European Professional Development Module PDM in Pain Medicine for ANAESTHESIOLOGISTS

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

Task force members from Standing Committee EPD of the EBA in alphabetical order:
Aurilio C (Italy), Junttila E (Finland), Kietaibl S (Austria), Lobo C (Portugal), Madách K (Hungary), Maddison L (Estonia), Malisiova A (Greece), Neskovic V (Serbia), Oremus K (Croatia), Shosholcheva M (North Macedonia), Underwood S (UK)

Correspondence to the coordinating authors: kresimir.oremus@akromion.hr
s.kietaibl@ekhwien.at

Part 1. General information about the European Professional Development Module for anaesthesiologists

The way 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 harmonised quality of care and patient safety throughout Europe. The next step to excellence in anaesthesiology requires professional development 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 summarise learning objectives to enrich and increase competencies raising clinical experts and professional leaders to a higher level of qualification. The introduction of PDMs was discussed at the European Union of Medical Specialists (UEMS) Webinar in June 2021.

The road to a competent professional we call ETR, the road to mastery we call Professional Development.

S**cope of the PDM in Pain Medicine for anaesthesiologists**

Training in anaesthesiology includes many of the competencies required in pain medicine, including routine image-guided blocks, handling of analgesic drugs, routine care of all patient groups (from newborn to frail elderly), skills in the management of patients in pre-hospital, perioperative, intensive care and critical emergency settings. The ETR in anaesthesiology lists competencies in pain medicine in general and in specific core domains. Not all learning objectives listed in the ETR, however, reach level D (perform and manage independently). Attaining full competencies in all domains of the broad discipline of anaesthesiology in the minimum training timeframe would be an ideal but impossible demand in any European country. After completion of training in anaesthesiology, the PDM in Pain Medicine for anaesthesiologists will increase the number and level of competencies, enriching the knowledge skills and attitudes in this clinical field. The aim of the PDM in pain medicine for anaesthesiologists is to provide a framework for harmonising the practice and teaching of advanced pain medicine across Europe by expert specialist clinicians.

Considering the high societal and personal impact of chronic pain in all European countries there is a need for mastery in pain medicine delivered in pain clinics, or equivalent. Pain clinics are currently run by multidisciplinary staff including anaesthesiologists. Empowering anaesthesiologists through a competency-based professional development programme, the PDM in Pain Medicine, will give sustained benefit to European citizens. This programme includes teaching, educating others, including primary health care physicians, as well as non-technical skills, ethics and health economics. These enhanced skills will contribute to the sustained societal impact of the PDM in Pain Medicine for anaesthesiologists.
Some tasks in the specialty of anaesthesiology may, in future, be performed by robots or artificial intelligence. In pain medicine there will always be the need for humans with humanity and compassion to deliver care. Empowering specialists in anaesthesiology in ethics and professionalism will further contribute to the sustained societal impact of the PDM in Pain Medicine for anaesthesiologists.

PDM Pain Medicine development

In June 2019 the European Board of Anaesthesiology (EBA) appointed a working group within the Standing Committee on Education and Professional Development (EPD) to develop a PDM in the domain of pain medicine for specialists. The first European PDM was submitted for approval by the UEMS in January 2022.

This PDM in Pain Medicine reflects the multidisciplinary nature in the field of pain medicine as well as recognising the specific expertise and competencies related to the management of pain already obtained through specialist training in anaesthesiology. The PDM in Pain Medicine for anaesthesiologists could serve as a model for advanced training in other medical disciplines involved in pain medicine (e.g. radiology, surgery, neurology, psychiatry).

Duration and type of PDM in Pain Medicine

Minimum training duration is 1 year. The authority responsible for governing and ensuring the adequacy of medical training in European countries can decide to count previous experience gained through clinical practice and additional recognised training (e.g. accredited courses, fellowships, observerships) in the field of pain management towards advanced training if the requirements for knowledge and skills defined by the PDM in Pain Medicine are met. According to the UEMS basic principles training is competency-based and not number- or count-based.

The training programme includes a variety of training activities including attendance at training courses, lectures, work with outpatients, interventional procedures, ward rounds, multidisciplinary meetings, clinical research and medical simulation training. Training activities are not uniform throughout Europe and depend on national structures and processes in each location.

Candidates for PDM in Pain Medicine

The PDM in Pain Medicine has been developed for anaesthesiologists who have successfully completed a specialist training programme consistent with the EBA UEMS ETR in anaesthesiology and wish to attain a higher level of competency in the domain of pain medicine.

Trainers for PDM in Pain Medicine

The trainer should be a recognised expert in the field of pain management with sufficient practical and teaching experience. They must fulfil the requirements of a trainer as stated in the ETR in anaesthesiology (part 3):

Training staff must have competence level **E** in the assigned area of training.

Training staff must have sufficient time allocated for the training assignment.

Training staff must have knowledge about the PDM Pain Medicine.

Training staff must have a positive attitude towards clinical training and expertise in didactic teaching, a clear commitment to theoretical teaching and practical instruction of trainees within the full range of clinical practice.

Combinations of competencies in clinical practice, teaching and scientific work are beneficial. However, eeducational trainers do not have to be researches but collaboration of educational trainers not involved in research with researchers is recommended.

Training institutions

High quality training can only be provided in high quality training centres by high quality trainers and must be assessed in a meaningful and robust way. The training hospital as the training centre or the training unit consisting of more than one training hospital (with rotation of the trainees) must offer all relevant specialties and subspecialties of pain medicine.

All relevant clinical activities must be available so that the clinical skills and attitudes listed in part 2, including expertise in invasive techniques, monitoring technologies and diagnostic methods can be learned.

Faculty, teachers, trainers, consultants and tutors must be available in sufficient numbers for the trainer-trainee ratio to support efficient and effective training. Manpower planning is under the jurisdiction of each member state according to their needs.

Educational activities including lectures, meetings, seminars on matters such as mortality and morbidity, critical incident reporting and clinical audit must be available in sufficient number.

Regular participation in training in medical simulation scenarios must be made available to support improvement in non-technical skills as well as technical and teaching skills.

Accreditation of trainings centres, internal and external audits are highly encouraged by UEMS EBA.

Certified programmes, diplomas, university courses, mentoring/coaching programmes and e-learning must offer the content described in part 2 below.

Assessment of competencies in PDM in Pain Medicine

All training activities in the programme are recorded. Documentation recommended by the EBA includes:

- logbook
- portfolio (e-portfolio)

Logbook documents all clinical procedures and cases.

Portfolio continuously monitors progress and acquisition of competencies, interventions at the specific competence level, instruction from the trainer, self-reflection on the management of the case and the value for progress in the training programme. Regular meetings of the trainer with the PDM learner permit provision of guidance and planning further learning for progress.

Review of logbooks and portfolios also allow quality control of the training institution.

A combination of formative and summative assessment should be used for assessing the status of the competencies acquired as outlined in the *Handbook on Competence-based Teaching and Assessment: A guide for trainers of the European Board of Anaesthesiology (EBA)* (https://sites.google.com/view/eba-uems/eba-standing-committees/epd).

Completion of the PDM in Pain Medicine

The EBA recommends national regulatory authorities, chambers of physicians, and / or scientific societies to document completed PDM specialist training as a certificate in advanced training within anaesthesiology.

In future the EBA will propose European certification from UEMS for advanced training in a PDM to facilitate specialists' mobility throughout Europe.

Part 2. Domains and competencies in the PDM Pain Medicine for anaesthesiologists

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 specific pain states
1.1 Acute pain
1.2 Chronic pain
1.3 Neuropathic pain

2. Domains of specific patient groups
2.1 Pain medicine in elderly
2.2 Pain medicine in cancer patients, palliative and end of life care
2.3 Pain medicine in infants, children and adolescence
2.4 Pain medicine in intensive care medicine

3. Domains of general core competencies in pain medicine
3.1 Communication and psychology
3.2 Teaching and education
3.3 Pain research
3.4 Gender medicine
3.5 Sustainability and health care economics
3.6 Resilience
3.7 Psychosomatic medicine and psychotherapy
3.8 Manual medicine and osteopathy
3.9 Acupuncture
3.10 Non-evidence-based interventions

Learning objectives of PDM
For each domain, learning objectives are divided into knowledge, skills and attitudes that are deemed necessary to achieve the required level of competencies. For advanced training in a PDM the EBA uses different definitions for level of competencies 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 that lie behind the methodology

B4 performs safely and straight forward 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
Minimal requirements in the PDM for some learning objectives are only at the level of competence A1 or A2 in the domain 3.
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
Minimal requirements in the PDM for some skill competencies are only at the observer level or applied under supervision (level of competence A1 to A3, B1 to B4, C) in the domain 3.

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

c. Specific attitudes
Specific attitudes uniform in all clinical settings of pain medicine are only reported here and apply throughout the PDM Pain Medicine for anaesthesiologists:

- Attain attributes in the generic roles as a professional leader, academic scholar, and inspired humanitarian including:
    - Treating patients and their relatives with empathy, respect, courtesy and without discrimination
    - Treating other health care professionals with empathy, respect, courtesy and without discrimination
    - Fulfilling duties and accepting responsibilities with integrity, honesty, confidentiality, probity and compassion
    - Communication: excellent rapport, inspires confidence, listens well
    - Cooperation: always willing to help even if personally inconvenient
    - Self-motivation: hard-working, keen to learn, full of energy, goes beyond the call of duty
    - Stress response: copes well, seeks help when needed, thinks ahead, efficient even when under pressure

    - Promoting safety of patients and staff
- When developing a pain treatment plan always chose the simplest and safest among modalities with comparable efficacy
- Delivering patient information including alternatives and discussion of risks
- Teamwork with other health care professionals to ensure smooth patient care and safety
- Training in the management of rare adverse events and uncommon clinical situations in the medical simulation centre
- Commitment to critical incident reporting
- Careful, systematic, traceable documentation of pain medicinal considerations
- Dedication to monitoring, recording and improving the quality of pain management
- Consider that patients have the right to be heard, believed, and informed, regarding their pain and its management

Content related to pain medicine from ETR in anaesthesiology

General competencies already gained during specialist training according to the ETR in anaesthesiology need to be refreshed and clinical skills increased throughout to competence level **E.**

Items from ETR domain 1.6 on acute pain management

Items from ETR domain 2.5 on multidisciplinary chronic pain management

Items from ETR domains on competencies in invasive pain treatment and in pain medicine in various clinical fields, including:

1.2 General anaesthesia and sedation
1.3 Regional anaesthesia
1.5 Point of care ultrasound (POCUS)
1.7 Intensive care medicine
1.8 Critical emergency medicine (CREM)
2.4 Paediatric anaesthesiology

1. Domains of specific pain states

1.1 Acute pain

a. Knowledge

- Epidemiology, origin, assessment and treatment of various acute pain states including but not limited to:
    - perioperative/procedural pain
    - pain of spinal, musculoskeletal and joint origin
    - head and oro-facial pain states
    - visceral pain
    - pain related to trauma
    - inflammatory pain
- Evidence for interventions (pharmacological and non-pharmacological) that can reduce the incidence of progression from acute to chronic pain
- Concept and importance of red and yellow flags in assessing the acute pain patient
- Role of anaesthesiologists in setting up and running hospital acute pain services

b. Clinical skills

- Perform a thorough clinical assessment according to the bio-psycho-social model of pain **E**
- Be able to recognise and manage red flags in the acute pain patient from history and physical examination (e.g. possible fracture, tumour, headache, infection or serious neurologic deficit) and initiate further investigation or specialist referral as needed **E**
- Be able to recognise and manage yellow flags during the evaluation of the acute pain patient and to address the underlying psychosocial factors (e.g. attitudes, behaviours, social and work environment) as part of a multimodal/multidisciplinary treatment plan **E**
- Explain and discuss risks/benefits of the treatment and obtain verbal and where appropriate written consent **E**
- Prevention, early recognition and management of pain treatment related side-effects **E**
- Documentation of treatment(s), outcomes and possible adverse events **E**
- Define and implement institutional standard operating procedures for the in-hospital acute pain service **E**
- Define and implement patient information material for post-discharge analgesia **E**

c. Specific attitudes

- Recognise the principle of minimum intervention – using the simplest and safest treatment option(s) likely to be effective

1.2 Chronic pain

Terminology

a. Knowledge

- Definition of pain and classification of types of pain
- Understand terminology used in describing pain and associated conditions

b. Clinical skills

- Prepare a structured patient pain report using internationally accepted terminology **E**

Anatomy and physiology

a. Knowledge

- Anatomy of peripheral and central nervous system
- Ascending and descending pathways involved in pain transmission, modulation and processing
- Neurotransmitters involved in nociception
- Neuroimmune mechanisms involved in pain
- Mechanisms of peripheral and central sensitisation
- Mechanisms and changes related to development of chronic pain
- Understand the processes involved in peripheral and central sensitisation
- Understand the role of synaptic plasticity and long-term potentiation in chronic pain
- Understand patient related psychological and socioeconomic factors that can contribute to transition from acute to chronic pain / development of "pain behaviour" (e.g., drug abuse, worker's compensation)

Pharmacology

a. Knowledge

- Mechanism(s) of action, pharmacodynamics/-kinetics, therapeutic indications, side effects, contraindications, and interactions
- Concept of multimodal analgesia
- Role of adjuvants in pain management
- Influence of route of administration on the pharmacology of medications used in pain medicine
- Mechanisms of development of dependence / substance abuse related to agents used in pain management and treatment plans aimed at minimising those risks

c. Specific attitudes

- Commitment to lifelong continuing professional education, perpetual refreshment of competencies in reflective learning, and maintaining an inquisitive attitude

Assessing pain

a. Knowledge

- Validated pain assessment tools, questionnaires and techniques
- Understand the elements of a pain oriented clinical examination – physical, psychological, functional, socio-economic
- Concept and principles of pain oriented sensory testing

- Influence of psychological, sociological and cultural factors on beliefs of pain, behaviour, preferences and expected treatment outcomes
- Understand the differences in epidemiology, aetiology and treatment approaches between various chronic pain syndromes including but not limited to:
    - musculoskeletal pain (e.g. osteoarthritis, myofascial pain syndrome)
    - pain in autoimmune disorders (e.g. rheumatoid arthritis)
    - chronic low back pain
    - headache
    - diffuse chronic pain states (fibromyalgia / chronic widespread pain syndrome)
    - chronic visceral pain (including pelvic/urogenital pain syndromes, chronic functional abdominal pain, inflammatory pain, irritable bowel syndrome, chronic chest/thoracic pain)
    - pain in connective tissue disorders
    - somatoform pain disorder
    - chronic postoperative pain
- Influence of pain on functions of daily living, including but not limited to level of activity, independence, work, quality of life, sexual function, sleep
- Imaging and other diagnostic tests in the evaluation of the pain patient, including but not limited to X-ray, CT scan, MRI, ultrasound, PET, electrophysiological examinations, laboratory studies

b. Clinical skills

- Elicit a clinical history of the pain patient using appropriate and validated pain assessment questionnaires and tools **E**
- Elicit a clinical history of comorbidities and comedications of the pain patient **E**
- Perform a thorough pain oriented clinical examination (physical and psychological) **E**
- Perform pain oriented sensory testing **E**
- Critically interpret and judiciously use imaging and other diagnostic tests in the evaluation of the pain patient **E**
- Assess the patients psychological, sociological (including family history), economic and cultural background and their influence on beliefs of pain, behaviour, preferences and expected treatment outcomes **E**
- Assess the influence of pain on the patient's functions of daily living, level of activity, independence, work, sexual function and sleep **E**
- Demonstrate empathic and compassionate communication during pain assessment **E**
- Assess patient's needs, beliefs, preferences, history of pain therapy **E**
- Use valid and reliable tools for measuring pain and associated symptoms to evaluate/re-evaluate treatment efficacy and outcomes **E**
- Keep detailed record of patient's pain history, examinations, treatments, and progress **E**

c. Specific attitudes

- Establishing effective and empathic interaction with patients, including patients with impaired capacity of discernment and consent and their relatives

Management of pain

a. Knowledge

- Pharmacological agents in pain medicine *(see section 1.3 Pharmacology in Pain Medicine)*

- Principles, indications, contraindications, and efficacy of cognitive methods and behavioural modification in the management of pain and psychological therapies (relaxation, hypnosis, coping skills training, biofeedback, cognitive behavioural therapy)
- Role and value of physical methods and procedures in the management of pain and functional recovery of patients
- Principles, indications, contraindications, and efficacy of regional anaesthetic techniques, including sympathetic ganglion blocks and local infiltration of medications (e.g. soft tissue and trigger point injections, intraarticular injections)
- Principles, indications, contraindications, and efficacy of interventional procedures used in pain management, including but not limited to radiofrequency and electrothermal lesions, neurolysis, cryoablation, central, spinal, radicular and peripheral neurostimulation, intrathecal drug delivery
- Principles, indications, contraindications, and efficacy of neuromodulation techniques used in pain management, including:
    - spinal cord stimulation (SCS)
    - non-invasive brain stimulation techniques (repetitive transcranial magnetic stimulation (rTMS), cranial electrotherapy stimulation (CES), transcranial direct current stimulation (tDCS)
    - transcutaneous electrical nerve stimulation (TENS)
- Understand the role of appropriate image guidance modalities in performing invasive procedures
- Principles, indications, contraindications, and efficacy of surgical procedures in the management of pain
- Influence of patient related factors on the choice and performance of pain management procedures (e.g. age, organ dysfunction, current medical therapy)
- Management of pain in patient with opioid addiction and/or tolerance
- Current guidelines regarding management of patients on anticoagulant and antiplatelet agents undergoing invasive procedures
- Mechanism, role and clinical efficacy of complementary methods in the management of pain, including acupuncture, herbal medication, homeopathy and use of supplements
- Concept of placebo / nocebo as related to pain medicine
  side effects and complications related to various pain treatment modalities
- Guidelines and research relating to the field of pain management

b. Clinical skills

- Integrate various modalities of pain treatment into a comprehensive multimodal and, if needed, multidisciplinary treatment plan including pharmacological, psychological, physical and interventional procedures as appropriate **E**
- Be able to perform various regional anaesthetic techniques, including neuraxial procedures, sympathetic nerve and ganglion blocks and local infiltration techniques (e.g. soft tissue and trigger point injections, intraarticular injections) **E**
- Be able to use appropriate image-guided techniques (e.g. ultrasound, X-ray, CT, MRI) **E**
- Be able to perform invasive procedures in pain management:
    - soft tissue / trigger point injections **E**
    - intraarticular injections **E**
    - superficial / deep peripheral nerve blocks **E**
    - neuraxial nerve blocks **E**

    - radiofrequency / electrothermal lesions, e.g. spinal facet joint **E**
    - deep /neurolytic blockades, e.g. lumbar sympathectomy, coeliac plexus **B3**
    - implantation of central / spinal cord stimulation devices **B2**
    - implantation of radicular / peripheral neurostimulation device **B2**
    - transcutaneous optimisation of neurostimulation **C**
    - implantation of an intrathecal drug delivery pump **B3**
    - transcutaneous re-filling and optimisation of intrathecal drug delivery pump **C**
- Be able to decide on patients transfer to and collaboration with a pain centre for non-invasive and invasive pain management (e.g. spinal cord stimulation, repetitive transcranial magnetic stimulation, cranial electrotherapy stimulation, transcranial direct current stimulation, intrathecal drug delivery pump) **E**
- Be able to differentiate the need for pain therapy as symptom control versus surgical correction of a pathomechanism; be able to decide on patients transfer to surgical intervention **E**
- Integrate physical medicine and rehabilitation procedures in the treatment and functional recovery plan of pain patients **E**
- Integrate complementary methods in the management of pain (e.g. acupuncture and use of supplements) **D**
- Apply nocebo / placebo strategies (e.g. doctor's attention as a drug) **E**
- Recognise in a timely manner and initiate appropriate management of side effects and complications related to various pain treatment modalities **E**
- Informing the patient/legal guardian in a comprehensive manner about therapeutic procedures and alternatives, including expected outcomes and associated risks **E**
- Apply written / multimedia patient information material **E**
- Obtaining and documenting patient's informed consent for all therapies/procedures according to ethical standards and national legislature **E**
- Obtaining and keeping patient compliance with therapeutic plan **E**
- Explain and discuss limitations, risks and potential economic aspects of using non-evidence-based alternatives in the management of pain **E**
- Define (temporary) limits of evidence-based pain therapy as therapy-refractory (e.g. in somatoform disorders, pension requests) **E**
- Document and keep patients' pain chart and all procedures according to national requirements **E**
- Assess and address the impact of chronic pain on the patient's functional ability, sleep and emotional status **E**
- Define and implement a plan for diagnosis of pain (including biological, psychological, social dimensions) **E**
- Define and implement a plan for pain therapy (including timeline and escalation/de-escalation strategy) **E**
- Achieve understanding and compliance from the patient and navigate him/her through the pain diagnostic and (potentially life-long) pain therapeutic pathway **E**
- Establish / work within a multiprofessional team encompassing primary, secondary and social care to ensure continuity of care for the patient with chronic pain **E**
- Define and implement institutional standard operating procedures for multidisciplinary pain clinic **E**

c. Specific attitudes

- Appraisal of patients right to be heard, believed, and informed, regarding their pain and its management
- Recognise the principle of minimum intervention, using the simplest and safest techniques likely to be effective to achieve the clinical goal
- Become skilled at discerning pain from simulation, often related to drug abuse or worker's compensation

1.3 Neuropathic pain

a. Knowledge

- Definition, epidemiology, aetiology and treatment of neuropathic pain
- Role of metabolic, infectious, toxic, autoimmune, mechanical and ischaemic mechanisms in the development of neuropathies
- Principles, indications, contraindications, and efficacy of medications used in the treatment of neuropathic pain including antidepressants and anticonvulsants
- Role of non-pharmacological treatment modalities in neuropathic pain patients including physical/occupational therapy, psychotherapy, procedural (e.g. sympathectomy, central and peripheral stimulation)
- Differences between various neuropathic pain syndromes including painful mononeuropathies (e.g. traumatic, carpal tunnel syndrome, radiculopathies), polyneuropathies (e.g. diabetic and other metabolic neuropathies), central pain syndromes, postherpetic neuralgia, complex regional pain syndrome(s), postsurgical pain syndromes (e.g. postmastectomy pain, post thoracotomy syndrome, phantom limb pain), trigeminal neuralgia
- Pathomechanisms of deafferentation pain syndromes (e.g. postamputation pain, postherpetic neuralgia, pain after central nervous system injury) and their diagnosis
- Evidence for methods used in preventing and treating neuropathic pain

b. Clinical skills

- Evaluation of the patient with neuropathic pain according to the bio-psycho-social model **E**
- General medical examination including special attention to status of skin (colour, rashes, swelling, temperature abnormalities) and musculoskeletal system (presence of swelling, laxity, tenderness) **E**
- Evaluation of locomotor symptoms – negative (e.g., hypotonia, decreased strength and endurance) or positive signs (increased muscle tone, tremor, dystonia and dyskinesia) and incoordination, ataxia and apraxia **E**
- Evaluation for systemic diseases (infectious, malignant, autoimmune) and substance abuse **E**
- Assessing potential psychological issues (anxiety, depression, sleep disturbances) **E**
- Imaging and other diagnostic tests in the evaluation of the pain patient, including but not limited to quantitative sensory testing, nerve conduction velocity, pain questionnaires (e.g. painDETECT), laboratory studies
- Educate the patient - help patients acquire adequate knowledge about her/his condition and have realistic expectations about the expected treatment outcomes **E**
- Define and implement a multimodal therapy plan for various neuropathic pain syndromes including medications, physical therapy and if necessary psychological treatment and invasive procedures that is acceptable to the patient **E**
- ganglionic local *o*pioid application (GLOA) **E**
- Document treatments and procedures as well as the patient's pain evolution **E**
- Recognise and manage adverse effects of pain therapy **E**

c. Specific attitudes

- Be aware of pain catastrophising and help the patient reach acceptance of her/his condition
- Understand the importance of being able to stay active for patients with neuropathic and chronic pain – help the patient focus on the abilities she/he still has and use them to gradually increase their activity level despite the pain that is present

2. Domains of specific patient groups

2.1 Pain medicine in elderly

a. Knowledge

- Anatomical and physiological alterations associated with ageing and their impact on the presentation and responses to pain
- Understand multifactorial nature of pain in the elderly
- Conditions common in the elderly presenting with specific pain including skeletal pain (e.g. metastasis or osteoporotic fractures), chronic neuralgic pain, chronic visceral pain syndrome
- Pain evaluation tools appropriate for the assessment of pain in elderly patients
- Association of commonly present mood disorders in the elderly (anxiety and depression) with long term pain and their impact on quality of life
- Changes in pharmacokinetics/dynamics of analgesic drugs occurring with ageing (NSAIDs, opioids, tricyclic antidepressants, anticonvulsants), and their influence on effectiveness, side effects and need for dose adjustment
- Interactions of other prescribed drugs and comorbidities when establishing a pain treatment plan in the elderly
- Scores and methods of assessing potential overdose, central nervous side effects, delirium, cognitive dysfunction
- Value of psychosocial interventions in the elderly population

b. Clinical skills

- Be able to assess intensity of pain in the elderly patient with impaired communication ability and cognitive decline (patients with dementia) **E**
- Use age appropriate and validated questionnaires and tools to assess and differentiate between acute and chronic pain **E**
- Establish a management plan prioritising facilitation of physical activity/performing activities of daily living **E**
- Monitor effects of pain management plan and adjust when needed **E**
- Combine non-pharmacological methods with pharmacological treatment of pain **E**
- Be able to integrate psychosocial interventions as part of a pain management strategy in the elderly population **E**
- Actively assessing potential side effects **E**
- Recognise and manage dependence and misuse of analgesics, ensure appropriate monitoring **E**

c. Specific attitudes

- Understand the importance of being able to stay active and integrated into social life for elderly patients, help the patient focus on the abilities she/he still has

2.2 Pain medicine in cancer patients, palliative and end of life care

a. Knowledge

- Epidemiology and evaluation of cancer pain
- Mechanisms involved in cancer-induced pain
- Cancer related pain syndromes:
    - bone pain (cranium, vertebrae, long bones, chronic bone pain)
    - neuropathic pain (e.g. spinal cord compression, mono/polyneuropathies, meningeal carcinomatosis)
    - visceral pain (e.g. pancreatic, hepatic, intestinal obstruction)
    - chemotherapy induced neuropathies and associated pain
- Pharmacological treatment of oncologic pain including the use of opioids: the WHO analgesic scale, opioid tolerance, management of break-through pain
- Interventional therapies for cancer pain management: e.g. spinal administration of analgesics and neurolytic procedures
- Indications for specialised interventions including vertebroplasty, analgesic radiotherapy, and use of radioisotopes
- Principles of managing terminal patients within a multidisciplinary palliative care team
- Understanding of the legal aspects of end of life / terminally ill care
- Understand psychological needs in palliative care patients and their relatives

b. Clinical skills

- Be able to devise a multidisciplinary pain management plan for the cancer patient **E**
- Discuss the ethical issues related to pain management (e.g. side effects of opioid escalation) in terminally ill patients and palliative care with the patients and/or their relatives/legal guardian **E**

c. Specific attitudes

- Effectively communicate with patients and relatives, treat patients with respect of basic ethical principles such as autonomy, privacy, dignity, confidentiality, including discussing end of life decisions

2.3 Pain medicine in infants, children and adolescents

a. Knowledge

- Relevance and prevalence of paediatric pain
- nociceptive development in humans
- Pharmacokinetic / pharmacodynamic differences between paediatric and adult populations
- Assessment tools and methods for pain evaluation in adolescents, children and neonates
- Postoperative pain management in neonates and children
- Principles of management of the paediatric patient with chronic pain, including psychological care
- Non-pharmacological measures of coping with pain in the paediatric patient

b. Clinical skills

- Be able to perform a pain oriented clinical examination and use age-appropriate pain evaluation tools (assessment of non-verbal cues) in the paediatric patient **E**
- Define and implement a comprehensive multimodal pain management plan (**E**) including as necessary:
    - analgesics, co-analgesics and adjuvants
    - invasive techniques and regional analgesia
    - physical rehabilitation
- Actively include parent(s)/legal guardian(s) in the pain management plan of the paediatric patient **E**
- Educate parents/guardians about non-pharmacological measures that can help the child in coping with pain (e.g. touch, distraction techniques) **E**
- Work within a multidisciplinary team (primary care, psychologist, paediatrician, social care / school counsellor) to ensure continuity of care and adequate environment for the development and social integration of the child with chronic pain conditions **E**

c. Specific attitudes

- Initiate and conduct the pain exam in a developmentally appropriate way taking into account the child's age as well as cognitive and affective level
- Recognition of neurobehavioural development changes in child with chronic pain
- Be attentive to non-verbal cues in behaviour of the child and parents/guardians
- Involve parents/guardians in the evaluation, treatment and further measures, balancing the importance of the patient's privacy and increasing autonomy (adolescents) in decision-making on one hand, and the communication within the family on the other hand
- Be vigilant for symptoms of depression and/or anxiety in exploring mood, behaviour and expectations
- Assess the potential for substance abuse in adolescent patient with chronic pain

2.4 Pain medicine in Intensive Care medicine

a. Knowledge

- Pain incidence in intensive care
- Mechanisms and changes related to development of pain in intensive care
- Understand the various sources of pain in ICU patients: acute illness related pain / continuous treatment related pain (e.g. mechanical ventilation) / pre-existing chronic pain states / intermittent nursing and procedural pain
- Association between pain, agitation and delirium
- Influence of organ dysfunction related to critical illness on the pharmacokinetics and pharmacodynamics of drugs

b. Clinical skills

- Assess intensity of pain in non-communicative patient (e.g. Behavioural Pain Scale / Critical Care Pain Observation Tool) **E**
- Integrate various modalities of pain treatment into a comprehensive multimodal pain treatment program for the critically ill patient **E**
- Be able to prevent/treat pain related to commonly performed invasive procedures in critically ill patients using pharmacologic /interventional (regional analgesia) and non-pharmacologic methods **E**
- Understand the role and be able to use appropriate image guidance modalities, in particular ultrasound imagining, in performing invasive procedures in ICU setting **E**
- Effectively communicate and obtain consent from family member/legal guardian for invasive procedures in patients unable to communicate **E**

c. Specific attitudes

- Establish effective and empathic relation with patients, including patients with impaired mental capacity and their relatives/legal guardians
- Awareness of how the workload and working environment in a dynamic and demanding ICU (e.g. advanced monitoring techniques producing large amounts of data to be processed) can be a distractor to empathetic patient care – treat the patient not just the disease
- Be aware of and recognise early signs of burn-out and exhaustion in self and co-workers and provide empathic support to colleagues

3. Domains of general core competencies in pain medicine

3.1 Communication and psychology

- Mentoring and teaching by a psychologist
- Communication
  - effective
  - clear and unambiguous
  - closed loop
  - methods (verbal, written, consultation or referral)
  - manner (courtesy, integrity, respect)
  - with patients and their relatives, including patients with impaired capacity of discernment and consent, and language barriers
  - with other health care providers **E**
- Principles of communication with patients and physician-patient "contract" including:
  - Rights and responsibilities of patients, doctors and other medical staff
  - Informed consent
  - Patient confidentiality and privacy
  - Error and incident disclosure
  - Adequate record keeping considering medico-legal implications **E**
- Management of pain as secondary win such as in pending pension; recognition and care plans **E**
- Management of seeking opinions from multiple doctors („doctor shopping"), psychosomatic pain, abuse; recognition and care plans **E**
- Empathic communication for obtaining patient's (or legal guardian's) informed consent to a pain management procedure **E**
- Effectively communicate and interact with patients and their relatives, including patients with impaired capacity of discernment and consent, and language barriers **E**
- Effectively communicate and interact with family doctors of patients in order to secure outreach of pain management **E**

3.2 Teaching and education

- Coaching and supervision by an andragogist / adult learning specialist
- Applying competency-based medical education and training (CBMET) according to the handbook on competence-based teaching: A guide for trainers published by the EBA (https://sites.google.com/view/eba-uems/eba-standing-committees/epd) for trainees in anaesthesiology **D**
- Quality management of trainer competencies according to the System for Evaluation of Teaching Qualities (SETQ), including 1) creating a positive learning climate, 2) professional attitude towards residents, 3) communication of learning goals, 4) evaluation of residents, 5) feedback to residents **D**
- Teaching, assessing and giving feedback in a simulation centre for at least **D**
- Development of at least 1 simulation scenario for teaching and education **D**
- Development of at least 10 multiple choice questions at the level of the national board certificate exam and / or the EDAIC **D**
- Educating physicians from other medical disciplines involved in pain medicine (e.g. radiology, surgery, neurology, psychiatry, primary health care) in pain medicine in anaesthesiology **D**

- Educating patients and the public **D**
- Teaching undergraduate medical students **D**

3.3 Pain research

- Searching and reading the literature in pain medicine published within the last 5 years **A3**
- Implementing scientific evidence into clinical pain medicine **D**
- Appraisal of scientific fraud, data fabrication **D**
- Active research in at least 1 PDM domain (to stimulate effective in-depth knowledge and skill gain) **C**

3.4 Gender medicine

- Participation in a university course in gender medicine **A3**
- Applying advanced knowledge of gender medicine **E**

3.5 Sustainability and health care economics

- Participation in a university course in economics **B1**
- Applying advanced economic knowledge **E**
- Contribute to reduced hospital-related waste and to conscious resource management **E**

3.6 Resilience

- Coaching and supervision by a psychologist
- Applying resilience strategies, including
    - Stress and crises management
    - Conflict resolution
    - Balancing family and work, and the importance of non-professional activities
    - Depression; recognition and care plans
    - Substance abuse; recognition and access to appropriate referral
    - Fatigue; recognition and care plans
    - Burn-out; recognition and care plans **E**

3.7 Psychosomatic medicine and psychotherapy

- Participation (partial graduation) in a certified programme or diploma in psychosomatic medicine from national chamber of physicians or national and/or international scientific societies or observership in an accredited centre for psychosomatic medicine **B3**
- Participation (partial graduation) in a certified programme or diploma in psychotherapy from national chamber of physicians or national and/or international scientific societies or equivalent or observership in an accredited centre for psychotherapy **B1**
- Case presentation with emphasis on the emotional content of the doctor-patient relationship (e.g. Balint group) **B1**
- Hypnosis **A2**

3.8 Manual medicine and osteopathy

- Participation (partial graduation) in a certified programme or diploma in manual medicine from national chamber of physicians or national and/or international scientific societies or observership in an accredited centre for manual medicine **B3**

- Participation (partial graduation) in a certified programme or diploma in osteopathy from national chamber of physicians or national and/or international scientific societies or equivalent or observership in an accredited centre for osteopathy **B1**

3.9 Acupuncture

- Participation (partial graduation) in a certified programme or diploma in acupuncture (traditional Chinese medicine) from national chamber of physicians or national and/or international scientific societies or observership in an accredited centre for acupuncture ((traditional Chinese medicine) **B3**

3.10 Non-evidence-based interventions

- Homeopathy **B1**
- Miracle healing **A1**
- Magnetic field therapy, herbology, laser / cold light therapy **A2**