Trauma surgery competency requires the ability to demonstrate a solid understanding of the basic science, applied physiology and pathology of the injured patient, to be proficient in prehospital and emergency room management, management of injuries of the brain, trunk, musculoskeletal system and soft tissues, as well as intensive care and rehabilitation in patients of all age.

The knowledge and competencies relevant to trauma surgery are listed as follows:

Initial Assessment and Damage Control Management

- Resuscitation manoeuvres including manual chest compression and defibrillation
- 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
- Management of closed and penetrating chest injuries
- Maintenance of circulation including techniques of vascular access, cardio-pulmonary 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
- Initial management of severe head and brain injury, spinal injury, para- and tetraplegia and space occupying intracranial lesions
- Principles of damage control surgery
- Indications and techniques of resuscitative laparotomy and thoracotomy
- Principles of pre-hospital trauma care
- Patient triage including major incident management and surgery in austere conditions
- Principles of ballistics and the management of gunshot and blast injuries and of burns
- Principles of diagnostic radiography (including interventional radiology), ultrasonography, computed tomography, magnetic resonance imaging, angiography and embolization and related techniques including REBOA
Perioperative management

- Interdisciplinary primary assessment and management of the severely injured in the prehospital and emergency room phase incl. prioritization of diagnostic and therapeutic measures. Acute lifesaving interventions have to be separated from those of subacute urgency.
- Assessment of fitness for anaesthesia and surgery and risk of morbidity and mortality of the non-polytraumatized trauma patient
- Correction of coagulopathy and haemolytic disorders and the prevention and treatment of thromboembolic disease
- Prevention and treatment of infections, especially in the case of open fractures
- Knowledge of principles of general, regional and local anaesthesia
- Knowledge of indications, technique and reporting of ultrasonography incl. FAST
- Knowledge of indications and techniques of interventional radiology
- Management of closed and penetrating head injuries including facial and orbital trauma
- Management of nerve and vascular injuries of the neck
- Management of blunt and penetrating injuries to thorax, abdomen and pelvis, including perineal trauma
- Classification and management of injuries of the extremities
- Pathophysiology and complications of fracture healing
- Deep insight in biomechanical aspects and prerequisites for operative fracture care
- Diagnosis and treatment of dislocations of large and small joints
- Principles of closed fracture reduction incl. ligamentotaxis
- Principles of external fixation, open reduction and internal fixation of fractures and fracture-dislocations and principles of indication and techniques of joint replacement
- Classification of surgical wounds and the principles of wound management including infection and the treatment of chronic and complex wounds (e.g. negative pressure therapy)
- Management of vascular injuries of the limbs and the principles of amputation
- Mangled extremities and traumatic amputation
- Classification and management of burns
- Principles of skin grafting and flaps
- Principles of tendon and peripheral neurovascular repair
- Management of trauma in pregnancy
- Principles and techniques of pain control
- Principles, indications and choice of antibiotic therapy
- Postoperative monitoring and the prevention, recognition and management of complications with special focus on bleeding, wound healing disturbances, infection and disturbances of blood supply
- Prevention, diagnosis and management of abdominal compartment syndrome
- Prevention, diagnosis and management of compartment syndrome in the limbs
- Principles and practice of intensive care medicine in the perioperative trauma patient
- Knowledge of pathophysiology of systemic inflammatory response syndrome, sepsis, sepsis syndrome and septic shock
- Knowledge of pathophysiology of osteoporosis and principles of conservative and operative treatment
- Principles and practice of geriatric fracture care
- Knowledge of characteristics of the growing skeleton, conservative treatment of fractures and dislocations of the immature skeleton and indications for operative treatment
- Principles and practice of treatment of fractures in children and adolescents
- Principles of postoperative physiotherapy and mobilization
- Principles of rehabilitation and reintegration
- Principles and management of posttraumatic stress disorder

Professional skills

- Communication with patients, relatives and colleagues
- Ethics and medicolegal aspects of trauma surgery including
- The principles of informed consent
- Psychological aspects of trauma surgery and bereavement
- Decision-making in trauma surgery
- Coordination and leadership of a multidisciplinary trauma team
- Quality control including active involvement in clinical audits, trauma care networks and critical incident reporting systems
- Principles of research and implementation of clinical trials and technical innovations

Courses in addition to be completed (alternatives are possible, as indicated in the Eligibility criteria)

- ATLS® course
- DSTC® course