



**SECTION FOR
EMERGENCY MEDICINE**



EUSEM
EUROPEAN SOCIETY FOR EMERGENCY MEDICINE

EUROPEAN CORE CURRICULUM FOR EMERGENCY MEDICINE

VERSION 2.0

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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PREFACE

Emergency Medicine is a relatively recent medical specialty in Europe. In 2001, according to the European Doctors' Directive on the recognition of professional medical qualifications, the specialty was only recognised by the United Kingdom and Ireland. Currently, Emergency Medicine is a primary medical specialty in nineteen member states of the European Union (EU) / European Economic Area and a supra-specialty in two EU countries.

Given the recent history of Emergency Medicine as a specialty in Europe, the practice of Emergency Medicine and the understanding of what Emergency Medicine represents as a specialty are not uniform throughout Europe. One of the main functions of the European Core Curriculum for Emergency Medicine is to define the specialty by spelling out the core concepts that underlie its distinctiveness and by listing the competences that can be expected of specialists in Emergency Medicine.

The Core Curriculum lists the problems that specialists in Emergency Medicine should be able to address, the conditions they should be able to recognise and initially manage, the procedures they should be able to carry out, the investigations they should be able to interpret, and the overarching competences they should master. These lists are meant to guide European residents and specialists in acquiring the core competences in Emergency Medicine and in preparing for the European Board Examination in Emergency Medicine (EBEEM).

The Core Curriculum also establishes the essential principles for a rigorous training program in Emergency Medicine, and is thus meant to guide European Emergency Medicine program directors in facilitating Emergency Medicine competence acquisition at the level of training programs in Europe. A shared understanding of what Emergency Medicine represents as a specialty, common training goals, training standards and exit examination are intended to promote the development of the specialty throughout Europe and skills transfer across national borders.

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 was established in 2012 and represents the professional organisation for Emergency Physicians. The Emergency Medicine Examination Reference Group for Europe (EMERGE) was established in 2014 and is a joint UEMS/EUSEM working group that oversees and delivers the European Board Examination in Emergency Medicine (EBEEM).

EUSEM first published a European Core Curriculum for Emergency Medicine in 2002. The expanded version of the Core Curriculum, published in 2009 and endorsed by the UEMS Council, presented a guideline for the development and organisation of recognised training programmes of comparable standard across Europe. The Core Curriculum was updated in April 2017 to reflect advances in practice standards and preserve alignment with the EBEEM. This document is the first major revision of the Core Curriculum. The revision was drafted by a working group consisting of members of the EUSEM Education Committee and EMERGE. The revision was amended and submitted to EUSEM Council on 16 March 2019.

SECTION 1 INTRODUCTION

The European Core Curriculum for Emergency Medicine

Section 2 of the Core Curriculum lists the core competences in Emergency Medicine, namely:

- the ability to triage and resuscitate patients (Section 2.1)
- the symptoms, signs and situations Emergency Physicians (EPs) should be able to address (Section 2.2)
- the conditions EPs should be able to recognise and initially manage (Section 2.3)
- the procedures EPs should be able to carry out and investigations they should be able to interpret (Section 2.4)
- the ability to make judicious decisions regarding further investigations and treatments (Section 2.5)
- professional competences EPs should master (Section 2.6).

Most subsections feature introductory paragraphs that describe the inclusion criteria the lists are based on and the level of competence expected of Emergency Physicians.

SECTION 2 CORE COMPETENCIES

This section lists the core competencies that are expected of a specialist in emergency medicine. "Competence" refers to the ability to act appropriately in a given context. Knowledge is a prerequisite for competence. Sections 2.1 - 2.5 list the competencies related to the management of an individual patient while section 2.6 highlights additional professional competences.

SECTION 2.1 TRIAGE & RESUSCITATION

1 Triage

Emergency physicians must be able to evaluate the urgency of the patient's need for treatment based on limited information and continuous reassessment. 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, e.g., patient, available resources. Emergency physicians should be able to apply the principles of the triage systems used in the Emergency department as well as in the pre-hospital arena, both during normal circumstances and during mass casualty situations.

2 Resuscitation

Patients that are critically ill require immediate management following established guidelines, the focus being on rapidly delivering therapy that decreases morbidity and mortality despite initially not knowing the patient's diagnosis. This process is referred to here as resuscitation.

Resuscitation combines assessments and interventions in order to rapidly normalise abnormal physiological parameters (e.g., hypoxia, hypoglycaemia) and acquire information that allows for the recognition and treatment of life-threatening conditions (e.g., anaphylaxis, hemorrhagic chock). The recommended 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 hemorrhage.
- 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 a superficial examination of the body and treating or preventing hypo- and hyperthermia.

The assessments and treatments that can be performed during the resuscitation will depend on the context and available equipment, using the same resuscitation sequence for all patients under all circumstances. It is recommended that the following adjuncts are incorporated into the resuscitation process, in particular:

- point-of-care ultrasound
- point-of-care blood tests
- electrocardiogram

SECTION 2.2 SYMPTOMS, SIGNS & SITUATIONS

Introduction

Within the realm of Emergency Medicine, patients present with symptoms & signs. "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 which are complex and whereby patients are deemed to require urgent assessment and benefit from team approach, e.g., in the settings of cardiac arrest, or following major trauma.

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

- estimate the severity of the patient's condition
- initiate immediate therapy if needed
- estimate the likelihoods of potential time-sensitive conditions, i.e. conditions where timing on therapy impacts on morbidity and mortality
- select and interpret relevant investigations

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 focused bedside information such as the history, the physical examination and point-of-care tests such as the electrocardiogram, certain blood tests, point-of-care ultrasound and urinalysis. For example, chest pain may be caused by a large number of conditions, yet the specialist in emergency medicine should be able to rapidly acquire information from a focused history, physical examination and point-of-care tests that allows for the likelihood assessment of time-sensitive conditions such as acute coronary syndrome, aortic dissection and pulmonary embolism. The local approach needs to take into consideration the local prevalence of time-sensitive conditions.

1 Abnormal Vital Signs

Bradycardia

Bradypnoea

Hypertension

Hyperthermia

Hypotension

Hypothermia

Prolonged capillary refill time

Reduced level of consciousness

Reduced peripheral oxygenation

Tachycardia

Tachypnea

2 Pain

Abdominal pain

Anal pain

Back pain
Chest/thoracic pain
Dysuria
Ear pain
Eye pain
Flank pain
Headache and facial pain
Joint pain
Limb pain
Muscular pain
Neck pain
Pelvic pain
Scrotal pain
Throat pain/odynophagia
Tooth pain
Vaginal/vulvar pain

3 Other Symptoms

Constipation
Cough
Diarrhea
Dizziness/vertigo
Dysphagia
Dyspnea
Fatigue
Fever/chills
Lightheadedness
Nausea/vomiting
Palpitations
Paraesthesia
Polyuria and oligo/anuria
Pruritus
Seizures
Transient loss of consciousness
Vaginal/penile discharge
Visual disturbances
Weakness

4 Bleeding

Epistaxis
Haematemesis
Haematuria
Haemoptysis
Rectal bleeding/melaena
Vaginal bleeding

5 Abnormal Physical and Mental Status Findings

Abdominal:

- Distension
- Masses

- Organomegaly
- Rebound pain and guarding

Cardiac:

- Abnormal heart sounds

Dermatological:

- Bites and stings
- Burn
- Cyanosis
- Oedema
- Erythema
- Frostbite
- Jaundice
- Pruritus
- Rash
- Splinter haemorrhage
- Ulcers
- Wounds

Mental/Psychiatric:

- Agitation/aggression
- Confusion/delirium
- Deliberate self-harm
- Suicidality

Neurological:

- Abnormal movement
- Muscle tone disturbance
- Paresis/paralysis
- Sensory disturbance
- Speech disorder

Ophthalmological:

- Nystagmus
- Red eye
- Visual disturbances

Pulmonary:

- Abnormal breath sounds
- Decreased breath sounds

Urogenital:

- Scrotal swelling

6 Abnormal Blood and Urine Test Results

Abnormal test results:

- Abnormal urinalysis results
- CSF-analysis
- Elevated CRP or ESR
- Elevated Creatinine/urea
- Elevated CK/myoglobin
- Elevated d-dimer

- Elevated INR
- Elevated Troponin
- Synovial fluid analysis

Electrolyte disturbances:

- Hyper-/hypocalcaemia
- Hyper-/hypokalaemia
- Hyper-/hypomagnesaemia
- Hyper-/hyponatraemia

Haematological disturbances:

- Anaemia
- Clotting disorders
- Leukocytosis
- Leukopenia
- Methaemoglobinaemia
- Polycythaemia
- Thrombocytopenia
- Thrombocytosis

Liver and pancreas test disturbances:

- Elevated amylase/lipase
- Elevated bilirubin
- Elevated liver enzymes

Metabolic and respiratory disturbances:

- Hyper-/hypocapnia
- Hyper-/hypoglycaemia
- Hypoxia
- Hyperammonaemia
- Elevated lactate
- Metabolic acidosis
- Metabolic alkalosis
- Respiratory acidosis
- Respiratory alkalosis

7 Situations

- Fall in older person
- Major Trauma

SECTION 2.3 DIAGNOSES & SYNDROMES

Introduction

Myocardial infarction, pneumonia and heroin overdose are examples of “diagnoses” that can be confirmed in the Emergency Department. 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 that are of primary focus in Emergency Medicine are time-sensitive conditions, e.g., those for which timely treatment, within the scope of hours to days, impacts on morbidity and mortality. Acute coronary syndrome, anaphylaxis, sepsis, severe hyperkalaemia and spinal epidural abscess are examples of such conditions. Conditions for which treatment does not impact upon morbidity and mortality are not of primary focus in Emergency Medicine. Lung cancer and amyotrophic lateral 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:

- know the risk factors for the condition in order to be able to assess its pre-test probability
- know the condition's possible presenting symptoms, signs and situations
- 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.

This section deliberately does not include established, non-time-sensitive diagnoses (e.g., systemic lupus erythematosus). 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 be rapidly 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

Anaphylaxis

Angioedema

Croup
Deep neck space infections
Epiglottitis
Foreign body
Pharyngitis, tonsillitis, laryngitis
Tracheitis
Thermal damage to the upper airway

3 Lung

Asthma
Bronchiolitis
Bronchitis
Chronic obstructive pulmonary disorder
Empyema
Haemothorax
Pleural effusion
Pneumomediastinum
Pneumonia
Pneumothorax
Pulmonary oedema

4 Heart

Acute coronary syndromes
Acute heart failure syndromes
Arrhythmias
Atrioventricular block
Cardiac tamponade
Conduction disturbances
Endocarditis
Myocarditis
Pericarditis

5 Circulation and Vascular

Acute limb ischaemia
Aortic dissection
Carotid/vertebral artery dissection
Deep vein thrombosis
Hypertensive emergencies
Pulmonary embolism
Ruptured abdominal aortic aneurysm
Shock:

- Hypovolaemic
- Cardiogenic
- Obstructive
- Distributive
- Toxic/metabolic

Temporal arteritis
Thrombophlebitis

6 Brain

Cerebral sinus thrombosis
Meningoencephalitis
Primary headaches
Raised intracranial pressure
Stroke syndromes
Subarachnoid hemorrhage
Transient ischaemic attack

7 Spinal Cord and Peripheral Nervous System

Cauda equina/conus medullaris
Mononeuropathy
Polyneuropathy
Radiculopathy
Spinal cord syndromes
Spinal epidural abscess
Trigeminal neuralgia

8 Eye

Acute glaucoma
Conjunctivitis
Corneal abrasions
Foreign body
Globe rupture
Herpes zoster ophthalmicus
Orbital and periorbital cellulitis

9 Ear and Nose

Acute otitis media
Benign paroxysmal positional vertigo
Foreign body
Mastoiditis
Peritonsillar abscess
Vestibular neuritis

10 Gastrointestinal

Appendicitis
Anorectal syndromes
Bowel obstruction, small and large bowel
Diverticulitis
Oesophageal rupture
Foreign body
Gastroenteritis
Gastrointestinal bleeding, lower and upper
Hernias
Hirschsprung's disease
Inflammatory bowel disease
Intestinal Ischaemia
Intussusception
Peptic ulcer disease

Pyloric stenosis
Viscous perforation

11 Hepatobiliary and Pancreas

Ascites
Biliary colic
Cholangitis
Cholecystitis
Fulminant hepatic failure
Hepatic encephalopathy
Hepatitis
Pancreatitis
Spontaneous bacterial peritonitis

12 Urogenital

Acute kidney injury
Balanitis
Bartholin gland abscess
Cystitis
Epididymitis
Fournier's gangrene
Hydronephrosis
Nephrotic syndrome
Orchitis
Ovarian torsion
Ovarian cyst rupture
Paraphimosis
Pelvic inflammatory disease/tubo-ovarian abscess
Priapism
Prostatitis
Pyelonephritis
Sexually transmitted diseases
Testicular torsion
Ureterolithiasis
Urinary retention
Vulvovaginitis

13 Obstetrics

Abruptio placentae
Extrauterine pregnancy
Hemolysis, Elevated Liver enzymes Low Platelets (HELLP) syndrome
Hyperemesis gravidarum
Ovarian hyper-stimulation syndrome after in-vitro fertilisation
Peripartum cardiomyopathy
Placenta praevia
Pre-eclampsia and eclampsia
Spontaneous abortion
Uterine rupture

14 Musculoskeletal

Arthropathy
Bursitis
Compartment syndrome
Discitis
Dislocations
Osteomyelitis
Radiculopathy
Rhabdomyolysis

15 Skin and Soft Tissue

Abscess
Cellulitis
Erysipelas
Mastitis
Necrotising fasciitis and myositis
Stevens-Johnson syndrome and toxic epidermal necrolysis
Toxic shock syndrome

16 Haematology and Coagulation

Disseminated intravascular coagulation
Neutropenic fever
Sickle cell crisis
Transfusion reaction

17 Metabolism, Endocrinology, Auto-Immune

Adrenal crisis
Diabetic ketoacidosis
Hyperosmolar hyperglycaemic syndrome
Metabolic bone disease
Severe hyperthyroidism
Severe hypothyroidism
Wernicke's encephalopathy

18 Infection

Botulism
Herpes zoster
Influenza
Lyme disease and neuroborreliosis
Malaria
Measles
Meningococcaemia
Rabies
Sepsis
Tetanus
Viral haemorrhagic fever

19 Poisoning

Anticholinergic toxidrome
Beta-blocker/calcium channel antagonist intoxication

Cholinergic toxidrome
Coumarin and NOAC intoxications
Digoxin intoxication
Ethanol intoxication and withdrawal
Malignant hyperthermia
Mushroom poisoning
Neuroleptic malignant syndrome
Opioid toxidrome
Paracetamol intoxication
Salicylate intoxication
Sedative/hypnotic toxidrome
Serotonin syndrome
Sympathomimetic toxidrome
Sodium channel poisoning
Smoke inhalation, in particular carbon monoxide and cyanide poisoning
Toxic alcohol intoxication

20 Psychiatry

Conversion disorders
Delusional disorders
Mood disorders

21 Trauma

Abdominal trauma
Barotrauma
Chest trauma
Crush syndrome
Facial trauma
Head trauma
Limb trauma
Neck trauma
Pelvic trauma
Spinal trauma
Urogenital and anorectal trauma

22 Exposure to External Factors

Blast and crush injuries
Decompression sickness
Drowning
Electricity and lightning
High-altitude
Hyperthermia
Hypothermia
Needle-stick injury
Post-exposure prophylaxis
Nuclear, biological, chemical, and radiological (NBCR) exposures

SECTION 2.4 PROCEDURES & DIAGNOSTIC TESTS

Introduction

This section lists the procedures that an emergency physician should be able to carry out and the diagnostic tests that an emergency physician should be able to appropriately order and interpret.

For each procedure, the physician should:

- know its indications
- know its contraindications
- be able to systematically and efficiently carry out the procedure
- know its potential complications and how to initially manage them
- know post-procedure management

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

For each diagnostic test, the physician should:

- know its sensitivity and specificity for time-sensitive conditions
- know its potential complications
- be able to systematically interpret its results; for point-of-care ultrasound and CT investigations, the pathological entities that a specialist in Emergency Medicine should be able to identify are listed.

Some procedures, e.g., resuscitative thoracotomy, are potentially lifesaving yet seldom indicated, and for which finding the means to achieve and maintain competence among all specialists in an Emergency Medicine program is challenging. Achieving and maintaining competence with these procedures is highly desirable yet not likely achievable for all specialists. This is why for some countries and/or doctors it might be ambivalent about whether to include these procedures within a "core" curriculum. This includes certain point-of-care ultrasound investigations as well. This ambivalence is conveyed by an asterisk (*).

1 Cardiopulmonary Resuscitation

Chest compressions and ventilation

Defibrillation

Use of medications

Use of PoCUS

External pacing

Finger/needle thoracostomy

Pericardiocentesis

Open chest cardiopulmonary resuscitation*

Perimortem Caesarean section*

Resuscitative thoracotomy*

2 Airway

Simple airway opening maneuvers

Oropharyngeal and nasopharyngeal airways

Laryngeal mask airway

Endotracheal intubation
Rapid sequence intubation
Cricothyrotomy
Needle cricothyrotomy and jet insufflation
Replacement of tracheostomy
Fiberoptic examination of the upper airway*

3 Breathing

Oxygen therapy
Blood gas analysis
Pulse oximetry
Capnography
Peak expiratory flow measurement
Bag-valve-mask ventilation
Non-invasive ventilation
Invasive (mechanical) ventilation
Finger/needle thoracostomy
Chest tube insertion
Thoracocentesis

4 Circulation

Fluid therapy
Blood product therapy
Control of active bleeding
Cardioversion (electrical/pharmacological)
Transcutaneous pacing
Pericardiocentesis
Peripheral venous access
Central venous access
Intraosseous access
Arterial access
12-lead EKG interpretation
Vasoactive drugs
TEG/ROTEM

5 Disability

Neurological examination
Fundoscopy
Lumbar puncture

6 Exposure

Log roll, transfer and spine immobilisation
Cervical spine clearance
Body temperature assessment
Escharotomy*
Cooling techniques
Warming techniques
Decontamination

Isolation¹

7 Analgesia and Procedural Sedation

Pain and sedation assessment
Procedural sedation and analgesia
Local, topical and regional anaesthesia

8 Point-Of-Care Ultrasound

Focused cardiac ultrasound:

- Pericardial fluid/tamponade
- Dilated right ventricle
- Decreased contractility/left ventricular function
- Inferior vena cava assessment

Lung ultrasound:

- Pleural fluid
- Pulmonary consolidation
- Pneumothorax
- Interstitial syndromes

FAST (Focused Assessment with Sonography in Trauma)

Abdominal ultrasound:

- Hydronephrosis
- Distended urinary bladder
- Abdominal aorta measurement
- Gallstones
- Cholecystitis
- Small bowel obstruction
- Intrauterine pregnancy

Soft-tissue ultrasound:

- foreign body
- fluid collection/abscess
- cellulitis

Proximal deep venous thrombosis

Ultrasound-guided procedures:

- nerve blocks
- peripheral/central vascular access
- pericardiocentesis

Musculoskeletal ultrasound²

Ocular ultrasound³

9 Musculoskeletal

Arthrocentesis
Fracture reduction
Joint examination
Joint reduction
Limb immobilisation
Pelvic binder application
Compartment pressure measurement*

1 Routines for recognition, isolation and management of patients with suspected NBCR including highly infectious diseases, e.g., cholera, tuberculosis, EBOLA, MERS.

2 Identification of fracture, dislocation, joint effusion, tendon injury

3 Identification of globe rupture, intraocular foreign body, retinal detachment, elevated intracranial pressure, eye movement, vitreous hemorrhage, pupillary reflex

10 Wound

Peripheral neurovascular examination
Local and regional anaesthesia
Wound exploration, cleaning, irrigation, debridement, closure
Incision and drainage
Nail bed repair
Burn wound management

11 Ear-Nose-Throat

Anterior rhinoscopy using nasal speculum
Nasal cautery
Insertion of nasal pack (anterior and posterior packing)
Inspection of oropharynx and larynx
Otoscopy
Dix-Hallpike and Epley's Maneuvers
Head impulse test and test of skew
Removal of nasal, aural and laryngeal foreign body
Aspiration or incision/drainage of peritonsillar abscess

12 Ophthalmic

Eye examination
Removal of corneal foreign body
Lateral canthotomy
Eye irrigation
Application of eye pad or shield

13 Oral and Maxillofacial

Temporomandibular joint reduction
Temporary stabilisation of injured tooth
Haemostasis following dental extraction

14 Gastrointestinal

Abdominal paracentesis or insertion of drain
Gastric lavage
Hernia reduction
Insertion of nasogastric or orogastric tube
Management of dislodged percutaneous endoscopic gastrostomy tube
Removal of rectal foreign body

15 Genitourinary

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

16 Obstetric and Gynaecological

Vaginal examination using speculum

Measurement of foetal heart rate

Emergency delivery:

- Normal delivery
- Shoulder dystocia
- Breech

Removal of products of conception from cervical os

Removing vaginal foreign body

17 Psychiatric

Mental status examination

Assessment of suicidal ideations

Chemical/physical restraint in accordance with national laws

18 Radiology

Indications, contraindications and risks with contrast studies

Indications and benefits of MRI in special circumstances

Basic interpretation of the following studies:

- Abdominal X-ray
- Cervical spine X-ray
- Chest X-ray
- Extremities X-ray
- Pelvic X-ray
- Thoracolumbar spine X-ray

CT head:

- haemorrhage
- raised intracranial pressure
- 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, occlusion

CT spine:

- fracture
- disc prolapse

CT kidneys-urinary tract-bladder:

- calculus
- signs of obstruction

CT abdomen/pelvis:

- organ perforation/laceration
- mass lesion
- inflammatory process
- major vessel aneurysm, dissection, rupture or occlusion

CT angiogram:

- aortic dissection
- pulmonary embolism
- extra-cranial arterial occlusion/dissection

19 Transport and transfer

Basic communication modalities and protocols

Monitoring and treatment during transfer/transportation/retrieval

SECTION 2.5 CLINICAL REASONING & 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 or whether the patient requires hospital admission.

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, functional ability among others.

EPs must be aware of the limitations of their personal decision-making processes.

While making these decisions, emergency physicians should bear in mind their responsibility to the patient collective and the limitations of health care resources.

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

Specific Situations

Cancer patient

Dementia

Drug-seeking patient

Frailty

"Found lying on the floor"

Frequent visitors

Homeless patient

Immunocompromised patient

Low-income patient

Migrants

Neonates

Palliative/end-of-life care

Polypharmacy

Potential organ donor

Pregnancy

Suspected/confirmed abuse/neglect

Suspected poisoning

SECTION 2.6 PROFESSIONAL COMPETENCES

1 Organisational Competences

EPs must be able to organise the delivery of care within the emergency medical setting in order to ensure optimal patient care. This competence deals with the ability to prioritise between health care needs, optimally allocate available health care resources (personnel, equipment, medications, etc.) to address these health care needs, and adapt to and anticipate changes in nature and number of needs and resources. A prerequisite of optimal resources utilisation is knowledge of the nature and number of resources available in the emergency department, the hospital, the out-of-hospital environment, and how and when to activate these resources. A number of specific circumstances and competences are highlighted below.

Disaster Medicine

EPs must be knowledgeable of the local plans to be implemented in the setting of major/mass casualties and able to implement these plans when necessary. EPs should understand the principles of managing major incidents and be able to adapt local plans to the actual circumstances in and out of hospital. EPs should be involved in regularly rehearsing the response to major incidents. EPs should participate in debrief after major incidents and aware of available resources for crisis intervention.

EPs must develop expertise in:

- disaster response preparedness
- major incident response planning/procedure/practice
- mass gatherings medical safety plans
- debriefing and mitigation

Safety and Violence Management and Prevention

EPs must be able to manage, limit and prevent violence in the Emergency Department as well as in the out-of-hospital setting. In the pre-hospital environment, EPs must be able to implement measures to ensure safety at the scene.

Home Support

EPs must be knowledgeable of and able to activate resources to support patient discharge from the ED (e.g., district nurse, carers, community services) and consider care of dependents if the sole caretaker is admitted to the hospital. EPs should be aware of alternatives to admission including temporary residential care and nursing homes.

Pre-Hospital Care

Pre-hospital care includes medical dispatch and emergency medical services. EPs should be knowledgeable about and able to demonstrate competence in:

- interagency team management
- managing the medical response team within a challenging hazardous environment
- enhancing specialist training in Emergency Medicine through the implementation of knowledge and skills working in medical response within the pre-hospital environment
- understanding the principles in managing the victim within various entrapment situations
- operational practice within pre-hospital Emergency Medicine
- understanding the principles of patient transfer to receiving medical facilities

2 Communication and Collaboration

Effective communication, both verbal and non-verbal, is essential for safe patient care as well as for building and maintaining good relationships with patients, relatives and colleagues.

With 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)

With colleagues and other health care providers

EPs should be proficient at working as team-members or team-leaders in multidisciplinary teams. This competence requires an understanding of the role of colleagues in other specialties, non-technical skills such as situational awareness and the ability to judiciously delegate tasks, and stress tolerance. EPs should be proficient at communicating relevant information relating to patient care to other colleagues and health care providers.

With other care providers such as the police, the fire department and social services

EPs must be able to communicate and collaborate with other agencies to obtain and share information relevant to specific patients within the medico-legal boundaries of patient confidentiality.

With 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 through the local hospital communication process while respecting patient and staff privacy.

Special circumstances

EPs should be able to lead an initial defusing session following stressful events and be aware that some staff members may require a follow-up debriefing session. EPs must be able to communicate in a professional and constructive manner, orally or in writing, when conflicts arise between patients, relatives, caretakers and/or health care personnel.

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. Medical records should include:

- 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 Education and Research

Reflective practice & self-education

EPs must continuously reflect upon their own clinical practice, identify gaps in knowledge and competence, and fills these gaps through self-education. EPs should be aware of the value and limitations of various educational modalities.

Teaching & mentoring

EPs must be able to teach Emergency Medicine to undergraduate, graduate and post-graduate health care personnel, within the classroom as well as within the clinical setting. In particular, EPs must be able to supervise more junior staff and promote competence development through questions, guidance, feedback and reference to educational material. EPs must be able to provide longitudinal supervision of and mentorship for trainees and complete an annual appraisal to confirm a trainee's progression. EPs must continually reflect upon the teaching process and develop their pedagogical skills.

Critical appraisal

EPs must be able to systematically search the medical literature to answer specific clinical questions, critically appraise studies, and determine whether these studies ought to impact on local practice according to the principles of Evidenced-Based Medicine.

4 Health Care Evaluation and Improvement

EPs must be involved in the evaluation and improvement of local health care processes.

Quality standards, audit and clinical outcomes

EPs should recognise the value of quality standards and the benefits of measuring key performance indicators to improve patient care. They must be able to complete an audit cycle and use clinical outcomes, including critical incident reporting, in order to continuously improve clinical practice through actions with demonstrable outcomes that can be measured against performance indicators.

Critical incident analysis

EPs should be able to recognise when care has been unsatisfactory, complete a medico-legal report that accurately describes the events and patient outcomes, contribute to the analysis of the reasons for the unsatisfactory care, and determine which actions can be taken to decrease the risk of repeat events. EPs should be able to contribute to morbidity and mortality conferences.

Knowledge translation

EPs should be able to design, implement and evaluate programs that introduce new health care processes locally.

5 Professionalism, Ethics and Medico-Legal

EPs must operate within the legal framework of the country in which they are working. Yet, the law does not always provide the answer to many ethical problems. In these circumstances, EPs must be able to make a reasoned analysis based on ethical principles to determine moral duty, obligation and conduct (medical deontology).

Professional behaviour and attributes

EPs must be able to work professionally and efficiently with a diverse patient population under stressful circumstances. EPs must be aware of their own limitations, recognise their own errors and value participation in the peer review process.

Colleague in difficulty

EPs must be able to support colleagues in difficulty, know how to access support to improve resilience, and contribute to the disciplinary process when the performance of colleagues is unacceptable.

Patient confidentiality

EPs must understand the law regarding patient confidentiality and data protection.

Autonomy, informed consent & competence

EPs must respect the rights of competent patients to be fully informed about the aspects of their care, to be fully involved in decisions about their care, and to refuse clinical procedures or treatment. EPs must understand when and how to use advance directives such as living wills and durable powers of attorney. EPs must be able to assess whether a patient has the competence to make an informed decision. EPs must understand the legal rights of a guardian (stakeholder) 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.

Abuse and violence

EPs must be able to recognise patterns of illness or injury that suggest psychological, physical or sexual abuse of children and adults. They must be able to initiate appropriate child or adult protection procedures.

End-of-life/palliative care

EPs must be able to discuss in a professional and empathetic manner, with patients, relatives, caregivers and colleagues, the withholding or withdrawal of active medical interventions when these are deemed futile. EPs must be able to engage in discussions regarding end-of-life/palliative care.

Forensic issues

EPs should be aware of the relevant legislation in the country of practice regarding the preservation of forensic evidence. They should be able to document and appropriately handle evidence suggesting abuse, neglect or crime.

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 disproportionately 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.

6 Health Advocate

EPs should advocate healthy lifestyles and where appropriate lobby for health of the population and sustainability of the health care system.

For the emergency physician

EPs should adopt life-style practices to maximise their own resilience and lobby their institutions and employers to improve their working environment in order to maximise their own resilience and those of their colleagues.

7 Continuous Professional Development

The EP must continue to develop their knowledge and practice in EM by continuous education. They must identify for personal improvement and learn to apply scientific evidence and advances to improve patient care.

8 Utilization of Technology and Information Management

The EP must understand the role of technology in delivering safe healthcare and the utility of data to manage resources and support innovation.