SIWF FMH
ISFM

Anhang / Annexe
SWISS CATALOGUE OF OBJECTIVES IN ANESTHESIA AND REANIMATION (SCOAR)

Contents

A. Roles

Anesthesia is a medical specialty which tasks include patient assessment and evaluation, maintenance of organ function as well as analgesia and amnesia of all patients undergoing diagnostic, therapeutic or surgical procedures.

To fulfill these tasks as doctor the following roles have been identified as the most important for any specialist in anesthesia:

1. Medical Expert
The main field of an expert in anesthesia is the perioperative and peri-interventional medical field for all patient categories. He/she should acquire all necessary competences enabling him/her to fulfill this expert role and function in an interdisciplinary and interprofessional setting. Other relevant fields of competence include emergency medicine, resuscitation, intensive and intermediate care, acute/chronic pain and palliative care.

2. Communicator/ « team expert »
The specialist in anesthesia should have competences in communication, both oral and written, which enables him/her to deal with the different aspects of human interactions and relationships.
- Effective communication with patient, family/relatives.
- Effective communication with colleagues and other members of the interprofessional team, in order to ensure optimal patient care, including providing effective and structured feedback.

3. Collaborator
The specialist in anesthesia should have competences in collaboration, which enable him/her to be an expert in each of the multidisciplinary and interprofessional team in which he/she is involved.
- Masters interdisciplinary and interprofessional teamwork in acute care (operating theatre, emergency, intensive care and recovery room, labor wards), as well as in the context of resuscitation.
- Effective skills in the setting of interdisciplinary and interprofessional teams in the resolution of conflicts; takes and assumes leadership when necessary

4. Manager
The specialist in anesthesia should have competences which permit effective organization and management tasks to take place during professional activities.

- Implementation of quality assurance programs and use of recognized standards.
- Promotion and participation in better and safer patient care.
- Knowledge of administrative and economic aspects of anesthesia practice including human resources and operating room management
- Implementation and use of practice guidelines and standards both local and national (SSAR/SGAR, national healthcare policy)
- Cost-effective and efficient use of all diagnostic, prophylactic and therapeutic means and measures (health economics)
- Development of skills to achieve balance between professional practice and personal life.

5. Health Advocate
The specialist in anesthesia responsibly uses his/her expertise and influence to advance the health and well-being of individual patients, communities, and populations.
- Responds to individual patient health needs and issues as part of patient care
- Identifies the determinants and responds to the health needs of the communities that he/she serves
- Promotes the health of individual patients, communities, and populations by considering optimal interdisciplinary and multiprofessional processes and allocation of resources

6. Scholar
It is the specialist's responsibility to maintain a high degree of professional competence, to facilitate development of colleagues and other groups of professionals, as well as favor development of the specialty itself.
- Maintain life-long learning; critical reading and appraisal of information, evaluation of new information and technologies.
- Acquisition of basic pedagogical tools for education, skills for research and education presentations, teaching of young colleagues, residents, nurses.
- Contribute to research, development, and implementation/transmission of new medical knowledge.
- Contribute to patient education

7. Professional
The specialist in anesthesia will exhibit irreproachable behavior and be aware of duties and responsibilities inherent to his/her role as a professional.
- Deliver quality care with integrity, honesty and compassion.
- Recognition of his/her personal limits by appropriate consultation with others when caring for the patient.
- Competences in ethical decision-making when linked to patient care, and management of ethical conflicts.
- Knowledge of medico-legal aspects of anesthesia practice, in particular in the management and prevention of conflicts of interest, as well as in the management of anesthetic incidents and accidents.

B. Domains and Competencies

In order to fulfill the five professional roles of a specialist in clinical anesthesia, a list of domains of expertise and competencies in these domains have been identified.

These domains of expertise can be divided into «general core competencies» and «specific core competencies» (see detailed list below). Throughout the course of their training, residents will progressively achieve the required level of competence in each domain.

9 domains of general core competencies have been identified:
Domain 1.1: Disease Management, Patient Assessment and Preoperative Preparation
Domain 1.2: Intraoperative Care
Domain 1.3.: Postoperative patient care and pain management
Domain 1.4: Emergency Medicine & Resuscitation
Domain 1.5: Procedures & Skills for anaesthesia practice

Domain 1.6: Quality Management and Health Economics
Domain 1.7: Anesthesia Non-Technical Skills (ANTS)
Domain 1.8: Professionalism, Ethics
Domain 1.9: Education, Self-directed Learning, Research

8 domains of specific core competencies have been identified:
Domain 2.1: Obstetrics
Domain 2.2: Airway management
Domain 2.3: Thoracic and Cardiovascular Anesthesia
Domain 2.4: Neuroanesthesia
Domain 2.5: Pediatric Anesthesia
Domain 2.6: Intensive, Intermediate and Perioperative Care of the Critically Ill Patient
Domain 2.7: Anesthesia outside the operating room (OR)
Domain 2.8: Multidisciplinary chronic, palliative, interventional Pain Management and Palliative Care

C. Phases in the postgraduate training program:

Phase I
- Up to 24 months
- The trainees are expected to acquire mainly general core competences.

Phase II:
- >24 months
- The trainees are expected to deepen their level of competences of the general core competences and to acquire more specific competencies.

D. Level of acquisition/expertise

The general and specific core competencies have been expressed in each domain in the form of a list of «competence statements».

The *minimum* level of acquisition/expertise for the competence statements in each domain is defined from «A» to «D» and differentiate between the two phases in the postgraduate training. In other words, throughout the course of the training, residents will progressively achieve the required level of competence in each domain.

A: Demonstrates knowledge of, describes or performs under direct supervision (1:1 proactive supervision, supervisor present in the room)
B: Performs, manages, demonstrates under direct or indirect supervision (is allowed to act under reactive supervision, supervisor is readily available)
C: Performs, manages, demonstrates under distant supervision (is allowed to act under supervision available on phone)
D: Performs, manages, demonstrates independently and acts as supervisor or instructor

E. Learning objectives

For each domain of expertise, a detailed list of “learning objectives” has been identified:
- These learning objectives have been broken down into “Knowledge, Skills and Attitudes”. They are deemed necessary to achieve the required level of competencies in each domain.
- The learning objectives are realistic endpoints that should be attained by the end of the anesthesia residency period.
- The learning objectives also represent measurable endpoints that should serve as a basis for the development of future evaluation modalities in order to objectively and reliably measure the acquisition of competencies throughout the curriculum.

F. Competence statements: General Core Competencies

Domain 1.1: Disease Management, Patient Assessment and Preoperative Preparation

1.1.1	Identifies, optimizes and treats all for planned interventions relevant pathologies	B	D
1.1.2	Identifies pathologies with high risk for anesthesia, including rational adaption of anesthesia plan, further evaluation and optimization in collaboration with specialists (e.g. liver cirrhosis, mediastinal mass, pulmonary hypertension, compromised cardiac patients, respiratory insufficiencies)	B	D
1.1.3	Assesses perioperative risk	B	D
1.1.4	Uses and interprets preoperative investigations appropriately and rationally	B	D
1.1.5	Assesses airway for potential difficulties with intubation and / or ventilation	B	D
1.1.6	Knows and applies the principals involved in pre-operative medication, fasting guidelines and pre-medication	B	D
1.1.7	Elaborates an individualized anesthetic strategy, including rational use of drugs and techniques	B	D
1.1.8	Provides adequate information to patient and / or relatives and obtains informed consent for anesthesia	B	D

Domain 1.2: Intraoperative Care

	Competence statement	1st phase	2nd phase
1.2.1	Prepares the workplace according to local checklists (equipment and anesthesia machine, drugs, monitoring, etc...)	C	D
1.2.2	Uses appropriately all standard safety (electrical, laser, X-ray) and infection control (HIV, Hepatitis, resistant organism infection) measures	C	D
1.2.3	Uses and monitors patient's positioning safely	B	D
1.2.4	Masters knowledge of pharmacology relevant to general and regional anesthesia, including preparation, administration and monitoring of drug effects	B	D
1.2.5	Provides a safe induction, maintenance, and emergence from general anesthesia, including choice of drugs, airway management, ventilation techniques and monitoring	B	D
1.2.6	Provides a safe conduct of regional anesthesia, including choice of drug, choice of regional technique and monitoring	B	D
1.2.7	Uses appropriate skills for safe provision of general or regional anesthetic techniques	B	D
1.2.8	Maintains homeostasis of organ systems of patients throughout different procedures, including adequate fluid and volume management, safe use of blood and blood products, and maintains normothermia	B	D
1.2.9	Provides adequate record keeping of anesthetic procedures	C	D
1.2.10	Recognizes, diagnoses and manages intraoperative critical incidents	B	D

Domain 1.3: Postoperative patient care and pain management

	Competence statement	1st phase	2nd phase
1.3.1	Provides appropriate handover of a patient to the next postoperative care team (ward/PACU/IMC/ICU)	C	D
1.3.2	Provides adequate patient monitoring in PACU/IMC	C	D
1.3.3	Assesses and adequately treats post-operative pain and post-operative nausea and vomiting in PACU	C	D

1.3.4	Anticipates, recognizes, diagnoses and manages postoperative critical incidents, including indication for transfer to ICU	B	D
1.3.5	Uses correct discharge criteria from both in- and outpatient settings	B	D

Domain 1.4: Emergency medicine and resuscitation

	Competence statement	1st phase	2nd phase
1.4.1	Adopts a structured and timely approach to the recognition, assessment and stabilization of the acutely ill and the trauma patient	B	D
1.4.2	Recognition of the critical ill adult or child and initiation of adult and pediatric resuscitation	B	D
1.4.3	Triages and prioritizes patients appropriately, including timely admission to ICU, OR and adequately transfers to tertiary centers	A	D
1.4.4	Is able to manage mass casualties (has access to local disaster algorithms)	A	B

Domain 1.5: Procedures & skills for anaesthesia practice

	Competence statement	1st phase	2nd phase
1.5.1	Provides basic airway management	C	D
1.5.2	Provides advanced airway management	B	D
1.5.3	Provides basic vascular access	C	D
1.5.4	Provides advanced vascular access	B	C
1.5.5	Provides basic peripheral and central blocks	B	D
1.5.6	Provides advanced peripheral and central blocks	B	C
1.5.7	Checks and operates technical monitors and machines and troubleshoots basic technical malfunctions	C	D
1.5.8	Adequate use of ultrasound techniques for vascular and peripheral/central blocks	B	D

Domain 1.6: Quality management and health economics

	Competence statement	1st phase	2nd phase
1.6.1	Provides the best anesthetic care in accordance to standards and recommendations of the SSAR/SGAR	B	D
1.6.2	Applies in his work the local in-hospital guidelines of the quality and safety programs (checklists, transmissible diseases, patient and operative site identification, etc…).	C	D
1.6.3	Is aware of his own limits and is capable of seeking help when required	C	D
1.6.4	Organizes effectively his work with a multidisciplinary team	B	D
1.6.5	Ensures continuity of care through effective handover of clinical information	C	D
1.6.6	Demonstrates an understanding of the managerial and administrative responsibilities	A	C
1.6.7	Engages in consensus finding how to best organize and allocate the resources to the communities	A	B

Domain 1.7: Anesthesia Non-Technical Skills (ANTS)

	Competence statement	1st phase	2nd phase
1.7.1	Situation Awareness shows situation awareness in gathering information, recogniz-ing & understanding and anticipating	B	D
1.7.2	Decision Making is able to make decisions by identifying options, balancing risks & selecting options, re-Evaluation	B	D
1.7.3	Task Management manages tasks by planning & preparing, prioritising, providing & maintaining standards, identifying & utilising resources	B	D
1.7.4	Team Working works in a team by coordinating activities with the team, exchanging information, using authority & assertiveness, assessing capabilities, supporting others is able to demonstrate leadership	B	D

Domain 1.8: Professionalism and Ethics

	Competence statement	1st phase	2nd phase
1.8.1	Formulates clinical decisions with respect of ethical and legal principles	C	D
1.8.2	Communicates effectively with patients and relatives (doctor-patient relationship); involves patients and/or their surrogates in decisions about care and treatment	B	D
1.8.3	Involves fellow colleagues from different other specialties in decision-making about care and treatment	B	D
1.8.4	Maintains accurate and legible records, and documentation of clinical activities	C	D
1.8.5	Respects privacy, dignity, confidentiality and legal constraints on the use of patient data	C	D
1.8.6	Supports and participates in activities regarding professional and specialty development	A	D
1.8.7	Within the context of a multidisciplinary team, provides end-of-life and palliative care and applies the ethical and legal guided process of withholding and withdrawing treatment	A	D

Domain 1.9: Education, Self-directed Learning, Research

	Competence statement	1st phase	2nd phase
1.9.1	Demonstrates life-long learning habits and fulfills requirements of the program of further education (Weiterbildungsprogramm Anästhesiologie; formation pour la spécialisation en anesthésiologie)	C	D
1.9.2	Contributes actively to education of trainees and Healthcare professionals	A	C
1.9.3	Demonstrates knowledge of basic statistics, criteria for a good clinical practice and critical appraisal of an article	A	C
1.9.4	Demonstrates basic knowledge in ethics in health care applied to research	A	C
1.9.5	Participates in basic or clinical science research	A	B

G. Competence statements

Specific Core Competencies

Domain 2.1: Obstetrics

	Competence statement	1st phase	2nd phase
2.1.1	Masters anatomy, physiology, pathophysiology and pharmacology of pregnancy and labor	B	D
2.1.2	Masters fetal physiology, ante partum and intra partum fetal assessment	B	C
2.1.3	Masters techniques, indications and contraindications for labor analgesia	B	D
2.1.4	Masters the anesthetic management of cesarean section and other operative deliveries under regional or general anesthesia	B	D
2.1.5	Prevents and treat specific anesthetic complications, including parturient resuscitation	B	C
2.1.6	Manages the high -risk obstetric situations, including appropriate transfer to maternity with a high-level of care	B	C
2.1.7	Manages the anesthetic of non-obstetric surgery during pregnancy	B	D
2.1.8	Recognition of the critical ill neonate and initiation of neonatal resuscitation	B	D

Domain 2.2: Airway Management

	Competence statement	1st phase	2nd phase
2.2.1	Appropriately manages anesthesia for surgery with shared airway	B	D
2.2.2	Manages airway in patients with both expected and unexpected difficult airway, including use of different devices and techniques and proper application of existing algorithms during intubation and extubation; manages the airway in trauma situations	B	D
2.2.3	Safely provides anesthesia for laryngeal surgery, tracheotomy and laryngoscopy/bronchoscopy in adult patients	A	C
2.2.4	Manages the anesthetic for laser surgery in the airway, including jet-ventilation	A	B

Domain 2.3: Thoracic and Cardiovascular Anesthesia

	Competence statement	1st phase	2nd phase
2.3.1	Evaluates risk for lung resection and selects patients, who need preoperative preparation and treatment Is aware of the perioperative risk factors and specific postoperative complications of thoracic surgery	A	C
2.3.2	Describes and performs the anesthetic aspects of one lung ventilation	A	C
2.3.3	Manages acute pain for thoracic surgery including regional anesthesia techniques	A	C
2.3.4	Recognizes cardiac and thoracic emergencies and initiates treatment	A	D
2.3.5	Possesses anesthetic basic knowledge of cardiopulmonary bypass and other circulatory assistance devices relevant to the anesthesiologist	A	B
2.3.6	Can apply principles of invasive monitoring of circulation and hemostasis	A	B
2.3.7	Manages anesthesia for elective and urgent peripheral vascular surgery including appropriate preoperative risk evaluation and optimization	B	D
2.3.8	Manages anesthesia for major vascular surgery, including emergency procedures	A	C

Domain 2.4: Neuroanesthesia

	Competence statement	1st phase	2nd phase
2.4.1	Masters the basics of pre- and postoperative neurological assessments	A	C
2.4.2	Appropriately manages the anesthetics of patients with raised intracranial pressure	A	C
2.4.3	Applies strategies for the prevention of secondary brain injury	A	C
2.4.4	Masters anesthetic aspects of positioning for neurosurgical procedures including monitoring and therapy of pulmonary air embolism during the sitting or other neurosurgical positioning	A	C

2.4.5	Uses monitoring techniques for brain perfusion and function	A	B
2.4.6	Manages the anesthetic of patients with CNS and spine bleeding or injury, with non-surgical neurological disorders (stroke, seizures,…) and those undergoing diagnostic interventions	A	C

Domain 2.5: Pediatric Anesthesia

	Competence statement	1st phase	2nd phase
2.5.1	Masters pediatric aspects of monitoring and equipment, including peripheral vascular access (including intra-osseous)	A	C
2.5.2	Anticipates, recognizes, and understands the implications pediatric specificities including airway management, anatomy, physiology, and pharmacology	A	C
2.5.3	Provides a safe induction, maintenance and emergence of general anesthesia and manages perioperative care (pain, PONV, emergence delirium) in pediatric patients (including regional anesthesia) in otherwise healthy children ≥ 3 years and ASA I/II undergoing routine procedures	A	C
2.5.4	Provides a safe induction, maintenance and emergence of general anesthesia in children < 3 years or ASA > II	A	A
2.5.5	Recognition of the critical ill child and initiation of pediatric basic life support	A	D

Domain 2.6: Intensive, Intermediate and Perioperative Care of the Critically Ill Patient

	Competence statement	1st phase	2nd phase
2.6.1	Defines clinical problems, develops diagnostic and specific management and treatment plans/bundles according to international standards of specific critical conditions	A	C
2.6.2	Develops adequate responses to life-threatening problems	A	D
2.6.3	Recognizes and masters specific aspects of monitoring and equipment	A	C
2.6.4	Recognizes Intensive Care specific syndroms (delir, critical-illness myopathy, etc) and is able to consider these entities in the therapy	A	C

2.6.5	Manages critically ill patients and initiates adequate treatment for failing organ systems	A	C
2.6.6	Contributes to the multidisciplinary care of patients in cooperation with all the relevant partners including patients and their relatives	A	C

Domain 2.7: Anesthesia outside the operating room (OR)

	Competence statement	1st phase	2nd phase
2.7.1	Anticipates, recognizes and adequately manages problems and organizational aspects associated with deep sedation and anesthesia in an isolated site (e.g. MRI, Angiology, Endoscopy, interventional Radiology) as well as in an office-based structure	A	D
2.7.2	Applies standards and recommendations of the of the SSAR/SGAR for safe practice of anesthesia outside the OR and in an office-based structure	A	D

Domain 2.8: Multidisciplinary chronic, palliative, interventional Pain Management and Palliative care

	Competence statement	1st phase	2nd phase
	Chronic pain		
2.8.1	Applies the knowledge of physiology, pathophysiology, psychological and psychosocial aspects of chronic and postoperative persistent pain and establishes effective interactions with the multidisciplinary team of helth professionals working in the pain clinic	A	C
2.8.2	Uses appropriate techniques for measurement and documentation of chronic pain ((Pain history and evolution, physical examination, neuropathic pain) including treatments and procedures.	A	C
2.8.3	Identifies patients in the process of pain chronification and knows when multidisciplinary procedures are required	A	C
2.8.4	Pain Management: Pharmacological methods: Has comprehensive knowledge and applies basics of pharmacological therapies on the mechanisms, therapeutic and side effects, clinical use, routes (non-invasive and invasive), doses, and drug interactions. Furthermore, is aware of the limitations of pharmacological pain therapy in acute and chronic pain conditions.	A	C

2.8.5	Pain Management: Non-Pharmacological methods: Knows and applies the mechanisms, limitations and the risk/benefit of the methods in order to recommend and enforce their use whenever appropriate: – Interventional procedures including nerve blocks and neurolysis, and radiofrequency – Neuromodulation and neurostimulation (TENS, spinal cord and peripheral stimulation) – Radiofrequency – Surgical procedures – Physical medicine and rehabilitation. Work rehabilitation – Psychological pain education Complementary therapies including acupuncture	A	B
	Palliative care		
2.8.6	Identifies patients with life-limiting illness and patient at risk of dying within the next months and responds to the challenges of clinical and ethical decision making in those patients.	A	C
2.8.7	Is aware of the individual needs (physical, comfort, psychological, social and spiritual) of patients and their families and is able to evaluate the determinants of quality of life in these individual patients.	A	C
2.8.8	Identifies the goals and values of an individual patient and adapts suggested treatments to these goals and to developing situations.	A	C
2.8.9	Identifies patients in their dying process and supports their terminal care, as well as the support of relatives with grief reactions.	A	C
2.8.10	Assists an interdisciplinary and multiprofessional team in the complex management of palliative patients (e.g. pain, nausea and vomiting, fatigue, nutritional support and palliative sedation)	A	C

Appendix: Syllabus

Learning objectives of Competence statements: General Core Competencies

Domain 1.1: Disease Management, Patient Assessment and Preoperative Preparation

Learning Objectives

1. Basic knowledge
   During the course of the training, anesthesia residents must acquire knowledge on all relevant medical pathologies and those with direct impact on anesthetic techniques.
   - Anatomy, physiology, physiopathology of following organs systems (c.f. syllabus)
     - Airway
     - Respiratory
     - Cardiovascular
     - Nervous and muscular
     - Urinary/excretory
     - Endocrine
     - Digestive
   - Knowledge and experience of the etiology, natural history, diagnosis, treatment and complications:
     - Respiratory
       - Obstructive lung disease (COPD and asthma)
       - Respiratory infection like pneumonia, tuberculosis
       - Restrictive lung disease
       - Malignancies
       - Pulmonary hypertension (primary and secondary)
       - Acute respiratory failure (see ICU domain 2.3)
     - Cardiovascular:
       - Congestive heart failure
       - Coronary artery disease
       - Hypertension
       - Arrhythmias
       - Valvular heart disease and cardiac shunt
       - Cardiomyopathies
       - Thromboembolic disease
     - Nervous and muscular
       - Cerebrovascular diseases (TIA, carotid artery disease, stroke)
       - Intracranial tumor and raised IC pressure
       - Chronic spinal cord transection
       - Muscular and myotonic dystrophy
       - Myasthenia Gravis, myasthenic syndrome
       - Epilepsy
     - Urinary/excretory
       - Renal failure and common causes
       - Disorder of acid-base balance
       - Electrolyte disorders

  - Digestive
    - Esophageal disease (reflux, hiatus hernia)
    - Gastric disease (peptic ulcer disease)
    - Carcinoid tumors
    - Disease of liver (Acute hepatitis (toxic, infectious) and chronic hepatitis, cirrhosis and complications)
  - Endocrine
    - Diabetes mellitus and complications (hyperglycemia, hypoglycemia, acidocetosis
    - Thyroid gland dysfunction (hyperthyroidism, hypothyroidism)
    - Parathyroid gland dysfunction
    - Adrenal gland dysfunction (Hypoadrenocorticism, Pheochromocytoma)
    - Diabetes insipidus
- Understanding disease processes, natural evolution and knowing the influence on the management of perioperative period
- Treatment of above-mentioned diseases, in order to optimize patients before anesthesia and surgery in cooperation with other physicians
- Pharmacology of perioperative drugs (c.f. Syllabus)
- Fasting guidelines
- Airway assessment including bedside tests to assess difficult ventilation and intubation
- Other medical history (personal and family history of previous anesthesia, allergy, drug abuse, habits)
- The transplant patient undergoing general surgery

2. <u>Clinical skills</u>
   - Patient assessment based on history and physical examination, use of
   - appropriate examinations and laboratory tests
   - Evaluation of the preoperative ASA physical status
   - Specific consideration in airway management (c.f. domain airway)
   - Interpretation, considering the value and limitation of:
     - Electrocardiogram, and other methods assessing cardiovascular function
     - (echocardiography, ergometry myocardial scintigraphy, coronography)
     - Pulmonary function test and arterial blood gas analysis
     - Common radiological testing with special emphasis on chest X-ray
     - Coagulation
     - Liver and renal function test
     - Endocrine function
     - Drug monitoring
   - Selection and planning of the anesthesia technique, including monitoring and
   - other equipment required for the procedure
   - Decision-making relating to postponement or cancellation of surgery
   - Accurate preoperative record keeping

3. <u>Specific attitudes</u>
   - Effectively communicate with patients, let patients know of risks and benefits of various techniques used, and treat patients with respect and courtesy in answering all questions and concerns they may have
   - Establishing effective interaction with patients and their relatives

- Develop strategies to provide informed consent and disclosure of risk (information leaflets, multimedia)
- Discuss alternatives with the patient, the surgeons and other team colleagues

Domain 1.2: Intraoperative Care

1. Basic knowledge
   - Physics and Clinical measurement (Behavior of fluids (gases and liquids); Flow of fluids; Measurement of volumes, flows, and pressures; Measurement of temperature; Humidification; Oximetry; Analysis of gases; Capnography; Electrical safety; Fires and explosions)
   - Equipment and apparatus (Equipment design and standards; Gas supply in bulk and cylinders; Anesthesia delivery system, including pressure valves and regulator; Vaporizer; Breathing system; Devices to maintain the airway such as laryngoscopes, endotracheal tubes, tracheotomy tubes, face masks, airway devices; Information systems)
   - Minimum monitoring standards, and additional monitoring when appropriate (including central venous pressure invasive arterial pressure, cardiac output monitoring, cerebral function, coagulation, blood gas analyses, urinary output)
   - Planning and physical layout of an operating theatre suite (Operating rooms and postanesthesia recovery room; Lighting; Safety; Infection and pollution control in operating rooms; Sharps policies)
   - Principles of safety such as lifting and positioning patients
   - Conduct of anesthesia:
     - Management of the airway and intraoperative complications
     - Applied cardiac and respiratory physiology
     - Routine inhalation and intravenous inductions; Maintenance of anesthesia
     - Application of mechanical ventilation
     - Correct use of anesthesia delivery systems
     - Applied pharmacology and variability in drug response
     - Correct use of muscle relaxants, neuromuscular blockade monitoring
     - Application and interpretation of monitored variables
     - Fluid management, including blood replacement therapy
     - Common regional anesthesia techniques (epidural and spinal anesthesia and upper/lower limb blocks)
     - Maintenance of accurate records

2. Clinical skills
   Technical skills:
   - Rapid sequence induction
   - Maintenance of an adequate airway
   - Advanced Life Support
   - Aseptic techniques
   - Peripheral and central venous access including cannulation of major vessels for volume resuscitation, arterial cannulation and arterial blood gas collection
   - ECG recording and interpretation
   - Lumbar puncture, thoracic and lumbar epidural, and spinal anesthesia
   - Blood salvage and conservation

Clinical and case management skills:
Trainees are expected to identify and manage the following co-existing medical conditions relevant to anesthesia:
- Disorders of the airway and respiratory system
- Disorders of the cardiovascular system
- Disorders of the nervous system
- Renal disorders; Water, electrolyte and acid-base disturbances
- Hematological disorders, including coagulopathies
- Disorders of the liver, biliary tract and gastrointestinal system
- Endocrine disorders such as Pheochromocytoma, hyperthyroidism, hypothyroidism, and diabetes mellitus
- Skin and musculoskeletal disorders, including rheumatoid arthritis and ankylosing spondylitis
- Psychiatric disorders and substance abuse
- Ageing
- Obesity

Trainees are further expected to identify and manage the following major intraoperative problems:
- Inadequate airway: obstructed airway, failed intubation, oesophageal intubation, endobronchial intubation, and unplanned extubation
- Laryngospasm and Bronchospasm
- Gas embolism, Pulmonary aspiration, and Pneumothorax
- Hypoxia, Hypocarbia, Hypercarbia, Hypoventilation, Hyperventilation, and High ventilator peak inspiratory pressures
- Hypertension, Hypotension, Arrhythmias, Myocardial Ischemia
- Hypothermia, Hyperthermia, and Malignant hyperthermia
- Anaphylaxis
- Residual neuromuscular blockade (or regional anesthesia)
- Inadequate neuraxial blockade
- Intraoperative awareness
- Seizures

3. Specific attitudes
   - Effectively communicate with other members of the operating room in order to voice issues and concerns; work together with other health care professionals to ensure smooth patient care and safety

Domain 1.3.: Postoperative patient care and pain management

1. Basic knowledge
   - Postoperative Care:
     - Safe transport and handover of anesthetized patient
     - Acute pain Management:
       - Anatomy and physiology of pain pathways, the neuroendocrine response to acute pain and its effects of major organ systems
       - Knowledge of the clinical pharmacology of medications used in treatment of acute pain, including:

    - Medications: opioids, local anesthetics, NSAIDS, alpha-2 agonists
    - Route of administration: oral, SC, IM, IV (including PCA), epidural, intrathecal, peripheral nerve blocks
    - Knowledge of the advantages of one pain relief delivery system over another, of specific doses, rates and details of these delivery systems
  - Knowledge of common complications related to the anesthetic technique and the surgical procedure used, as well as therapeutic issues:
    - Bronchoaspiration / Pneumothorax
    - Hypoxemia
    - Hypercarbia
    - Hypotension/Bleeding/Shock of different aetiologies
    - Fluid requirements/Electrolyte disturbances
    - Arrhythmias
    - Residual neuromuscular blockade
    - Side-effects and complications of regional techniques (PDPH)
    - Postoperative confusion and altered mental states
    - TURP syndrome
    - PONV
    - Nerve and muscular damage
    - Patient malpositioning
  - Knowledge of potential complications related to comorbid conditions of patients
    - Respiratory distress
    - Ischemic, rhythmic and hypertensive heart disease
    - Renal failure
    - Sepsis
    - Diabetes
    - Transfusion and coagulation disorders
- Appropriate monitoring techniques and their interpretation

2. <u>Clinical skills</u>

   Technical skills:
   - Basic vascular access and airway management
   - CPR (basic and advanced life support)
   - Regional anesthesia techniques: neuraxial and peripheral nerve blocks

   Clinical and case management skills:
   Trainees are expected to understand relevant principles, apply knowledge in practice and to demonstrate clinical skills and case management in the following areas:
   - Indications and interpretation of common laboratory and radiological exams
   - Manage common and life threatening adverse reactions to medications used during anesthesia and to treat acute pain
   - Perform drills such as advanced life support to manage emergencies conditions (see above)
   - Management of post-spinal syndrome, including the indications for, and side effects of, an epidural blood patch

3. <u>Specific attitudes</u>
   - Demonstrate knowledge of the policies which must be in place to safely and effectively treat acute pain, monitor its efficacy and promote safety within a multidisciplinary team

- Demonstrate responsibility for the Acute Pain Service and management of patients in a timely and professional manner; follow up on patients who experienced complications and/or side effects in PACU
- Recognition of life-threatening complications requiring ICU transfer

Domain 1.4: Emergency Medicine & Resuscitation

1. Basic knowledge
   Knowledge and understanding of the physiopathology and treatment of:
   Trauma emergencies (blunt or penetrating according to ATLS list of life threatening injuries):
   - Mechanisms of injury and trauma scoring
   - Head and spinal injury
   - Maxillo-facial trauma
   - Chest trauma
   - Abdominal trauma
   - Pelvic trauma
   - Musculoskeletal trauma
   - Burns

   Medical emergencies (c.f. ACLS manual and ICU learning objectives)
   - Respiratory
   - Cardiac
   - Neurology
   - Endocrinology
   - Acid Base and electrolyte disorders
   - Intoxications
     - Poisonings with alcohol, salicylates, paracetamol, antidepressants, opioids, benzodiazepines, carbon monoxide
     - Implication of addiction, dependence and withdrawal

2. Clinical skills
   Technical skills:
   - CPR in adults, children and neonates
   - Emergency airway management, including needle and surgical cricothyroidotomy
   - Emergency vascular and transoseous accesses
   - Immediate chest needle decompression
   - Needle thoracocentesis and intercostal chest drainage

   Clinical and case management skills:
   Trainees are expected to understand relevant principles, apply knowledge in practice and to demonstrate clinical skills and case management in the following areas:
   - Adopting a structured and prioritized approach to emergency situations (Adult and pediatric advanced life support)
   - Knowing and applying the principles of triage
   - Identifying patients with an immediate threat to life
   - Dynamic and repetitive assessments (primary and secondary) in parallel with therapeutic interventions

- Appropriate use of resuscitative procedures and drugs
- Safe and effective use of pain therapy in an emergency environment
- Appropriate use of complementary exams (laboratory and radiology)

3. Specific attitudes
   - Establishing effective communication and interaction with other specialists to ensure
   - optimal care
   - Developing and demonstrating effective teamwork skills
   - Adapting to a physically and psychologically challenging environment, using debriefing and other coping strategies
   - Exercise good judgment as to when resuscitation is futile or inappropriate
   - Recognizing psychological issues and their implications for the patients and their families in the emergency environment

Domain 1.5: Procedures & Skills for anaesthesia practice

1. Basic knowledge

Airway management:
- Anatomy of the upper airway
- Airway assessment and identification of the potential difficult airway (scores / grading)
- Knowledge of the algorithm for the difficult airway
- Knowledge of criteria for a safe extubation
- Protocol for extubation of a difficult airway
- Management of pulmonary aspiration during general anesthesia

Vascular accesses:
- Basic anatomy relevant to the vascular accesses
- Knowledge of indications and contraindications of the different vascular accesses
- Knowledge of risks and complications of the different vascular accesses

Peripheral and central blocks
- Basic anatomy relevant to the peripheral and central blocks
- Early recognition of systemic local anesthetic toxicity, knowledge of symptoms and signs, as well as its prevention, treatment and resuscitation measures
- Knowledge of the physiological changes following regional anesthesia
- Knowledge of indications and contraindications of peripheral and central blocks
- Knowledge of risks and complications of peripheral and central blocks with special emphasis on coagulation disorders.
- Knowledge of appropriate use of peripheral and central blocks both intraoperatively, as an anesthetic technique, and postoperatively as an acute and chronic pain management technique

Technical devices (c.f. intraoperative LOs)

2. Clinical skills

Airway management

- Uses different available maneuvers to clear the airway (head extension, jawthrust, oropharyngeal an nasopharyngeal airways)
- Airway management using the following devices:
  - Face mask and self-inflating bag
  - Laryngoskope and different blades
  - LMA and other supraglottic airways
  - Endotracheal tubes
  - Fiberoptic devices
- Performs routine preparation of equipment
- Performs equipment setup for the difficult intubation
- Performs routine airway management (mask ventilation, intubation and extubation)
- Performs drills in the algorithm for the difficult mask ventilation
- Performs the rapid sequence induction
- Performs drills in the handling of the difficult airway (including fiberoptic intubation asleep and awake)
- Performs drills in cricothyroidotomy and jet ventilation
- Performs the emergency management of a pneumothorax and placement of a chest tube
- Performs the extubation protocol in the difficult airway, with a plan to “not lose the airway”
- Performs intraoperative bronchoscopy and bronchial lavage in case of problems with secretion or pulmonary aspiration

Vascular accesses

- Correct identification of landmarks and positioning of patient
- Demonstrates effective skin antisepsis and site preparation
- Insertion of peripheral, central venous, and arterial lines
- Is able to recognize and treat complications related to vascular accesses

Peripheral and central blocks

- Is able to position the patient appropriately for the performance of the blocks
- Demonstrates effective skin antisepsis and site preparation
- Performs peripheral blocks of the upper extremity (single shot and catheter techniques), including intravenous, axillary and interscalene blocks
- Performs peripheral blocks of the lower extremity (single shot and catheter techniques) including intravenous, femoral, obturator

Uses appropriate equipment including needles, devices for nerve location and catheters

- Performs the common central neuraxial blocks such as spinal, epidural (thoracic/lumbar) and combined spinal/epidural
- Assesses the extent and degree of a block with an appropriate method

Technical devices

- Is able to check and operate the following equipment and machines:
  - Gas supply
  - Anesthesia delivery systems
  - Vaporizers

- Breathing systems
- Anesthetic ventilator machines
- Infusion pumps/rapid infusion devices
- CNS monitoring
- Warming devices
- Blood salvaging devices

Selects the appropriate monitoring methods, both invasive and non-invasive, and provides a critical interpretation of the monitored variables

3. Specific attitudes
   - Is aware of his own limits when performing technical procedures, anticipates problems and can act accordingly, including calling for help early

Domain 1.6: Quality Management and Health Economics

1. Basic knowledge
   - Standards of quality and security, and recommendations of the SSAR/SGAR
   - Tools for quality assurance (Cirrnet, local reporting systems, ADS, Stiftung für Patientensicherheit)
   - Governmental Regulations relevant for anesthesia practice (both cantonal and federal)
   - Economic aspects:
     - Demographic data and resource utilization data relevant for anesthesia practice (DRG, TarMed, OFSP-BAG, etc…)
     - Basic knowledge on financial aspects of anesthesia practice
     - Basic knowledge on organizational and budgeting aspects of anesthesia practice

2. Clinical skills
   - Understands and applies standards of quality, security and recommendations in daily practice
     - Understands the importance and uses checklists and follows guidelines
     - Supports and provides data for both local and national ADS
     - Demonstrates awareness for critical incidents and reports them
   - Applies standards of quality and safety with respect to organizational aspects
     - Applies organizational knowledge to provide a cost-effective organization

Domain 1.7: Anesthesia Non-Technical Skills (ANTS)

1. Basic knowledge
   - Psychological aspects of team performance for successful task performance
   - Crisis ressource management
   - Human error research, relevant for the perioperative setting
   - Behavioral marker systems, relevant for successful training

2. Clinical skills

Task management
- Planning and preparing
- Prioritizing
- Providing and maintaining standards
- Identifying and utilizing resources

Team working
- Coordinating activities with team members
- Exchanging information
- Using authority and assertiveness
- Assessing capabilities
- Supporting others

Situation Awareness
- Gathering information
- Recognizing and understanding
- Anticipating

Decision making
- Identifying options
- Balancing risks and selecting options
- Re-evaluating

Leadership
- To work as a team member but to assume responsibilities and to delegate duties as a team leader when necessary

Domain 1.8: Professionalism, Ethics

1. Basic knowledge

Professional Attributes:
- Principles of medical ethics: autonomy, beneficence, non-maleficence, and justice
- The Geneva Declaration and Helsinki protocol
- Legal principles and medicolegal obligations defining medical practice and the use of patient data
- Principles of communication with patients and physician-patient “contract” including:
  - Rights and responsibilities of patient, doctors and other medical staff
  - Informed consent
  - Patient confidentiality and privacy
  - Error and incidents disclosure
- Principles of communication with colleagues including:
  - Methods (verbal, written, consultation or referral)
  - Manner (courtesy, integrity, respect)
  - Adequate record keeping (including medicolegal implications)
- Personal issues including:

- Balancing family and work, and the importance of non-professional activities
- Depression; recognition and care plans
- Substance abuse; recognition and access to appropriate referral
- Mentoring; types and their applications
- Leadership responsibilities and styles; team behaviors
- Stress and crisis management
- Principles underpinning conflict resolution
- Use and influence of role model

2. Clinical skills

Clinical and case management skills:

Trainees are expected to integrate and demonstrate the application of the above knowledge and attributes to their clinical practice by:

- Applying principles of medical ethics to problem solving; for example in the following areas: end-of-life and palliative care; withholding and withdrawing treatment; Jehovah's witnesses; NTBR order; patient unable to display judgment; minor patient.
- Effective communication with patients and their relatives; for example, breaking bad news, error and incident disclosure, diagnosing and explaining brain death, requesting organ donation.
- Effective communication with colleagues and other actors of the multidisciplinary team through appropriate handover, patient referral, consultation request or assistance.
- Appropriate behaviors and communications in the case of tensions and conflicts arising among members of the multidisciplinary team.
- Displaying optimal maintenance of anesthesia and other medical records.

3. Specific attitudes

Specialist practice

- Trainees are expected to develop and attain attributes in the 5 roles a specialist in anesthesiology: Medical expert; Communicator /team expert; Manager; Scholar; Professional
- To work as a team member but to assume responsibilities and to delegate duties as a team leader when necessary
- To accept that medical knowledge and skills are not only the requirements of specialists practice
- Critical appraisal: to have insight into one's own limitations, abilities and areas of expertise
- To commit to lifelong continuing professional education and to maintain an inquisitive attitude

Professionalism, Ethics and the Law

- To be aware act according to medicolegal obligations relating to medical practice
- To commit and believe in the four main ethical principles and in professional values such as altruism, fidelity, social justice, honor and integrity, and accountability

Patient considerations

- To commit and believe in the rights of patients to autonomy, confidentiality, informed consent, comprehension of the risks of anesthesia techniques
- To appropriately care for patients irrespectively of race, culture, gender, sexual orientation, and socio-economic status
- To commit to ethical principles of research

Domain 1.9: Education, Self-directed Learning, Research

1. Basic knowledge
   - Basic concepts of evidence based medicine
   - Statistical Methods:
     - Data collection:
       - defining outcome measures and the uncertainty of measuring them
     - Descriptive statistics:
       - types of data and their representation
       - normal distribution: an example of parametric distribution
       - indices of central tendency and variability
     - Deductive and inferential statistics:
       - simple probability theory / relation to confidence intervals
       - the null hypothesis
       - type I and type II errors
   - Scientific basis of clinical practice
   - Methodology and processes of clinical research including:
     - importance of study design in clinical research
     - importance of statistical analyses
     - ethical considerations related to research
   - Audit cycle and critical incident reporting: purpose, methods
   - Basic concepts related to economics in health care and research
   - Basic concepts in ethics

2. Clinical skills
   - Ability to locate published research in a systematic manner
   - Critical interpretation and evaluation of the value of published clinical research
   - Planning and preparation of presentations to a live audience
   - Participation in a basic science or clinical research project

3. Specific attitudes
   - Achieve and maintain a questioning approach to clinical practice
   - Maintain a Learning Portfolio; reflect on previous learning experiences with the aid of the Learning Portfolio
   - Develop an informed critical approach to the scientific literature; conduct and appraise literature searches
   - Cultivate an evidence based practice of anesthesia; appraise journal articles including the application of statistics
   - Demonstrate a constant willingness to teach and learn
   - Develop a readiness to both listen and learn
   - Carry out oral presentations and professional communication