EMERGENCY SURGERY CURRICULUM - KNOWLEDGE

The Emergency Surgery curriculum comprehensively describes the Knowledge and Skills required for the qualification as Fellow of the European Board of Surgery in Emergency Surgery (F.E.B.S./EmSurg).

The curriculum is not intended to be a complete educational plan, but provides a framework around which preparation for the qualification as F.E.B.S./EmSurg can be structured.

The curriculum should not be viewed as static but will be continuously revised and updated to bring it into line with developments in knowledge and best practice. New topics will be introduced and others deleted. Candidates will be expected to update their knowledge and skills accordingly and to be aware of significant recent developments in surgical practice and scientific literature.

Within the curriculum some skills are listed which are not universally performed by general surgeons (see Emergency Surgery - Skills: Category D). Although candidates do not have to be able to demonstrate proficiency in all of these procedures, they will be expected to have significant knowledge and understanding of them.

To achieve the qualification as F.E.B.S./EmSurg a candidate’s experience will be scrutinised in the Eligibility process. Knowledge is assessed by examination and evidence of Skills has to be provided in a log-book and may be additionally assessed by examination.

The transferable competency of Emergency Surgery requires the ability to demonstrate a sound understanding of the basic science, surgical anatomy, applied physiology and pathology relevant to emergency surgery and knowledge of:

Initial Assessment and Management

- Airway management with particular reference to upper airway obstruction, injuries of the pharynx, larynx, trachea and bronchi and airway maintenance in the severely injured and unconscious patient

- Nasotracheal and endotracheal intubation, cricothyroidotomy/laryngotomy and tracheostomy

- Administration of oxygen and techniques of ventilatory support

- Management of smoke inhalation injury and carbon monoxide poisoning

- Management of closed and penetrating chest injuries
- Maintenance of circulation including techniques of vascular access, cardiopulmonary and pharmacological resuscitation, hemodynamic support, the management of shock and cardiac trauma

- Principles of blood transfusion and serology including the use of plasma substitutes and protocols for massive transfusion and the risks and complications of transfusion

- Indications and techniques of resuscitative laparotomy and thoracotomy

- Principles of damage control surgery

- Assessment, replacement and maintenance of fluid, electrolyte and acid-base balance in adults, children and neonates

- Management of acute gastrointestinal haemorrhage

- Management of the unconscious patient

- Initial management of severe head and brain injury, spinal injury, para- and tetraplegia and space occupying intracranial lesions

- Principles of management of pelvic fractures and the management of fractures and dislocations of the limbs.

- Principles of pre-hospital care and patient triage including major incident management and surgery in austere conditions

- Principles of ballistics and the management of gunshot and blast injuries

**Investigation**

- Principles of diagnostic radiography (including interventional radiology), ultrasonography, computed tomography, magnetic resonance imaging and related techniques

- Principles and techniques of biopsy and cytological sampling
Preoperative care

- Peri-operative management of medical co-morbidities in the emergency surgical patient including respiratory, cardiovascular, hepatic and renal disease, endocrine and psychiatric disorders

- Assessment of fitness for anaesthesia and surgery and risk of morbidity and mortality

- Correction of coagulopathy and haemolytic disorders and the prevention and treatment of thromboembolic disease

- Prevention and treatment of infections

- Acute renal failure in surgical patients including the principles of hemofiltration, dialysis and plasmapheresis

Definitive Treatment

- Care and monitoring of the anaesthetised patient and principles of general, regional and local anaesthesia

- Malignant hyperthermia

- Laparoscopy and laparoscopic procedures in emergency surgery

- Techniques and technology of dissection, haemostasis, excision, resection and anastomosis used in emergency surgery

- Interventional radiology and the safe use of X-ray screening for detection of foreign bodies and stent placement

- Management of blunt and penetrating injuries to thoracic, abdominal and pelvic viscera, parietes and vasculature

- Management of nerve and vascular injuries of the neck

- Management of closed and penetrating head injuries including facial and orbital trauma
- Management of vascular injuries of the limbs and the principles of amputation and rehabilitation

- Management of perineal trauma

- Trauma and emergency surgery in pregnancy

- Management of obstructive uropathy

- Principles and techniques of hernia repair including component separation techniques, abdominal wall reconstruction and the use of surgical meshes and biological materials

### Postoperative management

- Principles and techniques of pain control

- Post-operative monitoring and the prevention, recognition and management of complications

- Principles and practice of intensive care medicine in posttraumatic, preoperative, perioperative and postoperative patients including the use of scoring systems

- Systemic inflammatory response syndrome, sepsis, sepsis syndrome and septic shock including the pathophysiology and management of single and multiple system organ failure

- Respiratory failure, pulmonary oedema, “shock lung”, adult respiratory distress syndrome, lobar and pulmonary collapse, and transfusion related acute lung injury

- Indications and techniques of nutritional support

- Prevention, diagnosis and management of abdominal compartment syndrome

- Prevention, diagnosis and management of compartment syndrome in the limbs
- Classification of surgical wounds and the principles of wound management including infection, dehiscence and the treatment of chronic and complex wounds (e.g. negative pressure therapy)

- Pathophysiology and complications of fracture healing and the principles of bone grafting

**Specific Conditions**

- Acute abdominal pain including aetiologies more commonly encountered in the Tropics, Africa and Asia than Europe and North America

- Management of non-specific abdominal pain

- Pathophysiology and management of acute and chronic pancreatitis and their complications

- Pathophysiology and management of peritonitis and intra-abdominal sepsis

- Pathophysiology and management of obstruction, inflammation, infection and bleeding of the liver and biliary tree

- Ascites

- Mechanical and functional obstruction of the gastrointestinal tract

- Aetiology, diagnosis and management of gastrointestinal tract perforation

- Acute mesenteric ischemia: arterial, venous, and nonocclusive

- Radiation enteritis

- Pathophysiology and management of acute appendicitis, appendiceal neoplasms and pseudomyxoma peritoneii

- Management of diverticulitis and its complications

- Pathophysiology, aetiology and management of colitis and Crohn’s disease
- Pathophysiology, aetiology and management of fistulae

- Assessment and management of the acute presentation of malignant disease

- Assessment and management of anorectal pathology

- Faecal impaction and stercoral ulceration

- Irritable bowel syndrome

- Postsplenectomy sepsis

- Surgical techniques in bariatric surgery and their complications

- Management of foreign bodies in the gastrointestinal, urogenital or respiratory tract

- Aetiology and management of pleural effusion, empyema and mediastinitis

- Neonatal physiology and the principles of anaesthesia and surgery in the newborn

- Diagnosis and management of common emergency paediatric surgical disorders (including pyloric stenosis, intussusception, hernias and testicular torsion) and correctable life-threatening congenital abnormalities

- Diagnosis and management of necrotizing enterocolitis

- Management of urological emergencies including sepsis, obstruction, calculi, haemorrhage, retention, scrotal pain and swelling

- Gynaecological causes of acute abdominal pain including ectopic pregnancy, pelvic inflammatory disease and endometriosis

- Pathology and management of acute and chronic limb ischaemia
- Principles of and techniques of arterial reconstructive surgery and the management of aneurysms

- Soft tissue infections, injuries and ulceration including necrotising fasciitis, synergistic gangrene, perianal and ischiorectal sepsis and pilonidal disease

- Management of snake, spider, human and other animal bites and stings

- Management of the patient with polytrauma including those at the extremes of life

- Mangled extremities and traumatic amputation

- Diagnosis and treatment of common fractures and the principles of joint replacement

- Management of hypothermia

- Management of burns

- Principles of skin grafting and flaps

- Principles of tendon repair

- Management and complications of hydatid disease

**Professional skills**

- Importance of communication with patients, relatives and colleagues

- Ethics and medico-legal aspects of emergency surgery including assessment of mental capacity and competence, the principles of informed consent and "best interest" care

- Psychological aspects of surgery and bereavement
- Decision-making in emergency surgery and the involvement, co-ordination and leadership of appropriate multidisciplinary teams

- Quality control including clinical audit, trauma and emergency care networks and critical incident reporting systems

- Principles of research design and critical evaluation and implementation of appropriate clinical trials and technical innovations