¥ electrolyte imbalances, hepatic coma, hypercapnia, hypothermia, hypoxia, hypoglycaemia/ hyperglycaemia, uraemia, Addison crisis, myxoedema coma or crisis, thyrotoxicosis
- *Gynaecological and Obstetric causes*
  - ¥ eclampsia
- *Infectious causes*
  - ¥ septic shock
- *Psychiatric causes*
  - ¥ conversion syndrome
- *Respiratory causes*
  - ¥ respiratory failure
- *Toxicology*
  - ¥ alcohol intoxication, carbon-monoxide poisoning, narcotic and sedative poisoning, other substances

- *Iatrogenic causes and non-compliance*
    - ¥ missed essential therapy, e.g. dialysis, medications

3.3.4. Back Pain

- *Musculo-Skeletal causes*
    - ¥ fractures, intervertebral disc strain and degeneration, strain of muscles, ligaments and tendons, spinal stenosis, arthritis, arthrosis
- *Cardiovascular causes*
    - ¥ aortic aneurysm, aortic dissection
- *Infectious causes*
    - ¥ osteomyelitis, discitis, pyelonephritis, prostatitis
- *Endocrine and metabolic causes*
    - ¥ Paget's disease
- *Gastrointestinal causes*
    - ¥ pancreatitis, cholecystitis
- *Dermatological causes*
    - ¥ herpes zoster
- *Gynaecological causes*
    - ¥ endometriosis, pelvic inflammatory disease
- *Haematological and Oncological causes*
    - ¥ abdominal or vertebral tumours, pathological fractures
- *Neurological cause:*
    - ¥ subarachnoid haemorrhage
- *Renal and Genitourinary causes*
    - ¥ renal abscess, renal calculi
- *Trauma*

3.3.5. Bleeding (Non Traumatic)

- *Ear, Nose, Throat causes*
    - ¥ ear bleeding (otitis, trauma, tumours), epistaxis
- *Gastrointestinal causes*
    - ¥ haematemesis and melaena (acute gastritis, gastro-duodenal ulcer, Mallory Weiss syndrome, oesophageal varices) rectal bleeding (acute diverticulitis, haemorrhoids, inflammatory bowel disease, tumours)
- *Gynaecological and Obstetric causes*
    - ¥ menorrhagia/metrorrhagia (abortion, abruptio placentae, tumours)
- *Renal and Genitourinary causes*
    - ¥ haematuria (pyelitis, tumours, urolithiasis)
- *Respiratory causes*
    - ¥ haemoptysis (bronchiectasis, pneumonia, tumours, tuberculosis)

3.3.6. Cardiac Arrest

- *Cardiac arrest treatable with defibrillation*
    - ¥ ventricular fibrillation, pulseless ventricular tachycardia
- *Pulseless electric activity*
    - ¥ Acidosis, hypoxia, hypothermia, hypo/hyperkalaemia, hypocalcaemia, hypo/hyperglycaemia, hypovolaemia, tension pneumothorax, cardiac tamponade, myocardial infarction, pulmonary embolism, poisoning
- *Asystole*

3.3.7. CHEST PAIN

- *Cardiac/vascular causes*
  - ¥ acute coronary syndrome, aortic dissection, arrhythmias, pericarditis, myocarditis, pulmonary embolism, pericardial effusion
- *Respiratory causes*
  - ¥ pneumonia, pneumomediastinum, pneumothorax (especially tension pneumothorax), pleurisy
- *Gastrointestinal causes*
  - ¥ Gastro-oesophageal reflux, oesophageal rupture, oesophageal spasm
- *Musculo-Skeletal causes*
  - ¥ costosternal injury, costochondritis, intercostal muscle pain, pain referred from thoracic spine
- *Psychiatric causes*
  - ¥ anxiety, panic attack
- *Dermatological causes*
  - ¥ herpes zoster

3.3.8. CRYING BABY

- *I - Infections*
  - ¥ herpes stomatitis, meningitis, osteomyelitis, urinary tract infection
- *T –*
  - ¥ testicular torsion, trauma, teeth problems,
- *C - Cardiac*
  - ¥ arrhythmias, congestive heart failure
- *R -*
  - ¥ reaction to milk, reaction to medications, reflux
- *I -*
  - ¥ immunisation and allergic reactions, insect bites
- *E - Eye*
  - ¥ corneal abrasions, glaucoma, ocular foreign bodies
- *S – Some gastrointestinal causes*
  - ¥ hernia, intussusception, volvulus

3.3.9. DIARRHOEA

- *Infectious causes*
  - ¥ AIDS, bacterial enteritis, viral, parasites, food-borne, toxins
- *Toxicological causes*
  - ¥ drugs related, poisoning (including heavy metals, mushrooms, organophosphates, rat poison, seafood)
- *Endocrine and metabolic causes*
  - ¥ carcinoids, diabetic neuropathy
- *Gastrointestinal causes*
  - ¥ diverticulitis, dumping syndrome, ischaemic colitis, inflammatory bowel disease, enteritis due to radiation or chemotherapy
- *Haematological and Oncological causes*
  - ¥ toxicity due to cytostatic therapies
- *Immunology*
  - ¥ food allergy
- *Psychiatric disorders*
  - ¥ diarrhoea “factitia”

3.3.10. Dyspnoea in adults and children

- *Respiratory Causes*
  - ¥ airway obstruction, broncho-alveolar obstruction, parenchymal diseases, pulmonary shunt, pleural effusion, atelectasis, pneumothorax, haemoptysis, bronchiolitis
- *Cardiac/vascular causes*
  - ¥ cardiac decompensation, cardiac tamponade, pulmonary embolism
- *Ear, Nose, Throat causes*
  - ¥ epiglottitis, croup and pseudocroup
- *Fluid & Electrolyte disorders*
  - ¥ hypovolaemia, shock, anaemia
- *Gastrointestinal causes*
  - ¥ hiatus hernia
- *Immunological causes*
  - ¥ vasculitis
- *Metabolic causes*
  - ¥ metabolic acidosis, uraemia
- *Neurological causes*
  - ¥ myasthenia gravis, Guillain Barrè syndrome, amyotrophic lateral sclerosis
- *Psychiatric disorders*
  - ¥ conversion syndrome
- *Toxicology*
  - ¥ CO intoxication, cyanide intoxication
- *Trauma*
  - ¥ flail chest, lung contusion, traumatic pneumothorax, haemothorax

3.3.11. Fever and Endogenous Increase in Body Temperature

- *Systemic infectious causes*
  - ¥ sepsis, severe sepsis and septic shock, multiple organ dysfunction syndrome, parasitosis, flu-like syndrome, common viral and bacterial infections
- *Organ-specific infectious causes*
  - ¥ endocarditis, myocarditis, pharyngitis, tonsillitis, abscesses, otitis, cholecystitis and cholangitis, meningitis, encephalitis
- *Non-infectious causes*
  - ¥ Lyell syndrome, Stephen-Johnson syndrome, thyroid storm, pancreatitis, inflammatory bowel disease, pelvic inflammatory disease, toxic shock,
- *Haematological and Oncological causes*
  - ¥ leukaemia and lymphomas, solid tumours, neutropenic fever
- *Immunological causes*
  - ¥ arteritis, arthritis, lupus, sarcoidosis
- *Musculo-Skeletal causes*
  - ¥ osteomyelitis, fasciitis and cellulitis, erysipelas, necrotising fascitis
- *Neurological causes*
  - ¥ cerebral haemorrhage
- *Psychiatric causes*
  - ¥ factitious fever
- *Renal and Genitourinary causes*
  - ¥ pyelonephritis, prostatitis, sexual transmitted diseases
- *Toxicology*

- *pyrexia of unknown origin*

3.3.12. Headache in Adults and Children

- *Vascular causes*
  - ¥ migraine, cluster headache, tension headache, cerebral haemorrhage, hypertensive encephalopathy, ischaemic stroke
- *Haematological and Oncological causes*
  - ¥ brain tumours
- *Immunological causes*
  - ¥ temporal arteritis, vasculitis
- *Infectious causes*
  - ¥ abscesses, dental infections, encephalitis, mastoiditis, meningitis, sinusitis
- *Musculo-Skeletal causes*
  - ¥ cervical spine diseases, temporomandibular joint syndrome
- *Neurological causes*
  - ¥ trigeminal neuralgia
- *Ophthalmological causes*
  - ¥ optic neuritis, acute glaucoma
- *Toxicology*
  - ¥ alcohol, analgesic abuse, calcium channel blockers, glutamate, nitrates, opioids and caffeine withdrawal
- *Trauma:*
  - ¥ head trauma

3.3.13. Jaundice

- *Gastrointestinal causes*
  - ¥ cholangitis, hepatic failure, pancreatic head tumour, pancreatitis, obstructive cholestasis
- *Cardiac/Vascular causes*
  - ¥ chronic cardiac decompensation
- *Haematological and Oncological causes*
  - ¥ haemolytic anaemias, thrombotic thrombocytopenic purpura, haemolytic uraemic syndrome, disseminated intravascular coagulation
- *Infectious causes*
  - ¥ malaria, leptospirosis
- *Gynaecological causes*
  - ¥ HELLP syndrome
- *Toxicology*
  - ¥ drug induced haemolytic anaemias, snake venom

3.3.14. Pain in Arms

- *Cardiac/Vascular causes*
  - ¥ aortic dissection, deep venous thromboembolism, ischaemic heart disease
- *Musculo-skeletal causes*
  - ¥ periarthritis, cervical spine arthrosis
- *Trauma*

3.3.15. Pain in Legs

- *Cardiac/Vascular causes*

    - ¥ acute ischaemia, arteritis, deep venous thrombosis, superficial thrombophlebitis
- *Immunological causes*
    - ¥ polymyositis
- *Infectious causes*
    - ¥ arthritis, cellulites, necrotising fasciitis, osteomyelitis
- *Musculo-Skeletal causes*
    - ¥ sciatica
- *Neurological causes*
    - ¥ sciatica
- *Nervous system causes*
    - ¥ peripheral nerve compression
- *Trauma*

3.3.16. Palpitations

- *Cardiac/Vascular causes*
    - ¥ bradyarrhythmias (including sinus bradycardia and AV blocks), extrasystoles, tachyarrhythmias (including atrial fibrillation, sinus tachycardia, supraventricular tachycardia, ventricular tachycardia)
- *Endocrine and metabolic causes*
    - ¥ thyrotoxicosis
- *Toxicology*
    - ¥ drugs

3.3.17. Seizures in Adults and Children

- *Neurological causes*
    - ¥ generalised epilepsy, partial complex or focal epilepsy, status epilepticus
- *Cardiac/Vascular causes*
    - ¥ hypertensive encephalopathy, syncope, dysrhythmias, migraines
- *Endocrine and metabolic causes*
    - ¥ metabolic seizures
- *Gynaecological causes*
    - ¥ eclampsia
- *Infectious causes*
    - ¥ febrile seizures in children
- *Psychiatric causes*
    - ¥ narcolepsy, pseudo-seizures
- *Respiratory causes*
    - ¥ respiratory arrest
- *Toxicology*
    - ¥ drugs/toxins

3.3.18. Shock in Adults and Children

- *Cardiogenic*
- *Hypovolaemic*
- *Obstructive*
- *Distributive (anaphylactic, septic, neurogenic, Addison crisis)*

- *Cardiac/Vascular causes*

- ¥ cardiogenic shock, arrhythmias
- *Endocrine and metabolic causes*
  - ¥ Addison's crisis
- *Fluid and Electrolyte disorders*
  - ¥ hypovolaemic shock
- *Gastrointestinal causes*
  - ¥ vomiting, diarrhoea
- *Gynaecological causes*
  - ¥ toxic shock
- *Immunological causes*
  - ¥ anaphylactic shock
- *Infectious causes*
  - ¥ septic shock
- *Neurological causes*
  - ¥ neurogenic shock
- *Trauma*
  - ¥ hypovolaemic shock, neurogenic shock.
- *Others*
  - ¥ Methaemoglobinaemia, carbon monoxide poisoning

3.3.19. Skin Manifestations in Adults and Children

- *Dermatological causes*
  - ¥ eczema, psoriasis, skin tumours
- *Immunological causes*
  - ¥ vasculitides, urticaria, Stevens-Johnson syndrome, Lyell syndrome (toxic epidermal necrolysis)
- *Infectious causes*
  - ¥ viral exanthemata, meningococcaemia, herpes zoster/simplex, abscesses of the skin, cellulitis, lymphangitis
- *Psychiatric causes*
  - ¥ Self-inflicted skin lesions or from abuse
- *Toxicology*
- *Haematological and Oncological causes*
  - ¥ idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura

3.3.20. Syncope

- *Cardiac/vascular causes*
  - ¥ aortic dissection,
  - ¥ cardiac arrhythmias (including bradytachycardia syndrome, Brugada syndrome, drug overdose, long QT syndrome, sick sinus syndrome, torsades de pointes, ventricular tachycardia, 2nd and 3rd degree AV-block, junctional rhythm).
  - ¥ other causes of hypoperfusion (including ischaemia, valvular, haemorrhage, obstruction: e.g. aortic stenosis, pulmonary embolism, tamponade)
  - ¥ orthostatic hypotension
- *Endocrine and metabolic causes*
  - ¥ Addison's disease
- *Fluid and Electrolyte disorders*

    - ¥ hypovolaemia
- *Gastrointestinal causes*
    - ¥ vomiting, diarrhoea, gastrointestinal bleeding
- *Neurological causes*
    - ¥ autonomic nervous system disorder, epilepsy, vasovagal reflex
- *Toxicology*
    - ¥ alcoholic or drug consumption

3.3.21. Urinary Symptoms (Dysuria, Oligo/Anuria, Polyuria)

- *Renal and Genitourinary causes*
    - ¥ acute renal failure, acute urinary retention, cystitis and pyelonephritis, prostatitis
- *Cardiac/Vascular causes*
    - ¥ cardiac decompensation
- *Endocrine and metabolic causes*
    - ¥ diabetes mellitus, diabetes insipidus
- *Fluid and Electrolyte disorders*
    - ¥ hypovolaemia

3.3.22. Vertigo and Dizziness

- *Ear and Labyrinth causes*
    - ¥ benign postural vertigo, Meniere's disease, otitis, vestibular neuritis, viral labyrinthitis
- *Cardiac/Vascular causes*
    - ¥ arrhythmias, hypotension
- *Endocrine and metabolic causes*
    - ¥ hypoglycaemia
- *Haematological and Oncological causes*
    - ¥ anaemias
- *Nervous system causes*
    - ¥ acoustic neuroma, bulbar or cerebellar lesions, multiple sclerosis, temporal epilepsy
- *Psychiatric causes*
    - ¥ anxiety
- *Respiratory causes*
    - ¥ hypoxia
- *Toxicology*
    - ¥ alcohol abuse, drugs and substances

3.3.23. Vomiting

- *Gastrointestinal causes*
    - ¥ appendicitis, cholecystitis, gastroparesis, gastric obstruction and retention, gastroenteritis, hepatitis, pancreatitis, pyloric stenosis, small bowel obstructions
- *Cardiac/Vascular causes*
    - ¥ myocardial ischaemia
- *Ear, Nose, Throat causes*
    - ¥ vestibular disorders
- *Endocrine and metabolic causes*

    - ¥ diabetic ketoacidosis, hypercalcaemia
- *Fluid and Electrolyte disorders*
    - ¥ hypovolaemia
- *Gynaecological and Obstetric causes*
    - ¥ pregnancy
- *Infectious causes*
    - ¥ sepsis, meningitis
- *Neurological causes*
    - ¥ cerebral oedema or haemorrhage, hydrocephalus, intracranial space-occupying lesions
- *Ophthalmological causes*
    - ¥ acute glaucoma
- *Psychiatric causes*
    - ¥ eating disorders
- *Renal and Genitourinary causes*
    - ¥ renal calculi, uraemia
- *Toxicology*

3.4.SPECIFIC ASPECTS OF EMERGENCY MEDICINE

3.4.1.Abuse and Assault in Adults and Children

- Abuse in the elderly and impaired
- Child abuse and neglect
- Intimate partner violence and abuse
- Sexual assault
- Patient safety in Emergency Medicine
- Violence management and prevention in the Emergency Department

3.4.2.Analgesia and Sedation in Adults and Children

- Pain transmission (anatomy, physiology, pharmacology)
- Pain assessment
- Pharmacology of sedative and pain relieving drugs
- Psychological and social aspects of pain in paediatric, adult and elderly patients

3.4.3.Disaster Medicine

- Disaster preparedness
- Major/mass casualty incident planning/procedures/practice
- Disaster response
- Mass gatherings
- Specific medical topics (triage, bioterrorism, blast and crush injuries, chemical agents, radiation injuries)
- Debriefing and mitigation

3.4.4. Environmental Accidents in Adult and Children

- Electricity (electrical and lightening injuries)
- Flora and Fauna (injuries from exposure, bites and stings)
- High-altitude (medical problems)
- NBCR (nuclear, biological, chemical and radiological:, decontamination, specific aspects)
- Temperature (heat and cold related emergencies)
- Travel medicine
- Water (near-drowning, dysbarism and complications of diving, marine fauna)
- Major/minor burns
- Toxic ingestion or exposure

3.4.5. Forensic Issues

- Basics of relevant legislation in the country of practice
- Recognise and preserve evidence
- Provide appropriate medical documentation (including forensic and clinical photography, collection of biological samples, ballistics)
- Appropriate reporting and referrals (e.g. child abuse or neglect, gunshot and other forms of penetrating wounds, elder abuse, sexual assault allegations)
- Medico-legal documentation

3.4.6. Injury Prevention and Health Promotion

- Collection and interpretation of data related to prevention and health promotion
- Epidemiology of Accidents and Emergencies
- Formulation of recommendations

3.4.7. Patient Management Issues in Emergency Medicine

- Emergency Department organisation (administration, structure, staffing, resources)
- Management of specific populations:
    - ¥ children in special circumstances including child protection
    - ¥ elderly patients
    - ¥ homeless patients
    - ¥ mentally incompetent adults
    - ¥ psychiatric patients
    - ¥ overweight/underweight patients

3.4.8. Problems in the Elderly

- Atypical presentations (e.g. abdominal pain, infections, myocardial infarction)
- Delirium
- Dementia
- Falls (causes & investigations)
- Immobility
- Multiple pathology and multiple therapies
- Self-dependency
- Trauma & co-morbidity
- Polypharmacy

3.4.9. Toxicology in Adults and Children

- General principles of toxicology and management of poisoned patients

- Principles of drug interactions
- Toxidromes
- Specific aspects of poisoning
    - ¥ drugs (including paracetamol, amphetamine, anticholinergics, anticonvulsants, antidepressants, antihypertensives, benzodiazepines, digitalis, monoamine oxidase inhibitors, neuroleptics)
    - ¥ industrial, chemicals
    - ¥ plants & mushrooms
    - ¥ alcohol abuse and alcohols poisoning, alcohol withdrawal
    - ¥ drugs of abuse
- Organisation and information (e.g. poison centres, databases)

3.4.10. Pre-Hospital Care

- Emergency Medical Services organisation (administration, structure, staffing, resources)
- Medical transport (including neonates and children, air transport)
- Paramedic training and function
- Safety at the scene
- Collaboration with other emergency services (e.g. police, fire department)
- Disaster preparedness and management inclusive triage

3.4.11. Psycho-Social Problems

- Social wellbeing of specific populations (see 3.4.7)
- Patients with social issues
- Frequent visitors
- Culture and religion (expectations and beliefs of the health system)
- Financial aspects (ability to purchase medications and/ or treatments)
- Legal aspects (e.g. collaboration with other patient stakeholders)
- Home support (available resources to support discharge, e.g. district nurse, carers)
- Homeless (safety for discharge)
- Pets (reason for presentation, e.g. allergy; or worried if pat needs admission)
- Traveller (arrangement for follow-up)
- Alcohol/ illicit drug use (complex clinical assessment, increased suicide risk)
- Occupation (ability to return to work)

3.5. CORE CLINICAL PROCEDURES AND SKILLS IN ADULTS AND CHILDREN

3.5.1. Infection control

- Aseptic and sterile techniques

3.5.2. Cardiopulmonary resuscitation Skills

- Cardio-pulmonary resuscitation procedures in a timely and effective manner according to the current European Resuscitation Council guidelines for adults and children
- Advanced CPR skills (e.g. cardiac ultrasound - identification of cardiac activity during CPR, targeted temperature management, open chest CPR, resuscitative thoracotomy, peri-mortem c-section)

3.5.2. Airway Management Skills

- Open (simple airway manoeuvres, e.g. chin lift, jaw thrust, head tilt, positioning of the patient and maintain the airway in the emergency setting (insertion of oropharyngeal or nasopharyngeal airway)
- Insertion of oral endotracheal tube
- Alternative airway techniques in the emergency setting (e.g. laryngeal mask insertion, surgical airway, insertion of cricothyroid needle and jet insufflation of oxygen)
- Difficult airway management algorithm
- Use of rapid sequence intubation in the emergency setting (including knowledge of relevant drugs, use of stylet or bougie)
- Securing and caring for ETT (including during transport), plan for extubation
- Replacement of blocked or dislodged tracheostomy

3.5.3. Analgesia and Sedation Skills

- Assessment of the level of pain and sedation
- Monitor vital signs and potential side effects during pain management
- Provide procedural sedation and analgesia including conscious sedation (including testing of life support equipment)
- Use of appropriate local, topical and regional anaesthesia techniques - preferable ultrasound guided

3.5.4. Breathing and Ventilation Management Skills

- Assessment of breathing and ventilation
- Oxygen therapy
- Interpretation of blood gas analysis, pulse oximetry and capnography, spirometry, peak flow measurement
- Bag-mask-valve ventilation
- Thoracocentesis
- Decompression needle/ finger thoracostomy
- Chest tube insertion, connection to under-water drainage and assessment of functioning
- Non-invasive ventilation techniques
- Invasive ventilation techniques
- Setting up a transport ventilator

3.5.5. Circulatory Support and Cardiac Skills and Procedures

- Administration of fluids including blood and substitutes
- Monitoring of ECG and the circulation
- Defibrillation and pacing (e.g. cardioversion, transcutaneous pacing)
- Emergency pericardiocentesis
- Vascular access (peripheral venous, arterial, and central venous catheterisation, intraosseous access, ultrasound guided peripheral/central vascular access)
- Arterial puncture for blood sampling

3.5.6. Diagnostic Procedures and Skills

- Interpretation of ECG
- Appropriate request and interpretation of laboratory investigations (blood chemistry, blood gases, respiratory function testing and biological markers, drug levels, microbiology culture results, viral serology results)

- Adequate collection of blood cultures, swabs
- EPs should be able to identify certain pathologies/ conditions from the following X-rays, CT/MRI
    - ¥ CXR (pneumothorax, pleural fluid, consolidation, pulmonary oedema, widened mediastinum)
    - ¥ XR cervical spine (fracture, alignment, pre vertebral soft tissue swelling)
    - ¥ XR pelvis (fracture)
    - ¥ AXR (free air, gas/fluid levels, distended bowels)
    - ¥ XR extremities (fracture, dislocations, joint effusion)
    - ¥ XR thoracolumbar spine (fracture, alignment)
    - ¥ XR OPG (fracture, dislocations)
    - ¥ Facial XR (fracture, dislocations)
    - ¥ CT head (life-threatening cause of abnormal neurology, e.g. haemorrhage, raised ICP, mass effect, skull fracture, hydrocephalus)
    - ¥ CT facial bones/ orbits (fracture, orbital entrapment)
    - ¥ CT thorax (fracture, pneumothorax, haemothorax, infiltrative process, effusion or consolidation, major vessel aneurysm, dissection, rupture or occlusion)
    - ¥ CT spine (fracture, disc prolapse)
    - ¥ CT kidneys-urinary tract-bladder (calculus, signs of obstruction)
    - ¥ CT abdomen/pelvis (e.g. organ perforation/laceration, mass lesion, inflammatory process, major vessel dissection or rupture)
    - ¥ CT other bones (NOF/pelvis/ankle/foot – fractures, mass lesion, disrupted anatomy)
    - ¥ CT aorta/ CT pulmonary angiogram (massive pulmonary embolism, aortic dissection)

3.5.7. ENT Skills and Procedures

- Anterior rhinoscopy (nasal speculum insertion)
- Nasal cautery
- Insertion of nasal pack (anterior and posterior packing)
- Inspection of oropharynx and larynx
- Otoscopy
- Dix-Hallpike and Epley's Manoeuvre
- Head impulse test and test of skew
- Removal of nasal, aural and laryngeal foreign body ~~if airway is compromised~~
- Insertion and replacement of tracheostomy tube
- Aspiration or incision/drainage of peritonsillar abscess

3.5.8. Gastrointestinal Procedures

- Insertion of nasogastric or orogastric tube
- Gastric lavage
- Abdominal hernia reduction
- Abdominal paracentesis or insertion of drain
- Measurement of abdominal pressure
- Proctoscopy
- Emergency replacement of dislodged or non-functioning (blocked) gastrostomy tube

3.5.9. Genitourinary Procedures

- Insertion of indwelling urethral catheter
- Suprapubic cystostomy
- Testicular torsion reduction
- Evaluation of patency of urethral catheter

3.5.10. Hygiene Skills and Procedures

- Decontamination of patient and the environment
- Patient isolation and staff protection

3.5.11. Musculoskeletal Techniques

- Aseptic joint aspiration
- Fracture immobilisation and reduction
- Reduction of joint dislocation
- Log roll, transfer and spine immobilisation
- Splinting (plasters, braces, slings, tapes and other bandages)
- Management of compartment syndrome, insertion of a fascial intra-compartment monitor
- Fasciotomy, escharotomy

3.5.12. Neurological Skills and Procedures

- Evaluation of consciousness including the Glasgow Coma Scale
- Fundoscopy
- Lumbar puncture
- Interpretation of neuro-imaging

3.5.13. Obstetric and Gynaecological Skills and Procedures

- Emergency delivery (spontaneous vaginal delivery, shoulder dystocia, breech)
- Vaginal examination using speculum
- Assessment of the sexual assault victim (regardless of gender)
- Removal of products of conception from cervical os
- Check for presence/absence of foetal heart beat, eg foetal doppler, ultrasound
- Perimortem c-section

3.5.14. Ophthalmic Skills and Procedures

- Removal of foreign body from the eye
- Direct and indirect ophthalmoscopy
- Lateral canthotomy
- Tonometry
- Eye irrigation
- Application of eye pad or shield

3.5.15. Temperature Control Procedures

- Measuring and monitoring of body temperature
- Cooling techniques (evaporative cooling, ice water or slush immersion)
- Internal cooling methods
- Warming techniques
- Monitoring heat stroke patients

- Treatment and prevention of hyper- and hypothermia

3.5.16. Transportation of the Patient

- Telecommunication and telemedicine procedures
- Preparation of the EMS vehicle
- Specific aspects of monitoring and treatment during transportation

3.5.17. Wound Management

- Incision and drainage (simple, superficial abscess, paronychia, subungal haematoma)
- Nail bed repair
- Aseptic techniques
- Treatment of lacerations and soft tissue injuries (basic and advanced skin suturing techniques, alternative skin closure, e.g. tissue adhesives, staples)
- Wound exploration, cleaning, irrigation, debridement and wound closure
- Superficial open wound dressing
- Burn first aid and debridement of burns, primary burn dressings
- Soft tissue ultrasound (presence/ absence of foreign bodies)

3.5.19. Oral and maxillofacial procedures

- Joint reduction: temporomandibular joint (TMJ) reduction
- Enlocation of avulsed/extruded/intruded/laterally injured tooth
- Temporary stabilisation of injured tooth
- Haemostatis following dental extraction

3.5.20. Point of care Ultrasound (POCUS)

EPs should be able to obtain the following views and identify the following conditions:

- Cardiac views - focused cardiac ultrasound (subxiphoid, parasternal long axis, parasternal short axis, apical four chamber): identification of pericardial fluid, tamponade, dilated right ventricle, decreased contractility/left ventricular function, asystole
- Inferior vena cava: measurement of size and collapse upon inspiration
- Perihepatic and perisplenic views: identification of intraabdominal fluid, hydronephrosis, pleural fluid, pulmonary consolidation
- Suprapubic views (sagittal and transverse): identification of intraabdominal fluid, distended urinary bladder, intrauterine pregnancy
- Abdominal aorta: identification of abdominal aortic aneurysm, possible dissection flap
- Lung: identification of pneumothorax, interstitial syndromes, consolidations, correct endotracheal tube placement
- Hepatobiliary: identification of gallstones, cholecystitis, dilated common bile duct, pericholic fluid
- Proximal femoral vein and popliteal vein - two-point limited compression ultrasound: identification of deep venous thrombosis
- Ocular: identification of globe rupture, intraocular foreign body, retinal detachment, elevated ICP, eye movement, vitreous hemorrhage, pupillary reflex
- Soft-tissue: identification of foreign body, fluid collection/abscess, cellulitis

In addition, the EP physician should be able perform the following ultrasound-guided procedures:

- Nerve blocks
- Peripheral/central vascular access
- Pericardiocentesis in the setting of pericardial tamponade

4.STRUCTURE OF TRAINING OF EUROPEAN EMERGENCY MEDICINE SPECIALISTS

This part of the document is based on the standards of the World Federation for Medical Education (WFME) for *Quality Assurance for Postgraduate Medical Education* in Europe, of the Postgraduate Medical Education and Training Board (PMETB) for *Curriculum Development*, as well as the recommendations of the UEMS *Charter on Training of Medical Specialists* in the European Community [4,12,13].

The PMETB sets out the characteristics that curricula should display to be effective in guiding learning, teaching, and experience [4]. WFME specifies standards using two levels of attainment [12].

- *Basic standard* which is a minimum accreditation requirement to be met from the outset. Basic standards are expressed by a "**must**".
- *Standard for quality development* which means that the standard is in accordance with international consensus about best practice for postgraduate medical education. Standards for quality development are expressed by a "**should**".

4.1.TRAINING PROCESS

Recognised specialist training in Emergency Medicine **must** conform to national and institutional regulations and **must** take into account the individual needs of trainees. It **must** encompass integrated and updated practical, clinical and theoretical instruction. It **must** be based on clinical participation and responsibilities in patient care. The trainee **must** attain the core competencies described in the sections 3.1 and 3.5 of this document.

4.1.1.Training Structure

Each Training Programme (TP) **must** be recognised at national level in accordance with EU legislation as well as UEMS recommendations [13]. The responsibility and authority for organising, coordinating, managing and assessing the individual training centre and the training process **must** be clearly identified and supervised in each centre by the National Training Authority (NTA) responsible for the Training Programme in the country [12]. Emergency Medicine trainers and training Departments **must** be accredited in conformity with national and European standards.

4.1.2.Duration of Training

According to the UEMS Charter on Training the duration of training of medical specialists **must** be sufficient to ensure training for independent practice of the specialty after the completion of training [13]. European medical specialty training in Emergency Medicine is governed by the EU Directive 2005/36/EC and is set at *a minimum of 5 years of full-time training* as a primary medical specialty [1]. Within the 5 years of Emergency Medicine training *a minimum of 3 years* **must** be spent in an Emergency Department

accredited for training. Training **must** take place in a full-time appointment or the equivalent length for a flexible part-time appointment according to national regulations.

4.1.3. Working Conditions

The working conditions and responsibilities of trainers and trainees **must** be defined and made known and should be in accordance with EU directives and regulations [1]. The educational goals of the Training Programme and learning objectives of trainees **must** not be compromised by excessive reliance on trainees to fulfil institutional service obligations. The overall structuring of duty hours and on-call schedules **must** focus on the needs of the patient, continuity of care, and the educational needs of the trainee.

4.1.4. Assessment Methods and Tools

A portfolio based on the core curriculum **must** be used for assessment. In the portfolio, the trainee documents the theoretical, clinical and practical experience. The acquired competencies must be validated by the trainers on an annual basis. The standard assessment methods must be formative and summative, as previously defined [14,15,16,17].

4.1.4.1 Formative assessment and Documentation

Formative assessment is used as part of an ongoing learning or developmental process in giving feedback and advice. It **must** provide benchmarks to orientate the trainee. It **must** evaluate the trainee's progress and identify the strengths and weaknesses of that individual. The evaluation and any recommendations **must** be fully shared with the trainee.

The following **should** be part of formative assessment:

- *Formal Documentation of trainee's development and progress*
- *Workplace based Assessment*:
    - ¥ *Observed clinical care of unselected patients during working time.*
    - ¥ *Video or observed operating of the trainee within a team.*
    - ¥ *Mini Clinical Examination (or Direct Observation of Procedural Skills), to assess the knowledge, procedural and practical skills and attitudes of the trainee's interaction with a patient.*
    - ¥ *Case-Based Discussion, to explore clinical reasoning on a recent case.*
- *Non-workplace based Assessment*
    - ¥ *It includes processes such as case presentations, review of research in progress, review of critical incidents, review of teaching by trainee, role play/scenario teaching.*

4.1.4.2 Summative assessment

Summative assessment is usually a test that takes place after a specified training period with the purpose of deciding whether the trainee has reached a standard to proceed to the next level of training or to be awarded a certificate of Completion of Training. The methods of summative assessment **should** include:

- *Written examinations* (multiple choice questions, short answered questions, essays).
- *Oral and practical examinations* (clinical vivas and objective structured clinical examinations or OSCEs i.e. stations to assess medical knowledge, clinical, communication and ethical skills in short predetermined scenarios).
- *Evaluation of trainee's Portfolio.*

4.2.FACULTY

All physicians **should** participate in practice-based training as emphasised by WFME [12]. The faculty for Emergency Medicine **must** include a Training Programme Director (TPD) and an appropriate number of trainers. Trainers **should** devote a large proportion of their professional efforts to training and **should** be given sufficient time to meet the educational requirements of the programme.

4.2.1.Training Programme Director

The Training Programme Director **must** be a full time physician in the Emergency Department and **must** be either a specialist in Emergency Medicine (in countries where the speciality has been recognised for at least 5 years) or a specialist who has been practising Emergency Medicine for at least 5 years. The Director **must** be approved by the National Training Authority and fully direct the Training Programme [13].
Trainers **must** be either accredited by the NTA or selected by the TPD and accept responsibility for the day-to-day supervision and management of trainees as delegated by the TPD.

4.2.2.Trainer to EM Trainee Ratio

There **must** be a sufficient number of trainers in the Emergency Department to ensure adequate clinical instruction and supervision of trainees as well as efficient, high quality clinical care. The ratio of trainers to the number of trainees **must** be sufficient to allow training to proceed without difficulty and to ensure close personal interaction and monitoring of the trainee during their training [1].The recommended optimal trainer/ Emergency Medicine trainee ratio is **1 to 2** during clinical work in the Emergency Department.

4.3.TRAINEES

All trainees **must** share responsibility with their trainers for their education. The trainees **must** be pro-active in identifying their own knowledge gaps and **must** take advantage of all the formal and informal learning opportunities offered.

4.3.1.Selection Procedure of Trainees

The selection and appointment of trainees **must** be in accordance with recognised selection procedure and agreed entry requirements [1].

4.3.2.Training Posts per Training Programme

Trainees **must** be in appropriately remunerated positions [1]. To ensure training and teaching of high quality the NTA **must** approve the maximum number of trainees per year and/or per Training Programme for accreditation purposes. The number of training posts must be proportionate to established criteria, including clinical/practical training opportunities based on case-mix and volume, supervisory capacity and educational resources.

4.3.3.Supervision

Trainees **must** be supervised by trainers in such a way that the trainees assume progressively increasing responsibility according to their level of education, ability and experience. Schedules for trainers **must** be structured to ensure that supervision is

readily available to trainees on duty. The level of responsibility accorded to each trainee **must** be determined by the TPD.

4.3.4. Experience

The trainee **must** learn through exposure to a full range of clinical cases and be able to appreciate the issues associated with the delivery of safe, high quality and cost effective health care. The trainee **must** be involved in the treatment of a sufficient number of patients and perform an adequate number of procedures of sufficient diversity [13]. Administrative, teaching, and leadership skills **must** also be included in the Training Programme.

4.4. TRAINING CENTRES

A Training Centre is defined as a hospital or group of hospitals which together receive an appropriate case-mix and therefore offer the trainee experience in the full range of the specialty of Emergency Medicine [13]. Within the Training Centre there **should** be an ED with a patient load not less than 30,000 -35,000 visits/year and which provides care at all hours. Each Training Centre **must** encompass relevant specialties in order to give the trainee the opportunity of developing their clinical skills and fulfilling the curriculum and their portfolio. It **must** provide both space and opportunities for practical and theoretical study as well as for research activities and critical appraisal of medical literature [1]. Trainees **should** have the opportunity to be trained for specified periods in recognised training centres within or outside the country approved by the NTA [1]. Training Centres **must** be approved and recognised by the NTA.

4.5. EVALUATION OF TRAINING

The NTA and the appropriate professional bodies **must** establish a mechanism for evaluation of the training process that monitors each of the following areas [1,5].

4.5.1. Evaluation of Training Centres

Accredited Training Centres **must** be evaluated in accordance with national rules and EU legislation as well as UEMS recommendations [13]. Evaluation **must** also take into account the spectrum of services within the hospital. Repeated negative evaluations may result in the withdrawal of accreditation of a Training Centre [1,13].

4.5.2. Evaluation of Training Programme

Regular internal and external evaluation of the Training Programme **must** be assured in a systematic manner both as regards adherence to the curriculum and the attainment of educational goals. Both trainees and trainers **must** have the opportunity to evaluate the programme confidentially and in writing at least annually. External evaluation **must** be made by visiting representatives of the NTA. The TPD **must** use the results of all evaluations to improve the Training Programme.

4.5.3. Evaluation of Trainers

The TPD **must** evaluate trainer performance at least annually. This appraisal **should** include evaluation of clinical teaching ability, clinical knowledge, professional attitude and academic activities [15].

4.5.4. Evaluation of Trainees

Specialist education and training **must** include continuous assessment which tests whether the trainee has acquired the requisite knowledge, skills, attitudes and professional qualities to practise in the specialty of Emergency Medicine. This must include formal annual and final evaluations.

The annual evaluation **must** formalise the assessment of a trainee's competence to promote the trainee's improvement.

Upon completion of the Training Programme the trainee **must** submit his/her portfolio. The TPD **must** provide an overall judgment about the trainee's competence and fitness to practice as an independent specialist in Emergency Medicine. The individual assessment **should** include a final formal examination (written, oral and practical).

4.5.5. Re-Accreditation of Emergency Physicians

All Emergency Physicians **must** follow national regulations for re-accreditation.

5. FUTURE DEVELOPMENTS

In order to harmonise the quality of training in Emergency Medicine across Europe, the following additional steps **should** be considered.

5.1. EUROPEAN ACCREDITATION

European standards for accreditation of training centres, training programmes and theoretical and practical courses **must** be developed.

5.2. EUROPEAN BOARD EXAMINATION OF EMERGENCY MEDICINE (EBEEM)

The European Board Examination in Emergency Medicine (EBEEM) is developed and implemented by EMERGE (Emergency Medicine Examination Reference Group in Europe) under the guidance of the UEMS section in Emergency Medicine and EUSEM. It is a two-part examination designed to confirm the candidate's suitability for independent practice as an emergency physician within any country in the European Union. The examination assesses the knowledge, skills and behaviours necessary for the clinical practice of Emergency Medicine at the level of the specialist or consultant engaged in independent practice. This confirms that the successful candidate is able to provide clinical leadership in the emergency department [13][18].

6. REFERENCES

1. Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications. Official Journal of the European Communities L255/22–142, 30.9.2005.
2. Task Force of the European Society for EM (EuSEM). EuSEM core curriculum for Emergency Medicine. *Eur J Emerg Med* 2002; 9:308-14.
3. European Society for Emergency Medicine. Policy Statement on Emergency

Medicine in Europe.

4. Postgraduate Medical Education and Training Board. Standards for Curricula. March 2005. Accessed 10.11.2007 www.pmetb.org.uk**.**
5. College of Emergency Medicine. Curriculum (Working Document). London, Amended August 2008.
6. Palsson R, Kellett J, Lindgren S, Merino J, Semple C, Sereni D. Internal Medicine in Europe. Core competencies of the European internist: A discussion paper. *Eur J Int Med* 2007; 18:104–8.
7. Epstein RM, Hundert EM. Defining and assessing professional competence. JAMA 2002; 287:226-35.
8. Swick HM. Toward a normative definition of medical professionalism. *Acad Med 2000; 75:612 - 6.*
9. Larkin GL. Evaluating professionalism in emergency medicine: clinical ethical competence. *Acad Emerg Med 1999; 6:302- 11.*
10. Nolan JP, Deakin CD, Soar J, Böttiger BW, Smith G. European Resuscitation Council Guidelines for Resuscitation 2005. Section 4. Adult advanced life support. *Resuscitation* 2005; 67:S1, S39—S86.
11. Gisondi MA, Smith-Coggins R, Harter PM, Soltysik RC, Yarnold PR. Assessment of resident professionalism using high-fidelity simulation of ethical dilemmas. *Acad Emerg Med* 2004; 11: 931-7.
12. WFME. Postgraduate Medical Education. WFME Global Standards for Quality improvement. WFME: University of Copenhagen, Denmark, 2007. http://www.eua.be/fileadmin/user_upload/files/newsletter/EUROPEAN-SPECIFICATIONS-WFME-GLOBAL-STANDARDS-MEDICAL_EDUCATION.pdf. Accessed 15.5.2008.
13. UEMS Charter on Training of Medical Specialists in the European Community. http://www.uems.net/uploadedfiles/176.pdf. Accessed 10.5.2007.
14. Epstein RM. Assessment in Medical Education. Review article. *NEJM* 2007; 356:387-396.
15. Accreditation Council for Graduate Medical Education. ACGME Outcome Project; Competencies and Outcome Assessment (http://www.acgme.org/outcome/comp/compHome.asp, Accessed 10.5.2007.
16. Postgraduate Medical Education and Training Board. Principles for an **assessment** system for postgraduate medical training. 2007. Accessed 10.11.2007 www.pmetb.org.uk**.**
17. Swing SR. Assessing the ACGME General Competencies: General Considerations and Assessment Methods. *Acad Emerg Med* 2002; 9: 1278-88.
18. https://www.ebeem.eu

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