European Professional Development Module PDM in Disaster Medicine for ANAESTHESIOLOGISTS

FROM THE STANDING COMMITTEE ON EDUCATION AND PROFESSIONAL DEVELOPMENT (EPD) OF THE EUROPEAN BOARD OF ANAESTHESIOLOGY (EBA)

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List of abbreviations
ABCDE – Airway, Breathing, Circulation, Disability, Exposure
ABG – Arterial Blood Gas
BLUE – Bedside Lung Ultrasound in Emergency
CBRN – Chemical, Biological, Radiological, and Nuclear
CEX – Clinical Evaluation Exercise
COVID-19 – Coronavirus Disease 2019
CPR – Cardiopulmonary Resuscitation
CREM – Critical Emergency Medicine
EDAIC – European Diploma in Anaesthesiology and Intensive Care
EBA – European Board of Anaesthesiology
EPA – Entrustable Professional Activity
EPD – Education and Professional Development
ESAIC – European Society of Anaesthesiology and Intensive Care
ESTES – European Society for Trauma and Emergency Surgery
ETR – European Training Requirements
eFAST – Extended Focused Assessment with Sonography in Trauma
ESP – Erector Spinae Plane (block)
HICS – Hospital Incident Command System
HazMat – Hazardous Materials
ICRC – International Committee of the Red Cross
ICU – Intensive Care Unit
LUS – Lung Ultrasound
MACSIM – Major Incident Medical Management and Support Simulation
MRMI – Medical Response to Major Incidents
MSF – Multisource Feedback
NIMS – National Incident Management System
NRF – National Response Framework
P-ABCD – Primary Airway–Breathing–Circulation–Disability approach
PCA – Patient-Controlled Analgesia
PDM – Professional Development Module
PECS – Pectoral Nerve Block
PNB – Peripheral Nerve Block
POCUS – Point-of-Care Ultrasound
QLB – Quadratus Lumborum Block
RSI – Rapid Sequence Induction
SARS-CoV-2 – Severe Acute Respiratory Syndrome Coronavirus 2
TAP – Transversus Abdominis Plane (block)
UEMS – European Union of Medical Specialists
WHO – World Health Organization

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Section 1. General information about the PDM in Disaster Medicine for anaesthesiologists

The path to excellence: From ETR for trainees to the PDM for specialists

The European Training Requirements (ETR) in Anaesthesiology list learning objectives during specialty training, which pave the way to harmonize quality of care and patient safety throughout Europe [1]. Following specialty training the next stage of professional development is to acquire expertise in a particular domain such as Perioperative Medicine, Intensive Care Medicine, Critical Emergency Medicine or Pain Medicine. The European Professional Development Modules (PDMs) for anaesthesiologists summarize the learning objectives required to guide clinical experts and professional leaders towards a higher level of qualification [2]. The European Union of Medical Specialists (UEMS) UEMS approved the first European PDM in October 2024 [3].

Scope of the PDM in Disaster Medicine

Disaster is defined as a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. Disasters may be man-made or natural. A mass casualty incident refers to a challenging situation of increased number of casualties who arrive at a hospital, which even in difficult scenarios have the resources to manage the influx. If number of patients overwhelms the facility's resources, necessitating a large level of response from state or federal agencies in managing casualties, an incident becomes an event.

Over the past century, the number of disasters has increased substantially [4], making it increasingly likely that future generations of physicians will be required to provide care in mass-casualty situations. Recent medical and humanitarian crises—including the SARS-CoV-2 (COVID-19) pandemic, major earthquakes, floods, the rising frequency and severity of climate-related disasters, and the ongoing war in Ukraine—have further highlighted the need for healthcare systems to be adequately prepared to manage large-scale emergencies and to minimize loss of human life [5]. Disasters affect individuals across the entire lifespan; consequently, age- and condition-specific health needs—including those of children, adolescents and young adults (AYAs) [6], adults, older persons, and pregnant or obstetric populations—require explicit consideration in preparedness, response, and recovery planning.

Anaesthesiologists play a key role in disaster medicine due to their broad expertise in trauma care, emergency management (in- and pre-hospital), resuscitation, intensive care medicine, and perioperative medicine. Their skill set includes rapid diagnostic approaches such as point-of-care ultrasound, triage, airway management, hemorrhage control, pain management, and the management of complex ethical issues, including end-of-life decision-making. These competencies position anaesthesiologists as essential members of multidisciplinary disaster response teams. Furthermore, anaesthesiology is among the medical specialties with the highest workforce numbers, enhancing its potential impact during major incidents [7,8].

Despite these strengths - as with many medical specialties involved in disaster response - current training requirements and routine clinical exposure often fail to provide the specific knowledge and skill transfer necessary for effective disaster response [1]. Fewer than 15% of anaesthesiology attendings and residents report previous real-life disaster experience, and approximately 50% report having received no formal emergency preparedness training [8]. In addition, disaster medicine has not yet been universally standardized or fully institutionalized across healthcare systems. Although education and training opportunities—such as disaster medicine courses, mass-casualty simulation training, and war surgery and anaesthesiology programs—are becoming increasingly available, they remain heterogeneous in scope and accessibility [9,10].

These findings underscore the urgent need for harmonized and structured disaster medicine education for anaesthesiologists. The PDM in Disaster Medicine is therefore designed to empower anaesthesiologists to become skilled and effective contributors to the medical response to major incidents and mass-casualty events, as well as to support local, regional, national, and international authorities in emergency preparedness and response activities [11–13]. Furthermore, anaesthesiologists with the PDM in Disaster Medicine are well prepared for further multidisciplinary training for leadership and team coordination in different disaster mechanisms.

Development of the PDM in Disaster Medicine

In December 2022, the European Board of Anaesthesiology (EBA) mandated the Standing Committee on Education and Professional Development (EPD) to develop a PDM in the domain of Disaster Medicine. The present PDM has been developed in accordance with this mandate and in alignment with UEMS training principles.

This first PDM in Disaster Medicine represents the outcome of extensive discussion and iterative work within the Standing Committee EPD. All participating delegates from European countries were previously involved in the management of critically ill patients during the SARS-CoV-2 pandemic, and several delegates are currently engaged in delivering disaster medicine in conflict settings.

Revision cycles for PDMs in anaesthesiology are proposed every five years. However, continued evolution and earlier updates of this module may be considered should significant new scientific evidence or pragmatic developments, crisis standards of care and mass-casualty management emerge.

Alignment of the PDM in Disaster Medicine with ETR and EBA policies

PDM in Disaster Medicne is fully aligned with the ETR in Anaesthesiology. It builds upon the competences that all anaesthesiologists are required to achieve during specialist training and extends these to advanced levels, with particaular emphasis on critical emergency medicine (CREM). The PDM complements the EBA's strategy of establishing structured PDMs, thereby offering harmonized post-specialist training pathways across Europe. In accordance with UEMS basic principles, training within this PDM is competency-based and not number- or count-based.

Candidate eligibility

The PDM in Disaster Medicine has been developed for anaesthesiologists who have successfully completed a specialty-training program consistent with the EBA UEMS ETR in Anaesthesiology and who wish to attain an advanced level of competency in the field of disaster medicine.

The PDM training programme

The training programme comprises a range of educational activities, including attendance at accredited training courses, lectures, and high-fidelity medical simulation training. Training opportunities are not uniform across Europe and depend on national structures, resources, and regulatory processes.

The PDM is proposed to be delivered through:

- An online pre-course learning module, and
- Three intensive 5-day simulation-based training courses.

Trainers

Trainers should be recognized experts in the field of Critical Emergency Medicine (CREM) and must fulfil the requirements for trainers as defined in the ETR in Anaesthesiology (Part 3). Specifically:

- Training staff must demonstrate competency level D in the assigned area of disaster medicine.

- Training staff must have sufficient protected time allocated to their training responsibilities.
- Training staff must demonstrate a positive attitude toward education, expertise in didactic teaching, and a clear commitment to both theoretical instruction and supervised practical training across the full scope of clinical practice.
- Combined competencies in clinical practice, teaching, and scientific activity are considered advantageous.

Trainers should have substantial experience in disaster medicine, gained through real-life clinical involvement and/or high-level simulation training at internationally recognized centres. Simulation-based training should expose medical personnel to scenarios aligned with the principles of Medical Response to Major Incidents (MRMI), the European Mass Casualty Simulation System (MACSIM), and war surgery relevant to anaesthesiologists. Examples of recognized training resources include:

- International MRMI/MACSIM Simulation Training (ESTES, Slovenia) [9]
  This intensive, highly practical course is conducted under the auspices of the European Society for Trauma and Emergency Surgery (ESTES). It involves multidisciplinary training with fire services, armed forces, civil protection authorities, police, emergency medical services, and healthcare professionals. Training is delivered at an international level, with instructors representing participating countries, and communication conducted in English at coordination points. This course represents an excellent resource for strengthening leadership and preparedness among anaesthesiologists in mass-casualty and emergency scenarios.
- Hazardous Materials (HazMat) Courses [14]
  These courses complement MRMI training by addressing chemical, biological, radiological, and nuclear (CBRN) hazards.
- International Committee of the Red Cross (ICRC) War Surgery Courses [10]
  The ICRC provides globally accessible introductory courses for anaesthetists, surgeons, and nurses. Although primarily intended as pre-deployment preparation for humanitarian missions, the content is highly transferable to civilian disaster settings. Learning objectives include international humanitarian law, protection of healthcare systems, differences between civilian and conflict-related trauma, non-technical skills, ballistics, burns, damage-control resuscitation, mass-casualty management, CBRN hazards, perioperative pain management, critical care in resource-limited settings, nutrition, and early rehabilitation. Anaesthesia-specific modules introduce ICRC anaesthesia standards, drawover systems, and perioperative care in austere environments.
- Emergency Management of Battlefield Injuries (EMBI) course, Semmelweis University [15]
- Emergency & disaster preparedness course in Israel [16]
- Greek MSc curriculum in disaster medicine – health crisis management [17]

Training institutions

High-quality training should ideally be delivered in accredited training centres by appropriately qualified trainers and assessed through meaningful and robust evaluation processes. Faculty, trainers, tutors, and consultants must be available in sufficient numbers to ensure appropriate trainer–trainee ratios and effective educational supervision. Manpower planning remains dependent on national resources and healthcare structures. Accreditation of training centres, supported by internal and external audits, is strongly encouraged by the UEMS and EBA.

Given that disasters are predominantly unpredictable events and that geographical risk varies considerably (e.g. earthquakes, volcanic activity, armed conflict, medical disasters), the curriculum is best delivered through a combination of short online learning sessions and intensive live simulation training. These may be conducted at local simulation centres and/or internationally recognized centres such as those referenced above [9,10].

Assessment

The primary aim of assessment within the PDM is to promote learning through:

- Clinical and simulated experience
- Structured reflection
- Formative assessment
- Formal and informal feedback
- Regular appraisal

All assessments should be documented. Assessment tools recommended by the EBA include an electronic portfolio (e-portfolio) and workplace-based assessments during simulation training (e.g. CEX). Progress in competency acquisition across simulation courses and online modules should be continuously monitored and recorded in the portfolio. Educational faculty members will assess learner progress at regular intervals throughout the module. Summative assessment toward the end of the PDM will include:

- Review of the trainee's portfolio
- Review of formal trainer feedback and multisource feedback (MSF)
- Evaluation of progress toward Entrustable Professional Activity (EPA) milestones
- Assessment of curriculum coverage and breadth of experience
- Final judgement on achievement of defined learning outcomes

Completion of the PDM in Disaster Medicine

The EBA recommends that national regulatory authorities, chambers of physicians, and/or scientific societies formally document successful completion of a PDM as a certificate of advanced training within Anaesthesiology.

Following completion of the PDM, simulation-based training should be repeated at least annually to maintain competencies. Ongoing formal feedback should be obtained by trainers from supervisors and the wider multidisciplinary workforce, including operating theatre staff, emergency physicians, nurses, police, and fire services, through structured multisource feedback (MSF).

In the future, the EBA intends to propose European-level certification through UEMS for advanced training within PDMs, thereby facilitating professional mobility of anaesthesiology specialists across Europe.

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Section 2. Domains and competencies in the PDM Disaster Medicine for anaesthesiologists

Disaster medicine content in the ETR
A candidate for the PDM in Disaster Medicine needs as a prerequisite to have acquired the knowledge, skills, attitudes and behaviours required of a specialist anaesthesiologist. ETR competencies are not reproduced here in full – they comprehensively described in the 2nd update 2022 [1] (or more recent update). General competencies already gained during specialist training need to be refreshed and clinical skills increased throughout to PDM competence levels D and E.

The ETR domain descriptors (2nd update 2022) relevant to disaster medicine are items in domains:
Domain 1.1: Perioperative medicine, patient assessment and risk reduction
Domain 1.2: General anaesthesia and sedation
Domain 1.3: Regional anaesthesia
Domain 1.4. Airway management
Domain 1.5: POCUS (point of care ultrasound)
Domain 1.6: Postoperative care and acute pain management
Domain 1.7: Intensive care medicine
Domain 1.8: Critical emergency medicine (CREM)

Learning objectives
For each domain, learning objectives are divided into knowledge, skills and attitudes that are deemed necessary to achieve the required level for each competency. For advanced training in a PDM the EBA uses different descriptors for competency levels compared to the definition used in the ETR:

A1	Basic concepts
A2	Knows generally
A3	Knows specifically and broadly

B1	Assists; direct observation
B2	Performs safely with reasonable fluency under direct supervision
B3	Performs safely from start to finish with assistance; knows all the steps and the reasons behind the methodology
B4	Performs safely and straightforwardly under indirect supervision; can adapt to well-known variations in the procedure encountered, recognises and is able to deal with most of the common problems, without direct input from the trainer; knows and demonstrates when help is needed, when to call for assistance/advice from the supervisor (knows personal limitations)

C	Performs safely and independently under distant advice; competent to do without assistance, including complications but may need help/advice

D	Performs safely and independently as an outstanding clinician and technician; can be trusted to carry out the procedure, independently, without need for help/advice; can deal straightforward and with difficult cases to a satisfactory level, without the requirement for external input

E	Instructs, supervises and teaches

a. Knowledge

Specific and wide knowledge at the level of competence A3 including up-to-date evidence and exceeding the knowledge assessed in the European Diploma in Anaesthesiology and Intensive Care (EDAIC) is required for learning objectives (levels listed below in the domain descriptions).

b. Clinical skills

Specific and wide clinical and technical skills at level of competence E and implementation of advanced knowledge and up-to-date evidence is required in the PDM (levels listed below in the domain descriptions) unless otherwise explicitly indicated.

c. Specific attitudes apply throughout the PDM in Disaster Medicine

Participants in the PDM in Disaster Medicine are expected to demonstrate the following professional attitudes and behaviours:

- A positive attitude and a continuous learning mindset when engaging in simulation-based training and other educational activities.
- A consistent commitment to delivering the highest possible standard of care within the constraints of the prevailing circumstances, including suboptimal and resource-limited environments.
- A flexible, pragmatic, and adaptive approach to clinical decision-making in both disaster preparedness and disaster response, particularly in situations of resource scarcity.
- Willingness and ability to assume the team role most appropriate to the disaster scenario and team dynamics, including leadership, supportive, or technical roles as required and assigned.
- Awareness of the strengths and limitations of individual team members, with the ability to facilitate optimal team performance and cohesion.
- Situational awareness of communication needs and a readiness to adapt communication strategies according to context, hierarchy, urgency, and environmental constraints.
- Willingness to engage proactively and constructively in disaster preparedness planning at local, regional, national, and international levels.
- Commitment to upholding the highest standards of medical ethics and adherence to international humanitarian law during all phases of disaster management.
- Willingness to tolerate personal inconvenience, discomfort, and operational stress inherent to disaster and mass-casualty environments

Participanting anaesthesiologists in the PDM in Disaster Medicine functioning during disasters demonstrates professional maturity, combining technical competence with ethical responsibility, resource awareness, and team role fulfillment or team leadership—skills best cultivated through deliberate simulation-based training and reflective practice.

Descriptions of domains

The following list of domains of expertise and the competencies within these domains are to be obtained during PDM training.

1. Domains of disaster definition and management

1.1 Disaster definition, classification and characteristics of different types of disasters

a. Knowledge

- Definition of a disaster
- Classification and types of disasters
- Characteristics of natural disasters
- Principles of management in natural disasters
- Characteristics of biological disasters
- Bombing- and blast-related injuries
- Radiological and nuclear disasters
- Terrorism-related incidents
- Chemical agents
- Climate crises
- Migration crises
- Health impacts of different disaster types
- Diagnostic and treatment algorithms and protocols for different disaster types
- Safety measures and their scope for medical personnel involved in disaster response, including anaesthesia teams

b. Clinical Skills

- Ability to identify the type of disaster, its key characteristics and challenges, and the need for differentiated responses depending on disaster type
- Ability to implement diagnostic and treatment algorithms and protocols specific to different disaster types
- Ability to plan and organize medical care during disasters under conditions of limited resources or time constraints

c. Specific Attitudes

- Recognizes the principles of disaster preparedness and management, including the distinction between disaster medicine and emergency medicine

1.2 Different phases of disaster management and preparedness

a. Knowledge

- Organization and functions of the National Response Framework (NRF) and the National Incident Management System (NIMS)
- Pre-disaster strategies
- Committees responsible for disaster management and their respective roles
- Understanding of the Hospital Incident Command System (HICS) as organized within one's hospital, and knowledge of how individuals interface with HICS
- Initial disaster management phase
- Post-disaster management phase
- Alternative care sites, including field hospitals, stabilization points, and deployment of response teams

b. Clinical Skills

- Ability to implement pre-hospital and hospital preparedness plans for different types of disasters
- Ability to implement plans for post-disaster management
- Effective communication and cooperation with committees responsible for disaster management
- Participation in the complex organization of healthcare delivery during mass-casualty incidents and disasters
- Ability to plan expansion of the emergency department and ICU capacity when required during disasters

c. Specific Attitudes

- Willingness to contribute to the optimization of disaster management plans
- Commitment to optimizing infrastructure utilization and medication distribution
- Demonstrates calm and reflective behavior during disasters

1.3 Mass-casualty disposition, triage, and primary assessment

a. Knowledge

- Safety measures for medical personnel during different types of disasters
- Patient decontamination procedures prior to hospital entry
- Medical management strategies for a massive influx of casualties
- Definition of mass-casualty triage
- Principles of mass-casualty management
- Triage categories and tagging systems
- Triage principles for critically ill ICU patients
- ABCDE approach to primary patient assessment
- Point-of-care ultrasound (POCUS) protocols
- Documentation requirements for primary assessment

b. Clinical Skills

- Ability to plan and implement safety measures for medical personnel during different disaster scenarios
- Ability to perform primary patient assessment
- Application of triage principles during primary assessment
- Application of triage principles in the ICU setting
- Ability to identify deteriorating or critically ill patients
- Performance of POCUS protocols when indicated
- Ability to document primary assessment and triage decisions
- Allocation and distribution of functional response roles among hospital staff

c. Specific Attitudes

- Commitment to optimizing casualty disposition and triage performance
- Prioritizes population-level benefit over individual preference when conducting triage under extreme resource constraints
- Maintains calm and impartial judgment when confronted with overwhelming numbers of casualties
- Respects triage principles and accepts difficult decisions without allowing emotional bias to compromise safety
- Demonstrates readiness to collaborate with non-anesthesiology personnel to ensure rapid and coordinated patient flow
- Values clarity and honesty in communication with team members, patients, and families during triage decision-making

2. Domains on patient assessment and anaesthesia during disasters

2.1 Preoperative anaesthetic evaluation and risk assessment during disasters and in low-resource settings

a. Knowledge

- Relevant national and international guidelines on disaster medicine
- Airway assessment, including bedside tests to evaluate difficult intubation, ventilation, and oxygenation using the P-ABCD approach
- Airway assessment in trauma and burn patients
- Pain management in mass-casualty patients
- Pharmacology and interactions of anesthetic drugs and chemical toxins
- Understanding disaster- or injury-specific perioperative risks

b. Clinical Skills

- Performance of clinical assessment for urgent surgical cases, including use of appropriate diagnostic tools and laboratory tests
- Obtaining relevant preoperative investigations and consultations
- Evaluation and application of risk assessment scores
- Assessment of the airway and anatomical regions relevant for regional anesthesia techniques
- Pain assessment and management
- Patient selection and preparation for rapid sequence induction
- Selection and planning of individualized anesthesia techniques, including rational use of monitoring, difficult airway management strategies, blood product administration, and required procedural equipment
- Application of multimodal and pre-emptive analgesia, including opioid-sparing strategies
- Implementation of national and international guidelines when available and relevant to the situation
- Indication of anesthesia procedures with the least physiological and logistical burden
- Decision-making regarding postponement of surgery when appropriate
- Delivery of patient information not limited to anesthesia procedures and risks, but extending to disaster-adapted, content- and situation-sensitive information (as referenced in the pain management chapter)
- Consideration of ethical and medico-legal aspects, including withholding and/or withdrawal of therapy
- Communication within the multidisciplinary care team
- Assessment of available resources (e.g., sufficiency of resources for the individual patient)
- Application of emergency medicine principles, including use of agents such as ketamine
- Performance of pre-anesthesia tasks outside standard operating room environments

c. Specific Attitudes

- Demonstrates cooperation within multidisciplinary care teams during disasters
- Communicates effectively with first responders, firefighters, emergency forces, public and executive authorities, and public health officials, accepting command structures while advocating for patient and personnel safety
- Accepts reduced comfort and incomplete equipment while striving to deliver the best possible care
- Demonstrates strong situational awareness, with continuous reassessment of risks, patient deterioration, and environmental hazards
- Prioritizes safety and feasibility, selecting anesthesia techniques that maximize benefit while minimizing resource utilization
- Demonstrates respect for cultural, ethical, and psychological needs during rapid preoperative assessments
- Maintains humility and willingness to seek assistance, recognizing personal cognitive overload in chaotic and high-stress conditions

2.2 General anaesthesia during mass-casualty incidents and disasters

a. Knowledge

- Damage control anesthesia strategies
- Pharmacology and interactions of neuromuscular blocking agents, analgesics, and inhaled and intravenous anesthetic agents with chemical agents or toxins
- Minimum monitoring standards for mass trauma and burn patients; indications for additional monitoring; anesthesia monitoring in low-resource settings
- Planning and expansion of operating rooms and post-anesthesia recovery areas during mass-casualty situations, when appropriate
- Management of severe traumatic bleeding according to ESAIC guidelines
- Airway management in trauma patients

- Vortex airway management guidelines
- Airway management checklists
- Emergency checklists from ESAIC

b. Clinical Skills
- Preparation of the anesthesia workplace according to relevant checklists, accounting for disaster-related constraints
- Ability to plan airway management in accordance with current disaster and trauma guidelines
- Ability to provide effective bag-mask ventilation
- Ability to use supraglottic airway devices
- Ability to perform tracheal intubation
- Ability to perform surgical airway procedures when indicated
- Selection and use of appropriate medications for anesthesia induction and intubation
- Provision of safe inhalational and intravenous induction, maintenance, and emergence from general anesthesia, including appropriate drug selection, airway management, ventilation strategies, and management of intraoperative adverse events in the context of injury type and limited resources
- Interpretation of arterial blood gas analysis in patients with hemorrhage, trauma, or chemical poisoning
- Selection and planning of individualized anesthesia techniques, including disaster- or trauma-specific adaptations
- Judicious use of available resources
- Adaptation of treatment trigger values and targets from non-disaster guidelines to minimum individualized requirements in a situation-sensitive manner (recognizing that standard recommendations reflect non-disaster resource availability); ensuring minimum monitoring standards
- Application of emergency medicine principles
- Performance of anesthesia tasks outside standard operating room environments
- Situation-sensitive documentation adapted to disaster conditions

c. Specific Attitudes
- Recognition of medical simulation training as an effective educational tool, particularly for crisis management during disasters and mass-casualty incidents, including adverse event management, situational awareness, and team training
- Values simplicity and safety, favoring anesthesia techniques suitable for austere environments
- Demonstrates stewardship of limited resources, avoiding unnecessary use of medications or equipment
- Accepts responsibility for proactive risk mitigation, recognizing that backup systems may be unavailable
- Demonstrates calmness and resilience when managing intraoperative crises without full support infrastructure
- Prioritizes teamwork, respecting the roles of nurses, technicians, and non-specialist personnel supporting anesthesia care

2.3 Regional anaesthesia during mass-casualty incidents and disasters
a. Knowledge
- Pharmacology and interactions of local anesthetics and adjuvants with chemical agents or toxins
- Indications and contraindications for peripheral and central regional anesthesia techniques during mass-casualty incidents and disasters
- Specific risks and complications associated with peripheral and central blocks in disaster settings

- Selection and adaptation of peripheral and neuraxial block techniques during mass-casualty incidents and disasters
- Minimum equipment requirements for regional anesthesia
- Sedation protocols adapted to different disaster types
- Emergency checklists from ESAIC

b. Clinical Skills
- Provision of safe regional anesthesia during disasters, including appropriate drug selection, technique choice, timing, safety checks, monitoring, and adaptation to limited-resource environments
- Use of point-of-care ultrasound (POCUS) for procedural guidance in regional anesthesia
- Performance of peripheral nerve blocks of the upper extremity (single-shot or continuous techniques), including interscalene, supraclavicular, infraclavicular, and axillary blocks
- Performance of peripheral nerve blocks of the lower extremity (single-shot or continuous techniques), including femoral, fascia iliaca, adductor canal, and popliteal blocks
- Performance of combined peripheral nerve block techniques when appropriate
- Performance of fascial plane blocks (e.g., PECS, ESP, TAP, QLB, rectus sheath), without exhaustive block listing
- Management of acute and chronic pain with the use of nerve block techniques
- Provision of safe and appropriate sedation for patients during disasters
- Ensuring minimum hygiene standards
- Performance of regional anesthesia tasks outside standard clinical environments
- Situation-sensitive documentation adapted to disaster conditions

c. Specific Attitudes
- Demonstrates effective communication and stress-mitigation techniques when caring for awake patients undergoing surgery under regional anaesthesia

3. Domains on postoperative care and pain management during disaster

a. Knowledge
- Strategies for organizing postoperative care in disaster settings
- Postoperative assessment and monitoring of mass trauma patients, including transfer and discharge criteria
- Minimum equipment requirements in low-resource environments
- Weaning from supplemental oxygen or respiratory support
- Concepts of multimodal and pre-emptive analgesia
- Non-pharmacological approaches to pain and stress relief
- Logistics and patient care pathways during disasters or mass-casualty events

b. Clinical skills
- Provision of postoperative handover, including an appropriate summary of injury type, primary triage category, and relevant clinical data from the patient's course of care
- Delivery of standard postoperative monitoring tailored to injury pattern or disaster type, including indication, performance, and interpretation of individualized testing when appropriate
- Pain assessment across all patient groups
- Management of continuous analgesia techniques (e.g., peripheral nerve blocks, patient-controlled analgesia)
- Prescription and dispensing of long-acting analgesics with additional short-acting, on-demand medications for pain exacerbations, provided to appropriately informed patients
- Management of disaster-specific postoperative complications, including nausea and vomiting

- Situation-sensitive documentation adapted to disaster conditions

c. Specific attitudes
- Communicates effectively with patients experiencing acute pain and stress reactions
- Encourages patient self-management to reduce personnel burden (including preparation of patient information materials in advance of crises to enable patients to cooperate and actively support care delivery during disasters)
- Values informed patients as less demanding of personnel time and less resource-intensive in treatment
- Demonstrates compassion and respect, recognizing the heightened vulnerability of postoperative patients in disaster settings
- Advocates for early mobilization and functional recovery, even in austere environments
- Accepts the ethical necessity of balancing individual comfort with system-wide resource limitations
- Demonstrates patience, empathy, and clear communication when caring for frightened or displaced patients

4. Domains on perioperative and critically ill patients evacuation and transfer during disaster

a. Knowledge
- Rapid response systems: principles, structure, and operational rules
- Transfer criteria for progression to the next stage of evacuation, including inter-hospital transport
- Monitoring of critically ill patients during disasters and in low-resource settings
- Minimum monitoring equipment required during patient evacuation
- Safety principles and evacuation procedures for ground (car, train) and air (helicopter, aircraft) transport
- Evacuation during armed conflict and wartime conditions
- Cardiac arrest management and cardiopulmonary resuscitation (CPR) during evacuation and transfers
- Specific critical care requirements during evacuation and transfers

b. Clinical skills
- Management and planning of key elements of surge capacity: staff, space, supplies, and system structure
- Patient selection and decision-making for evacuation to subsequent levels of medical care
- Provision of care during transport of critically ill patients
- Application of disaster- and transport-adapted resuscitation algorithms and disaster-adapted trauma guidelines
- Use of automated mechanical CPR devices during evacuation and transfers

c. Specific attitudes
- Commitment to accurate case documentation and reporting
- Communicates effectively with patients and relatives under exceptional and high-stress circumstances of evacuation and transport
- Supports integration of medical transport systems to enhance critical care capacity
- Values structured, safe, and reliable handover processes
- Maintains situational adaptability, accepting rapid reprioritization during transport or surge events
- Demonstrates commitment to continuity of care, ensuring adequate stabilization prior to transfer despite operational pressure
- Shows respect for logistics teams, transport crews, and non-medical responders, recognizing mutual interdependence

- Accepts uncertainty and remains prepared for clinical deterioration, applying a proactive, safety-first approach during evacuation

5. Domain on critical and intensive care during disasters

a. Knowledge

- Planning frameworks and policies for ICU disaster preparedness and response
- Hazard-specific characteristics of different disaster types
- Roles of stakeholders in ICU disaster preparedness and response
- Models for expanding ICU capacity
- Management of acute respiratory distress, including cases caused by pulmonary chemical warfare agents and chemical inhalation injuries
- Management of acute kidney injury
- Post-resuscitation care
- ICU equipment and infrastructure requirements
- Indications, contraindications, drug selection, and complications related to sedation, anesthesia, analgesia, neuromuscular blockade, nutrition in the ICU, and antibiotic therapy
- Concepts of multimodal and pre-emptive analgesia
- Criteria for patient transfer and discharge
- Ethical guidelines, including triage and end-of-life decision-making in disasters

b. Clinical skills

- Ensuring safety of ICU personnel and patients during different types of disasters
- Development of an ICU Incident Command System
- Development of a physician staffing and resource plan, including strategies to train and integrate non-ICU physicians and nurses into expanded ICU care teams
- Determination of procedures to support other hospital areas (e.g., the emergency department) during early disaster phases, prior to ICU patient surge
- Planning for medical gas supply and ventilatory support equipment, including use in nontraditional care areas for critically ill patients
- Provision of both all-hazards and hazard-specific training approaches to enhance personnel disaster preparedness
- Ability to create and implement a model for expanding ICU capacity
- Ability to use telemedicine to augment ICU capability and capacity
- Organization of inter- and intra-hospital patient transport and review of ICU and hospital discharge criteria
- Ability to make ethical decisions during disasters, recognizing increased complexity and demands
- Ensuring minimum hygiene standards
- Performance of intensive care tasks outside standard ICU environments
    - Performance of echocardiography for rapid differential diagnosis
    - Performance of lung ultrasound (FAST, BLUE, and LUS protocols)
- Disaster-adapted documentation practices

c. Specific attitudes

- Commitment to education and practice with unfamiliar ventilators and equipment, including preparation of concise instructions or infographics for nonstandard devices
- Commitment to developing relationships with key personnel involved in disaster response
- Establishing healthcare coalitions that link neighboring ICUs
- Demonstrates resilience and composure, maintaining focus despite operational stress, uncertainty, or overwhelming workload
- Appreciates the importance of simplified, resource-conserving ICU strategies that balance individual patient needs with overall system capacity

- Values interprofessional collaboration, respecting the contributions of nurses, technicians, paramedics, and non–critical care providers involved in ICU care during surge situations

6. Domains of psychosocial care, burnout syndrome and fatigue prevention

6.1 Treatment approaches to acute and delayed critical incident stress reactions

a. Knowledge

- Phases of traumatic stress reactions following disasters and mass violence
- Management of acute stress reactions (including acute stress disorder)
- Pharmacological treatment approaches
- Psychological debriefing

b. Clinical skills

- Ability to provide psychological debriefing
- Ability to support anaesthesiologists involved in disaster management

c. Attitudes

- Demonstrates empathy and psychological sensitivity toward patients, relatives, and colleagues experiencing acute stress reactions
- Values early recognition of distress, recognizing that psychological injury is as significant as physical injury
- Maintains a calm and supportive presence, fostering emotional safety in high-stress or chaotic environments
- Respects cultural and individual differences in stress responses, coping mechanisms, and communication styles
- Demonstrates willingness to involve mental health specialists and to promote access to psychological first aid

6.2 Burnout and fatigue during disasters

a. Knowledge

- Common stressors affecting disaster response and crisis counseling staff
- Early warning signs of excessive stress
- Individual approaches to stress management:
- Self-awareness
- Workload management
- Maintenance of a balanced lifestyle
- Stress-reduction techniques
- Effective supervision and training
- Symptoms and risk factors associated with burnout
- Symptoms and risk factors associated with compassion fatigue
- Barriers to accessing mental health support during disasters
- Strategies for the prevention and treatment of burnout and fatigue: institutional, ICU-based, and provider-focused
- Levels of support and resilience for healthcare workers: individual, team, and community

b. Clinical skills

- Ability to develop an advance stress inoculation plan, burnout and fatigue prevention for hospital staff
- Ability to plan support for patients, family members, and hospital staff during and after a disaster

- Apply psychological safety as a foundational principle embedded throughout the programme, supporting both effective performance and staff wellbeing in high-stress environments
- Detects acute stress reactions

c. Specific attitudes
- Demonstrates openness in acknowledging stress, fatigue, cognitive overload, and emotional strain
- Accepts self-care as a professional responsibility
- Recognizes early warning signs of burnout in oneself and others
- Demonstrates empathy, calmness, and emotional containment during mass-casualty situations
- Encourages colleagues to open reflection and to express concerns related to fatigue, stress, or emotional distress and
- Demonstrates solidarity and mutual respect toward team members experiencing distress
- Encourages structured rest breaks, adequate food and water intake, and shift rotations during deployments
- Promotes team cohesion and psychological safety under conditions of extreme stress
- Accepts psychological safety as essential enabler of safe patient care, effective team performance, and sustainable professional practice in disaster setting

7. Debriefing, reporting data and analysis

a. Knowledge
- Team debriefing structure

b. Clinical Skills
- Conduct debriefings with the team after a disaster
- Document and report outcomes effectively
- Analyze results and implement follow-up actions
- Integrate lessons learned into local preparedness and management plans, and communicate advancements to coalitions
- Facilitate team training focused on crisis resource management and communication

c. Specific Attitudes
- Recognizes the importance of data collection for enhancing disaster response and patient safety
- Approaches debriefings with an open mindset rather than assigning blame
- Exhibits a reflective and analytical attitude during structured debriefings
- Accepts constructive feedback and utilizes it to improve future performance
- Willingly shares personal insights gained from disaster operations
- Encourages contributions from all team members, including junior staff
- Values emotional safety, mutual respect, and professional courtesy in discussions
- Acknowledges the role of evidence and metrics in strengthening disaster preparedness
- Respects confidentiality, patient privacy, and ethical standards in data reporting
- Advocates for the implementation of standardized reporting and evaluation tools

Section 3. Entrustable Professional Activities (EPAs)

Definition and Implementation of EPAs in the Training of Medical Specialists

The Entrustable Professional Activity (EPA) is a unit of professional practice that can be fully entrusted to a trainee once they have demonstrated the necessary competence to perform the activity unsupervised. EPAs are tasks or responsibilities that a medical specialist must be able to perform proficiently and are used to assess and guide further training of medical specialists.

Key Characteristics of EPAs:

1. Integration of Competencies: EPAs require the integration of multiple competencies (knowledge, skills, attitudes) across different domains
2. Observable and Measurable: EPAs are specific activities that can be directly observed and measured
3. Context-Specific: EPAs are tailored to the specific context and requirements of the medical specialty
4. Entrustability: The ultimate goal is to determine whether the trainee can be trusted to perform the activity independently

Implementation in the Training of Medical Specialists:

1. Identification of EPAs:
   - Collaboration: Develop EPAs through collaboration among educational leaders, clinicians, and stakeholders in the specialty
   - Alignment: Ensure EPAs align with the core competencies required by accreditation bodies and professional organizations
   - Relevance: Select EPAs that are essential to the practice of the specialty and reflect real-world clinical tasks
2. Structuring Training Programs around EPAs:
   - Curriculum Design: Integrate EPAs into the curriculum, ensuring that training experiences provide opportunities to perform these activities
   - Learning Objectives: Define clear learning objectives and milestones for each EPA
   - Educational Activities: Design educational activities, such as simulations, clinical rotations, and workshops, to support the development of skills required for EPAs
3. Assessment of EPAs:
   - Direct Observation: Utilise direct observation of clinical practice by supervisors to assess performance
   - Feedback: Provide formative feedback based on performance, highlighting areas of strength and areas needing improvement
   - Multi-Source Feedback: Incorporate feedback from peers, patients, and other healthcare professionals
   - Simulation-Based Assessment: Use simulation-based assessments for complex or high-risk EPAs.
   - Milestone Tracking: Track progress through defined milestones, documenting the trainee's development and readiness for unsupervised practice
4. Entrustment Decisions:
   - Mentors and Competency Committees: A mentor following the trainee advancing through an educational module covering a specific domain uses the aforementioned assessment tools to make entrustment decisions upon completion of the module Alternatively, competency committees can be established within the department/institution to review trainee performance data and make entrustment decisions
   - Entrustment Scales: wherever possible use standardised entrustment scales to evaluate readiness for independent practice
   - Documentation: Document entrustment decisions, ensuring transparency and accountability

5. Continuous Improvement:
   - Quality Improvement: Regularly review and update EPAs based on feedback from trainees, supervisors, and evolving clinical practice standards
   - Research and Evaluation: Conduct research to evaluate the effectiveness of EPA-based training and assessment in improving clinical competence and patient care outcomes

Proposed EPAs for Specialists in Disaster Medicine

EPA 1: Participate in disaster triage and primary assessment in a simulated or real mass-casualty scenario. This includes applying recognized triage systems, prioritizing interventions, and documenting findings in accordance with disaster protocols.

EPA 2: Provide airway management for trauma or chemically contaminated victims in hazardous, resource-limited, or contaminated environments. This includes preparation, use of personal protective equipment (PPE), selection of induction techniques, and management of trauma or chemically exposed patients.

EPA 3: Function as a clinical leader within a Hospital Incident Command System (HICS). This includes coordinating teams, allocating resources, communicating with command structures, and supporting decision-making.

EPA 4: Organize escalation of ICU capacity and manage critically ill patients during disaster surge. This includes planning, prioritizing, staffing adaptation, and ensuring safe ICU care under disaster conditions.

EPA 5: Conduct a structured debriefing after a simulated or real disaster event. This includes analyzing performance, identifying system gaps, and generating recommendations for improvement.

EPA 6: Provide disaster-appropriate postoperative care and analgesia in low-resource or overwhelmed environments. This includes adaptation of monitoring, multi-modal analgesia, and prevention of complications with minimal equipment.

EPA 7: Ensure safe anaesthesia and analgesia delivery in austere environments. Adapt anaesthesia techniques (regional, minimal monitor anaesthesia) to minimal ressources (equipment improvisation).

EPA 8: Perform POCUS-guided assessment for triage, trauma evaluation and critical decision-making during disasters. This includes eFAST, lung ultrasound, basic cardiac POCUS, and use of ultrasound to guide resuscitation.

EPA 9: Apply ethical decision-making and resource allocation principles in extreme scarcity situations. This includes triage ethics, prioritisation for ICU beds or ventilators, and communication of difficult decisions.

EPA 10: Deliver psychosocial support and manage acute stress reactions in patients, relatives and healthcare staff. This includes recognition of stress responses, basic psychological first aid, and team support strategies.