

**EUROPEAN BOARD OF PHYSICAL AND
REHABILITATION MEDICINE**

EUROPEAN UNION OF MEDICAL SPECIALISTS
Union Européenne des Médecins Spécialistes



European Training Requirements for the Specialty of Physical and Rehabilitation Medicine

***European Standards
of Postgraduate Medical Specialist Training
First Update - 2022***

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**Training Requirements for the Specialty of
Physical and Rehabilitation Medicine
*European Standards of Postgraduate Medical Specialist Training***

Preamble

The UEMS is a non-governmental organisation representing national associations of medical specialists at the European Level. With a current membership of 41 national associations and operating through 43 Specialist Sections and European Boards, the UEMS is committed to promote the free movement of medical specialists across Europe while ensuring the highest level of training which will pave the way to the improvement of quality of care for the benefit of all European citizens. The UEMS areas of expertise notably encompass Continuing Medical Education, Post Graduate Training and Quality Assurance.

It is the UEMS conviction that the quality of medical care and expertise is directly linked to the quality of training provided to the medical professionals. Therefore, the UEMS committed itself to contribute to the improvement of medical training at the European level through the development of European Standards in the different medical disciplines. No matter where doctors are trained, they should have at least the same core competencies.

In 1994, the UEMS adopted its Charter on Post Graduate Training aiming at providing the recommendations at the European level for good medical training. Made up of six chapters, this Charter set the basis for the European approach in the field of Postgraduate Training. With five chapters being common to all specialties, this Charter provided a sixth chapter, known as “Chapter 6”, that each Specialist Section was to complete according to the specific needs of their discipline.

More than a decade after the introduction of this Charter, the UEMS Specialist Sections and European Boards have continued working on developing these European Standards in Medical training that reflects modern medical practice and current scientific findings. In doing so, the UEMS Specialist Sections and European Boards did not aim to supersede the National Authorities' competence in defining the content of postgraduate training in their own State but rather to complement these and ensure that high quality training is provided across Europe.

At the European level, the legal mechanism ensuring the free movement of doctors through the recognition of their qualifications was established back in the 1970s by the European Union. Sectorial Directives were adopted and one Directive addressed specifically the issue of Medical Training at the European level. However, in 2005, the European Commission proposed to the European Parliament and Council to have a unique legal framework for the recognition of the Professional Qualifications to facilitate and improve the mobility of all workers throughout Europe. This Directive 2005/36/EC established the mechanism of automatic mutual recognition of qualifications for medical doctors according to training requirements within all Member States; this is based on the length of training in the Specialty and the title of qualification.

Given the long-standing experience of UEMS Specialist Sections and European Boards on the one hand and the European legal framework enabling Medical Specialists and Trainees to move from one country to another on the other hand, the UEMS is uniquely in position to provide specialty-based recommendations. The UEMS values professional competence as *“the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily*

practice for the benefit of the individual and community being served"¹. While professional activity is regulated by national law in EU Member States, it is the UEMS understanding that it has to comply with international treaties and UN declarations on Human Rights as well as the WMA International Code of Medical Ethics.

This document derives from the previous Chapter 6 of the Training Charter and provides definitions of specialist competencies and procedures as well as how to document and assess them. For the sake of transparency and coherence, it has been renamed as "Training Requirements for the Specialty of X". This document aims to provide the basic Training Requirements for each specialty and should be regularly updated by UEMS Specialist Sections and European Boards to reflect scientific and medical progress. The three-part structure of this document reflects the UEMS approach to have a coherent pragmatic document not only for medical specialists but also for decision-makers at the National and European level interested in knowing more about medical specialist training.

¹Ronald M. Epstein, Edward M. Houndert, 'Defining and Assessing Professional Competence', Journal of American Medical Association, 287: 2 (2002), 226-235 (p. 226)

ETR 1st update development

The constant development of specialist training and practice dictates the need for a periodic review and update of ETR to ensure that they remain consistent with current practice and fit for purpose. First published in 2018, the ETR in Physical and Rehabilitation Medicine (PRM) has undergone a thorough revision to be updated according to the *Guidelines for the Development of Union Européenne des Médecins Spécialistes* (UEMS) (published 3.4.2017).

The process of the ETR update started in January 2022 and included an extensive review of the current status in care delivery and experience regarding training requirements across European countries. Extensive internal consultation within the UEMS PRM Section and the European Board of PRM took into account the release, on January 22nd, 2021, of the Rehabilitation Competency Framework by the WHO Rehabilitation programme, and, most importantly, of the “Guide for using a contextualized competency framework to develop rehabilitation programmes and their curricula”.

In March 2022 consensus was obtained within the UEMS PRM Section and the European Board of PRM regarding the ETR update. The revised ETR was sent to the European Academy of Rehabilitation, the European Society of PRM and a panel of trainees and young PRM specialists for the external review. The comments received by the external reviewers were taken into consideration and the ETR was approved at the assembly of the European Board of PRM in September 2022. Finally, the ETR update has been submitted to the UEMS ETR Committee for comments and approval.

By updating the core curriculum of knowledge and skills and introducing an extended and comprehensive list of Entrustable Professional Activities, to assess the competencies that a PRM physician must exhibit at the end of course, the ETR 1st update is of higher quality than the previous version.

Introduction

The scope and competencies of Physical and Rehabilitation Medicine (PRM) specialty are best described starting from its definition as the “medicine of functioning” responsible of the rehabilitative strategy to be applied together with the curative strategy for the best recovery of patients’ participation; according to the complexity of the health condition, PRM also refers to prevention and maintenance, as well as to rehabilitation training for other health professionals and to management of patients and caregivers. PRM physicians are hence responsible for the planning of the rehabilitation process according to the so-called rehabilitation cycle: all patients require an assessment, as the starting point of the rehabilitation cycle, with definition of their individual goal(s) (goal-setting) before proceeding to assignment and intervention(s); finally, an evaluation will be performed to check if the patient has achieved all what is needed, or if it is necessary to start again the rehabilitation cycle.

Under the perspective of a disease-centred approach, PRM specialists must develop progressive responsibility in diagnosing, assessing, and managing people of all ages suffering from (or at risk of) activity limitations / participation restrictions following any health condition. Given such premises, the transversal role of PRM across most of the medical specialties is clear, but the overlap is only apparent, since the focus of PRM is rehabilitation. For instance, diagnosis in PRM is the interaction between the classical medical diagnosis (that uses all the typical tools of the profession) and the PRM specific functional assessment, based on the ICF conceptual framework, and obtained through functional evaluations and clinical scales.

Interventions in PRM are provided directly by PRM physicians or indirectly through the PRM team under the leadership of PRM physicians. The multi-professional PRM team is the preferential way by which PRM physicians provide treatments, particularly in the most complex rehabilitation settings; the team works using an interdisciplinary methodology, under the responsibility of PRM physician. The outcomes of PRM interventions and programs are measured both at the function level, as decreased impairments in body functions, and at the person level, as decreased activity limitations/ participation restrictions; moreover, decreases in mortality, morbidity and complication rates as well as costs for hospital and community care are also outcomes of rehabilitation provision.

Specialists in PRM have a holistic approach to people with acute and chronic conditions, examples of which are musculoskeletal and neurological disorders, amputations, pelvic organ dysfunction, cardio-respiratory insufficiency and the disability due to chronic pain and cancer among many others. PRM specialists work in various facilities from acute care units to community settings. They use specific diagnostic assessment tools and carry out treatments including pharmacological, physical, technical, educational, and vocational interventions. Because of their comprehensive training, they are best placed to be responsible for the activities of multi-professional teams in order to achieve optimal outcomes.

In summary, the medical specialty of Physical and Rehabilitation Medicine helps people with disabling conditions to recover, maintain or develop the highest possible level of functional capacity and performance.

PRM in Europe

This document sets out standards and guidelines for PRM specialist training and approval of training programmes in the countries of the EU/EFTA and associated member states. It is recognized that there are several structural and operational differences in the health care systems, appointment procedures and training systems in these different countries. This document provides the basis for the development of a harmonized, comprehensive, structured and balanced training programme in PRM. The Central Monitoring Authority of the specialty of Physical and Rehabilitation Medicine in Europe is the UEMS Section and Board of Physical and Rehabilitation Medicine which produces guidelines for training in the specialty and a training programme blueprint to be filled in with the specific aspects of the training, pertinent to the individual EU/EFTA member states and associated member states. The Section of Physical and Rehabilitation Medicine was created within the UEMS in 1971. In 1991 a European Board of Physical and Rehabilitation Medicine was founded with the special mission to work towards harmonizing education and training in PRM in Europe. The European Board of PRM is running a European certification system including individual PRM specialists, trainers and training centres.

The UEMS PRM Board:

- holds the [European PRM Board Examination](#) annually open to candidates of the EU/EFTA member states and associate member states. The certification by examination is considered as seal of excellence without legal value, but national authorities can adopt it as equivalent to or instead of their national exam or accept it as an exit exam if no national equivalent exists. The European PRM Board also provides recommendations for the requirements for training institutions and for those who are in charge of training in PRM, at a European level.
- **recommends that training institutions should have a system of visitation/external peer review** and offers visitations of training. Having successfully completed a visitation the training centre becomes a European PRM Board certified centre for specialist training in PRM.

The UEMS PRM Section and Board work in strong cooperation with two other European bodies, e.g. the European Academy of Rehabilitation Medicine and the European Society of PRM.

Ideally every EU member state recognizing the specialty should have an independent professional specialist society of Physical and Rehabilitation Medicine. Manpower planning and forthcoming quantitative training facilities are the responsibility of the national medical association on the advice of the national medical society of Physical and Rehabilitation Medicine. Therefore, the specialty of Physical and Rehabilitation Medicine should be represented in the national medical association in each EU country.

The present document contains a core curriculum for European PRM trainees. The structure of this description follows the format proposed by the UEMS.

The endeavour of this document is to promote high standards of care for patients with (or at risk for) disability, throughout the European Union and sets the basic requirements in the domains listed below to enable specialists to move across European country borders for professional purposes.

The data that would be provided to a receiving country/employer about a doctor is shown in the Appendix at the end of this document.

TRAINING AND LIFELONG LEARNING

Undergraduate level

In the present times, patients treated by virtually all specialties express rehabilitation needs, when we consider that people currently survive what had formerly been a lethal disease but are now left to struggle on with impairment and disability, or to better say, with limitations in their activities and participation. As a result, all physicians need to gain a basic knowledge of rehabilitation, recognising that most will not practice as specialists in the field or carry out specific rehabilitation measures. It is thus important that well-trained PRM specialists teach PRM in all undergraduate medical faculties. A minimum number of hours/credits and case evaluations should be part of the general medical training programme, and the following topics should be covered as a minimum.

- The principles of PRM and the bio-psycho-social model of the International Classification of Functioning, Disability and Health (ICF).
- The organisation and practice of PRM (acute and post-acute rehabilitation, as well as rehabilitation programmes for patients with chronic conditions).
- The principles and aims of functional assessment and the main adverse factors of functional recovery.
- The principles and potential of physiotherapy, occupational therapy, (neuro)psychology, speech and language therapy and other rehabilitation therapies.
- The principles and effects of drug treatments used to improve function, prevent complications, alleviate pain or any other source of discomfort.
- Comprehensive rehabilitation programmes and their main indications.
- The rehabilitative needs of patients with special conditions (e.g. stroke, multiple trauma, low back pain, arthritis, cancer, and others).
- Knowledge of the social system and legislation concerning disability and rehabilitation at national level, as well as ethical and human rights issues in rehabilitation.

These concepts already form part of obligatory training in PRM in most European countries. The European Board of PRM has defined a core for an Undergraduate Training Curriculum with practical skills and definition of training period in a PRM department.

Postgraduate training

It can be divided into specialist training (residency) and continuous professional development as well as continuing medical education, i.e. CME/CPD. This document focuses on the postgraduate PRM training (residency).

Goals of the specialist training

The primary goal of a training programme in PRM is to provide the trainee with a broad theoretical knowledge base, the necessary procedural skills and experience, as well as professional judgment for independent PRM practice and management skills for teamwork. A further goal is to teach him/her self-criticism, critical assessment of his/her results, the ability to self-directed learning which will eventually lead to continued progression, expert practice and professionalism.

The different fields of competence and intervention of PRM specialists are typically described by categories considering the underlying medical conditions or the impaired body system. However, while acute care medicine/general medicine is centred very much on organs, diseases and mechanisms of injury based on the International Classification of Diseases - ICD model of medicine, PRM is mainly a function-centred medical specialty. Hence, the fields of competence and intervention of PRM specialists should be listed using function-related categories based on the International Classification of Functioning, Disability and Health – ICF. According to this model, PRM specialists need

- To achieve the **theoretical knowledge** of the biopsychosocial determinants of health and the complex interaction of factors that limit a disabled person's participation and autonomy in the context of their medical condition.
- To develop **the skill** to communicate this to the patient, the patient's family and to colleagues and the rehabilitation team so that there is an effective combined approach that is focused on the patient's particular priorities.
- To demonstrate highly **person-centred clinical practice** with an emphasis on assessment, planning and teaching in close liaison with team members and within a culture of empowerment and risk management.

CME/CPD

In the interests of patient safety and good quality care, all physicians have a duty to engage in a continuum of education, training and life-long learning to maintain good professional practice. Quality assurance must demonstrate that national standards are comparable to international standards. In this global context, Continuing Professional Development (CPD) must take account of international innovations and good practices, requiring all practicing physicians to keep up to date, gain new skills and ensure that existing practices are updated to incorporate new evidence and guidelines as they become available. National regulatory authorities oversee the maintenance of this.

In line with the above requirements, CPD and Continuous Medical Education (CME) are an integral part of PRM specialists' professional practice. All PRM specialists must demonstrate their continued competence. This should be transparent, accountable, amenable to regulation and useful for assuring quality in the process of maintaining re-certification.

It is recommended that trainees in PRM are introduced to CME/CPD during their postgraduate training period.

TRAINING REQUIREMENTS FOR TRAINEES

General aspects of training

A total training time of 5 years including a minimum of 4 years of training in PRM departments is recommended before achieving full registration as a PRM specialist. The 4 years of training in PRM departments should include the clinical and functional assessment, general medical management and rehabilitation planning for people with acute and chronic disabling conditions of any origin (either from neurologic, musculoskeletal or internal diseases). Trainees should be exposed to balanced proportions of inpatients and outpatients with a wide spectrum of disabling diseases and have the opportunity to see patients for follow-up. The additional 5th year of the total training time should be spent in external departments (like internal medicine, neurology, intensive care and others) or in research relevant for PRM leading to scientific publications.

The training and teaching instruments for the training programs should be in line with the recommendations of modern educational science. The quality of the training may benefit if it takes place in different institutions with rotations within one country or some time spent abroad, provided that all training institutions are nationally certified. The responsible authorities or training institutions should facilitate the rotations and ensure that the rotation system is useful for the trainee's curriculum and avoid unnecessary duplication.

The exact training curriculum is the prime responsibility of the national boards. The training programs should be in line with the UEMS-PRM Board recommended core curriculum, which undergoes regular updating. During the training period a continuous evaluation of knowledge, abilities and skills should be performed and the UEMS-PRM Board recommends that the European Board of PRM exit exam is taken after completion of the training period as a sign of excellence.

Requirements for trainees

Entry into the training programme for PRM depends on national regulations and should be transparent.

The number of trainees in national programs should reflect the projected manpower needs in PRM. These depend on the organization of the national health care system and the demographics of the existing PRM manpower, which should be sufficient so that patients with disability (or at risk for developing disability) have timely access to specialist care. Trainees must have sufficient linguistic ability to be able to communicate with patients and colleagues. They should be able to work in the social and cultural context of the country in which they are based.

Adequate language, computer and internet skills are basic requirements for accessing and studying the international medical literature and communicating with foreign colleagues. Moreover, they must be able to communicate and work in an interdisciplinary multi-professional setting.

Basic communication skills with patients and carers should have been acquired before entering specialty training and will be subject of continuous professional development. Experience with patient organizations is encouraged. Basic knowledge of scientific methodology, skills in critical interpretation of study results and experience with current methods such as evidence-based medicine are required.

1. Content of training and learning outcome

a. Theoretical knowledge

Physical and Rehabilitation Medicine is the primary medical specialty responsible for the prevention, medical diagnosis, treatment and rehabilitation management of persons of all ages suffering from (or at risk of) any disabling health condition and its co-morbidities, specifically addressing their impairments and activity limitations in order to facilitate their physical and cognitive functioning (including behaviour), participation (including quality of life) and modifying personal and environmental factors.

To fulfil his/her role as PRM physician, the trainee should become familiar with the theoretical knowledge about the full spectrum of Body structure/Body function impairments, the mechanisms of tissue damage and repair, the principles of motor learning, the epidemiology and natural history of diseases, the tools for clinical, functional and instrumental diagnosis, the effects of pharmacological, surgical and complementary treatments, as well as of specific rehabilitation interventions.

More in detail, the trainee must develop knowledge and understanding of:

- Anatomy, Functional anatomy, Physiology, Biochemistry, Pathology and Pathophysiology of the central and peripheral nervous system, the musculoskeletal system, and visceral systems.
- Biomechanics
- Pharmacology
- Epidemiology
- Research methodology
- Ethics and Law
- Principles of Public and Global Health.

b. Practical and clinical skills

Trainees must be exposed to the spectrum of disability conditions, as comprehensively as possible, during their training. This requires a tutorship by several trainers, and it is advisable that the scope of the training is broadened by working in different training centres/rehabilitation settings.

Competencies to be acquired during the training, or expected to have by the end of training, include:

- Clinical and instrumental assessment to determine the pathophysiological mechanisms and the underlying diagnosis of the patient's condition.
- Functional assessment in the frame of ICF, including assessment of body function/structure impairment, assessment of activity limitation and participation restriction and discrimination between capacity and performance, based on the detection of contextual (personal characteristics) and environmental barriers/facilitators.
- Implementation of clinical and instrumental assessment tools to explore motor, cognitive, behavioural and autonomic functions.
- Prognosis of disease/disability course, detection of adverse/favourable factors of functional recovery and definition of the means (ways) of recovery, compensation and adaptation.
- Devising and conducting a rehabilitation plan, through a team-based approach that consists of setting achievable short, medium and long-term goals, agreed with the patient

and carers, and eventually leading to patient's reintegration in the community and improved quality of life.

- Prescription, as much evidence-based as possible, of medical and physical treatments (including drug treatment, physical modalities, innovative technologies, natural factors and others), as well as of technical aids (orthotics, prosthetics, wheelchairs and others), effective to achieve the goals of the rehabilitation plan.
- Prevention and management of complications.
- Outcome measurement.

c. Professionalism

PRM practice is uniquely characterized by a team-based, patient-centred, goal-directed approach aimed to optimize patient function and quality of life, prevent complications and increase community participation. Therefore, PRM specialists are required to develop not only medical knowledge, competence in patient care and specific procedural skills, but also attitudes towards interpersonal relationship and communication, profound understanding of the main principles of medical ethics and public health, ability to apply policies of care and prevention for disabled people, capacity to master strategies for reintegration of disabled people into society, apply principles of quality assurance and promote a practice-based continuous professional development. As leaders of the multi-professional rehabilitation teams involved in the continuum of care delivery from hospital to the community, they must also exhibit managerial competences, know and apply the principles of evidence-based medicine, incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate.

More in detail, a European PRM specialist is expected to exhibit behavioural features encompassing:

- Leadership and teaching skills appropriate to coordinate and prioritize teamwork.
- Communication skills appropriate to convey relevant information and explanations to the patient/carers, to colleagues in charge of the patient and other health professionals with the objective of joint participation in the planning and implementation of continuous health care from the initial stage to the post-acute and steady state.
- Commitment to carrying out professional responsibilities and adherence to ethical principles, demonstrating compassion, integrity, and respect for others; responsiveness to patient needs, respect for patient privacy and autonomy, sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
- Active cooperation with the public health agencies and other bodies involved in the health care system, in the identification of the health needs of the community and the implementation of appropriate measures aimed at the preservation and promotion of health and healthy lifestyles and prevention of diseases.
- Ability to conduct programmes of therapeutic education for disabled people and caregivers.
- Participation in the education of physicians and other professionals involved in care for disabled people.
- Implementation of cost awareness and risk-benefit analysis in patient and/or population-based care.
- Ability to improve the quality of professional work through continuous learning and self-assessment, managing practice and career with the aim of professional development.

- Ability to apply the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.

2. Organization of training

a. Schedule of training

In 1969 the WHO Expert Committee on Medical Rehabilitation published a report proposing a duration of training of 4 to 5 years for the medical specialty of PRM. Congruent, the PRM educational programme in Europe is usually configured in 48-month format, rising up to 72 months in some countries, including a minimum 36 months of clinical training (of which 24 months spent in a PRM department).

However, considering the tremendous increase in life expectancy all over Europe, and the consequent increase in age-related disabling illnesses with acute onset and chronic course, the frequency and complexity of comorbidities in rehabilitation wards have markedly increased. Patients are admitted to wards much earlier after the onset of acute illness or injury and the complexity of the disabilities is also rising. For this reason, the UEMS PRM Section and Board require a duration of training of 60 months including 12 months rotations in external departments (like internal medicine, neurology, intensive care and others). Moreover, to provide patients with optimal care, PRM trainees are expected to develop decision-making abilities, based on finding, understanding and using the best available evidence. On such premise, it is recommended that PRM trainees are offered at least six months training in research methodology (combining theory with training in appraisal of research evidence and practice of research study planning and implementation), as a mandatory component of their postgraduate education. Rehabilitation is a complex activity and affected by multiple factors. Specific research methodology issues have to be learnt and applied in order to achieve those levels of evidence, in the scientific literature, that can help the specialty to flourish and compete successfully in future health economies. Hence, potential academics should be supported in pursuing PhD programmes within an appropriately staffed unit.

It is recommended that PRM training is spent in units approved as training institutions by their national responsible authority.

b. Curriculum of training

Curriculum of general and specific training periods

A written **Training Curriculum** must be designed to provide a diversified and balanced quality (theoretical and practical) of PRM education describing the contents and aims in each year of training. This must be available to trainees and the faculty. Emphasis should be placed on adequate time allocation for study and tuition independent of clinical duties. It may be necessary for some departments to formally organize specific training periods in associated rehabilitation units if adequate experience cannot be provided internally.

There should be established rotation periods covering all main areas of PRM practice. These rotations should be organized in such a way as to give trainees increasing responsibility as they progress through their training with regard to patient care and professional experience. There should be a documented,

continuous **Education Programme** throughout the training, which should include seminars, conferences and meetings at a regular basis (weekly, monthly, yearly).

This education programme should consist of

- a programme of lectures including visiting speakers
- clinical case discussion
- journal clubs
- research meetings
- regular teaching conferences (trainees should take increasing responsibility in the conferences and in the teaching of junior trainees, allied rehabilitation professionals, medical students)
- teaching in ethics, administration, management and economics.

Trainees should be encouraged and are expected to develop an understanding of research methodology. All trainees are expected to be able to assess published work. In academic programmes, the opportunity for clinical and/or basic research should be available to the trainee with appropriate faculty supervision. An appropriately qualified person should supervise specific research projects if applicable. There should be a protected period of time where a trainee can participate in a specific research project.

It is recommended that trainees attend the meetings of the national PRM society (or an equivalent meeting). If possible, trainees should participate in the training courses organized by the European Society of PRM or equivalent national and international training courses. During their training, they should also attend scientific meetings and hands-on courses.

Trainees should keep a Logbook (Trainee Portfolio) containing details of all activities of the Education Programme in which he/she participated.

Different countries will have different approaches to achieve these outcomes but the evidence that they have been achieved should be increasingly of a homogeneous nature that facilitates the learning and experiences of trainees, the engagement of clinical supervisors and ease of recognition of progress and achievements across EU member countries. In addition, such an approach will help provide confidence to the public and to individual countries that the training has been of an appropriate standard and that the performance of doctors is likewise of a satisfactory standard.

c. Support of trainees

A trainer on location will supervise a trainee's clinical work. The trainer will be responsible for providing the trainee with regular feedback as regards his/her their performance and guidance in matters related to the clinical care that they are delivering.

Additionally, it is recommended to link every trainee to a *mentor*, who will follow the trainee during the whole period of training for monitoring progress with help of a continuing portfolio and adjusting it if necessary. All training programs in PRM will be led in an institution (or in a group or network of allied institutions) by a *Director of training*.

While actively cultivating traditional teaching such as regular grand rounds and weekly structured teaching sessions, training institutions should be proactive in introducing new training methods according to the modern principles of adult learning.

Trainees will meet with their director of training on a regular basis, which typically would be every six months, to discuss his/her work. Such discussions will take the format of an appraisal with the trainee providing information about how he/she is progressing, accompanied by documented evidence of clinical engagement and achievement of learning and training outcomes. The purpose of the appraisal is to enable a constructive discussion about how the learning needs of the trainee should be met. Subsequent appraisals will revisit earlier appraisals to determine progress in achieving these needs. The appraisals are not part of any summative assessment process but are designed entirely to support the trainees.

d. Assessment and evaluation

Logbook

Each trainee must keep an authorized Logbook that meets the standards of the UEMS logbook for documentation of professional experience. It will contain reports from the trainer giving an account of the trainee's active participation in the work of the unit, his/her publications, scientific and research works, including relevant theses.

The trainee will have to demonstrate that he/she has managed a wide range of cases, i.e. of those clinical-functional scenarios which provide the basis of the European PRM Curriculum. In particular, the record of training/logbook will be helpful to document which conditions the trainee has managed and with what level of independence. It will also ensure that the trainees and their supervisors can identify areas of the curriculum that have not been covered.

It is recommended that the trainee documents the following structured assessments:

- Observed clinical skills (e.g., functional assessments, rehabilitation plans, active participation in team meetings).
- Observed procedural skills (e.g., instrumental diagnostic procedures or invasive therapeutic interventions for treating pain or spasticity).
- Case based discussions.
- Multisource feedback (from other members of the rehabilitation team).
- Patient feedback from in- and outpatients.

The minimal numbers per year of each of these items should be determined nationally.

Logbook entries must be monitored by regular inspection and signed off by the appropriate trainer; copies of assessment forms for each training period completed and signed by trainers for that period should also be included.

The Logbook should be ready to be presented before the European Board certification or exhibited to a receiving country/employer, upon request, as a proof of the knowledge/skills achieved during postgraduate education.

The European Board attaches considerable importance in the details of the training programme as shown in the logbook.

E-Portfolio

Moreover, the trainee should be encouraged to keep a Portfolio of evidence that they have achieved the training goals, especially should they wish to seek employment in a country different from the country in which they trained.

The portfolio should include up-to-date curriculum vitae (EUROPASS style) incorporating:

- Details of previous training posts, dates, duration and trainers.
- Copies of assessment forms for each training period, completed and signed by trainers for that period.
- Details of examinations passed.
- List of publications with copies of published first page or abstract.
- List of research presentations at local, national and international meetings.
- List of courses attended.

Periodic progress assessment

A structured goal setting for each training period, according to the curriculum, at its evaluation is recommended. Trainees have to meet the agreed standards and requirements of the planned programme. The purpose of assessment is to ensure continuing progress in the trainee's knowledge and skills as well as professional conduct and ethics.

Training institutions should provide a system of appraisal at entry into every part of the programme. Assessment must be performed on an annual basis or at the end of each rotation period by the appropriate trainer, using an evaluation sheet. Clinical experience will be assessed by a review of the patients seen by a trainee and for whom the trainee has had a personal responsibility as regards care. Assessment of skills comprises workplace-based assessments and validation of the Logbook, that should document the specified list and numbers of procedures performed during training, including documentation of procedural and/or disease variables.

Workplace-based assessment includes regular feedback on skills, knowledge and attitudes during regular clinical performance. An entrustable professional activity (EPA) assesses the performance of whole procedure as a summary of competencies, to identify entrustment level for practice at a certain level of supervision. The European Board of PRM recommends the preparation of a hospital-internal EPA unit list as an integral part of the training portfolio (e-portfolio). A comprehensive list of EPA is provided at the end of this document, as a reference framework for the assessment of PRM trainees in different clinical rehabilitation scenarios.

It is recommended that the trainer(s) provide a final statement regarding the level of competence achieved by the trainee, as defined at the end of this document in the Curriculum of Studies in Physical and Rehabilitation Medicine.

The achievement of learning/training outcomes must be assessed at least on an annual basis by the Director of Training together with the faculty.

Adequate permanent records of the evaluation must be maintained. Such records must be available in the trainee file and must be accessible to the trainee, so to be included in the e-portfolio, and to other authorized personnel. The assessment must be objective and document progressive trainee performance improvement appropriate to their educational level.

The result of the evaluation must be discussed with each trainee. Failure to meet the agreed targets must be brought to the attention of the training director. It is the responsibility of the training director to identify any failure in a trainee's progress, to conduct and to provide appropriate advice, and to take remedial action. To this end, it is advised that trainees meet with their training director on a regular basis, namely every 6 months, to discuss their work. Such discussion will take the format of an appraisal with the trainee providing information about how he/she is progressing, accompanied by documented evidence of clinical engagement and achievement of learning and training outcomes. Moreover, the training director should take particular care of ascertaining the trainees' professional behaviour through the collection of multisource feedback, from trainers, other rehabilitation professionals, patients and caregivers.

In the event of a trainee not progressing as required, there are three stages of action:

- targeted training: closer monitoring and supervision to address particular needs
- intensified supervision and, if necessary, repetition of the appropriate part of the programme
- withdrawal of the trainee from the programme. This last measure should be reserved to persons that are not willing or not able to comply with the first two stages.

All these steps need to be documented in a proper procedure. It is recommended that the training director takes care that such procedure be implemented as needed.

Exit examination

At the end of PRM training, the Training Director certifies the attainment of adequate competency level for each training outcome. In particular, the final year examination must verify that the trainee has demonstrated sufficient competence to enter practice without direct supervision and has achieved the standard level of Entrustable Professional Activity (EPA), as defined at the end of this document. The minimum levels of applied clinical knowledge and applied clinical skills that a trainee must exhibit at the exit examination have been indicated for each single item of the whole Curriculum of Studies in Physical and Rehabilitation Medicine.

Moreover, considering the core feature of PRM specialty to be the holistic approach to patients' health needs, PRM trainees are required to exhibit complete independence in the provision of the rehabilitation plan for subjects with a given clinical condition so to be entrusted to take care of them.

e. Governance

The governance of an individual's training programme will be the responsibility of the Training Director and the institution(s) in which the training programme is being delivered. A trainer will be responsible to the training Director for delivering the required training in his/her area of practice.

II. TRAINING REQUIREMENTS FOR TRAINERS

1. Process for recognition as trainer

The standards for recognition of trainers are matters for national authorities, in accordance with national rules and EU legislation, as well as the requirements of the European Board of PRM. The latter has made recommendations for the optimum requirements to be met. It is recommended that the head of the training institute be a PRM Board Certified specialist.

a. Requested qualification and experience

To be recognized as a trainer, a physician should:

- Be certified as a specialist in PRM by the responsible national authority in his or her country.
- Be recognized as a trainer in PRM by the responsible national authority in his or her country.
- Demonstrate his or her clinical activity as being within this discipline.
- Practice in the specialty for at least 80% of his or her time in an establishment recognized as a training centre by the national responsible authority over 5 years.
- Practice within a defined rehabilitation team.
- Actively participate in training and research in PRM with regular publications.

Colleagues fulfilling the Board's criteria for trainer's status may apply for recognition as a Board-Certified specialist in PRM. Following the Board's assessment, they may gain exemption for the written examination on presenting their completed file with application form (Board Certification by Equivalence). This dispensation is extended to Board recognized as trainers-colleagues as well. In countries developing the speciality transitional arrangements may exist.

b. Core competencies for trainers

The Director of training has the overall responsibility for the training programme; he/she oversees and ensures the quality of didactic and clinical education and monitors resident supervision in all sites that participate in the educational program. He/she must exhibit PRM specialty expertise and be recognised as a trainer in PRM by the responsible national authority in his/her own country. It is also recommended that he/she has achieved the status of PRM Board certified trainer.

2. Quality management for trainers

On top of being regularly accredited as PRM physicians at national level, trainers should be PRM Board certified and should strive to keep abreast of the evolution of the discipline through a regular attendance to Congresses and Courses duly accredited for CME.

Teaching activity should be supervised and monitored by the training Director, whose responsibility encompasses identification of educational goals and the details of the educational components attributed to the trainers.

Contents and schedule of training programme should be detailed in a written document presented to the trainees at the beginning of the training period and updated annually in relation to the changing educational needs and the specific needs of the training program.

Trainers will collaborate with trainees, the training Director and their institution to ensure that the delivery of training is optimal. They should meet at least twice a year with all trainees to openly discuss all aspects of training including the evaluation and approval of their logbooks and portfolios. The educational work of trainers and Director of training should be appraised annually within their Institution.

Educational support of trainers and Directors of training will be provided by their Institutions / Employers / PRM Scientific Societies and through the UEMS PRM Board.

III. TRAINING REQUIREMENTS FOR TRAINING INSTITUTIONS

(if not covered by EU Directive on Professional Qualifications)

1. Process for recognition as training centre

The education of PRM physicians to practice independently is experiential, and necessarily occurs within the context of the health care delivery system. Training must be realized in dedicated centres where qualified personnel and adequate resources are available. PRM training may take place in a single institution or in a network of institutions working together to provide training in the full spectrum of clinical conditions and skills detailed in the curriculum. The network should include a hospital or institution providing academic activity and recognized for training in internal medicine and general surgery/orthopaedics. Each participating institution in a network must be individually recognized at national level as a provider of a defined section of the curriculum.

a. Requirement on staff and clinical activities

To be recognized as a PRM training unit on European level, an institution/department must:

- Be recognized as a training facility in PRM by the responsible national authority in its Country.
- Be directed by a doctor, who is:
 - a specialist in PRM, recognized as a trainer by the European Board,
 - responsible for a team comprising: one more Board certified specialist in PRM, professionals allied to medicine, including physiotherapists and occupational therapists as well as a group of other personnel (speech therapists, psychologists, social workers).
- Have all the necessary infrastructure to provide the training in PRM as defined in the curriculum (i.e., the facilities to perform diagnostic assessments, functional investigation and measurement, and treatments relevant to the discipline of PRM).
- Have adequate teaching staff.
- Provide the trainee with space and opportunities for practical and theoretical study and access to adequate national and international professional literature.
- Have a structured training program, which includes theoretical teaching sessions, training duties for each trainer and adequate numbers of practical procedures per trainee.
- Undergo monitoring in a structured way by the national authorities including visits and appraisal of their standards as training centres on a regular basis.
- Have an internal system of medical audit or quality assurance including features such as reporting of accidents in accordance with a structured procedure.
- Maintain a network of contacts among clinical colleagues and professionals allied to medicine in hospital settings and services assisting the discharge of patients into the community.
- Show training activity:
 - in clinical domains through organizing of case presentations, symposium, staff meeting, journal club meeting,
 - in research work by trainee participation in the research activities of the unit.

It would be unacceptable for a trainee to have only one trainer during their entire training period. It is preferable for a trainee to have a number of named trainers with whom they work on a day-to-day basis. Each trainer would cover different aspects of a trainee's clinical training, but this individual will not be the only person who will provide educational support for a trainee.

NB. It is recommended that the number of trainees in any one unit does not exceed the number of available specialists in PRM for training. In countries developing the specialty transitional arrangements may exist.

The staff of a training centre will engage collaboratively in regular reviews of the centre's clinical activity and performance. There will be regular multi-disciplinary meetings to determine optimal care for patients and such meetings will involve both medical and other healthcare staff. There will be clinical engagement outside of the centre with other clinical groups such as orthopaedists, neurologists, paediatricians, rheumatologists, internal medicine physicians, anaesthesiologists and others.

Within a PRM training centre there should be a wide range of clinical services available so that a trainee will be able to see and contribute to the care of all common sources of disability. In addition, the patient numbers and specialist numbers should be sufficient so that trainees will be able to be instructed and then supervised in the clinical procedures required of a specialist.

The balance between in-patient and out-patient numbers is constantly changing and varies across European countries depending on different care pathways adopted. Thus, no specific in- or out-patient numbers are stated as being necessary to be seen by a trainee during their training.

Requirement on equipment, accommodation

The training unit must exhibit the availability of specific educational tools, particularly a library sufficiently stocked with PRM texts and works, which are kept up to date as well as audio-visual aids to teaching. Computing and Information Technology must also be available for online search of scientific papers. Moreover, in order to allow the achievement of practical skills in diagnostic and therapeutic procedures the following equipment and expertise should be available: musculoskeletal ultrasound diagnostics, neurophysiology Laboratory for evoked potential recording and EMG-ENG diagnosis, posture and/or movement analysis Laboratory, physical modalities, Laboratory facility for prosthesis/orthosis/aids prescription, and an exercise gym with the minimum equipment (resistance bands, weights, foam rollers, yoga mats, exercise balls, balance pads, rehab treadmill, static upright bike, parallel bars).

2. Quality Management within Training institutions

a. Accreditation

Training centres must be recognized as a training facility in PRM by the responsible national authority. It is expected that training centres undergo regular audit within their country with respect to their clinical, scientific, and educational activity; therefore, the audit would include data relating to the progress of trainees and their acquisition of specialist accreditation.

The UEMS-PRM Board will recognize a PRM department/centre as a European training centre after successful completion of their procedure of a European appraisal, according to the rules published on the official website <https://uems-prm.eu/certification-a-recertification-of-training-centres/>.

People involved in auditing the training unit (i.e. Board visitors), must comply with the following requisites:

- To be a PRM Board Certified physician.
- To be a Board certified Trainer.
- To work in a PRM Centre which has been accredited by the Board.

- To have experience of the Centre visit process.
- To have participated in two previous Centre visits before being eligible to be the Centre Visit Team Leader.

b. Clinical Governance

Each National Authority should work with the national PRM society and professional union to provide quality assurance of training in PRM.

The National Authority should determine each country's process for the selection and appointment of trainees in PRM. The National Authority should implement regulation of access to training in PRM in accordance with national manpower planning projections in the EU member state. There should be close involvement of trainers, training institutions and any other responsible bodies to select and appoint trainees who are suitable for PRM in accordance with the established selection procedure. This selection procedure should be transparent, and application should be open to all persons who have completed basic medical training.

Training centres should undertake internal audits of their performance as part of the requirements for continuing national accreditation. Any national evaluation of a training centre's performance is expected to include the demonstration that it is:

- Providing care for patients with a wide range of disabling health conditions.
- Providing educational and training support for trainees.
- Part of a healthcare system that provides immediate access to relevant laboratory and other investigations as well as providing when necessary immediate access to other clinical specialties that maybe required by their patients.
- Ensure the continuum of care.
- Training centres should keep records of the progress of their trainees.

c. Manpower planning

Among the task of the UEMS is to support national authorities with guidelines on the planning of medical manpower in any definite specialty. Each country should train enough PRM physicians to meet its own requirements of specialist manpower. Trainees' recruitment in the training centres should be subordinated to the results of this planning; in any case the number of trainees present at any time in a training institution cannot exceed its clinical capacity to expose the trainees to the minimal number of procedures detailed in this document.

There are currently around 20000 PRM-specialists in Europe and more than 3000 PRM trainees, with a median rate of 4 PRM physicians and 0,5 PRM trainees/100000 inhabitants, across different countries; the median number of hospital beds for intensive rehabilitation is around 100/100000 inhabitants.

These figures account for a prospective increase of the total number of PRM specialists, in line with the increasing demand for rehabilitation provision and adequately staffed rehabilitation facilities

d. Regular report

The training institution must have an internal system of quality assurance including features such as mortality and morbidity and structured incident-reporting procedures. Furthermore, various hospital activities in the field of quality control such as infection control and drugs and therapeutic committees

should exist. Visitation of training centres by the National Monitoring Authority or by the European PRM Board shall be conducted in a structured manner.

e. External auditing

The National Professional Monitoring Authority and/or the European PRM Board, together with the teachers and training institutions, shall implement a policy of quality assurance of the training. This includes visits to training institutions, assessment during training, monitoring of logbooks or other means. Visitation of training institutions by the National Monitoring Authority and/or the European PRM Board shall be conducted in a structured manner, according to the UEMS Charter on Site Visits. The training centres are encouraged to additionally consider an external audit by UEMS Network of Accredited Clinical Skills Centres of Europe (NASCE).

Transparency of training programmes

It would be expected that a training centre would publish details of the training provision available with details of the clinical service it provides and the specialist and other staff. Such information would include the training programme, the nature of the clinical experiences with which a trainee would be engaged and the support and interaction with the trainer and Director of training. There would be a named individual whom a prospective trainee might contact and discuss the programme.

The list of all training centres certified (accredited) by the European PRM Board is available on the EBPRM website.

CURRICULUM OF STUDIES IN PHYSICAL AND REHABILITATION MEDICINE

To be appointed as a specialist, an individual should show a level of competence sufficient to allow independent clinical practice and to be able to care for patients at any stage of the disabling health condition. The level of performance may vary across European countries, and places; however, the list of theoretical knowledge issues and skills in this document describe the basic requirements one would expect of a European PRM physician.

A. General competencies

Upon completion of the specialization, Physical and Rehabilitation Medicine resident must:

- Know and apply the principles of medical ethics and deontology.
- Possess professionalism, humanity, and ethics with the obligation to maintain privacy and dignity of the patient.
- Be familiar with the art of dealing with patients, colleagues and other experts - communication skills.
- Know the importance of and be able to apply the principles of good cooperation with other health sector professionals.
- Be able to convey relevant information and explanations in a comprehensible and appropriate manner to the patient (verbally and in writing), to his family, to colleagues and other experts with the objective of joint participation in the planning and implementation of health care.
- Be able to define, screen and properly document the relevant information about the patient, to obtain information and take into account the views of colleagues and other experts.
- Gain knowledge and skills to adequately manage - and appropriately include into clinical practice - digital technologies (e.g. telemedicine and telehealth, telerehabilitation, artificial intelligence, robotics, virtual reality and others).
- Improve the competencies and attitudes necessary to improve the quality of professional work through continuous learning and self-assessment.
- Adopt the principles of managing their practice and career with the aim of professional development.
- Develop the skills of transferring the knowledge to younger colleagues and other health sector professionals.
- Understand the importance of the scientific approach to the profession.
- Participate in scientific research while respecting ethical principles of scientific research and clinical trials and participate in the preparation of papers for publication.

B. Specific competencies

COURSE LEARNING OUTCOMES

A detailed list of learning outcomes to be achieved on completion of the postgraduate PRM course is presented, concerning both theoretical knowledge and practical skills. The list is comprehensive of all those issues relevant to PRM discipline. However, considering local variations in the duration of training, epidemiology of health conditions and related disability, it is possible that the learning outcomes will be achieved to a different level across European countries.

Therefore, emphasis is placed on basic foundational concepts and principles of PRM and the minimum standard of knowledge/skills to be achieved in such issues.

For applied clinical knowledge the following levels are used:

1. The trainee masters a thematic area on a basic level.
2. The trainee has partially mastered a thematic area.
3. The trainee has fully mastered the thematic area and is familiar with relevant literature.

For applied clinical skills the following levels are used:

1. The trainee has experience of selecting the procedure appropriately and interpreting the results but not necessarily experience of performing the procedure.
2. The trainee is able to go beyond level 1 and perform the procedure with limited supervision/assistance in routine cases.
3. The trainee independently is able to recognise the indication for, perform and interpret the results of the procedure and manage any complications arising.

CURRICULUM OF STUDIES AND THEORETICAL KNOWLEDGE FOR THE EUROPEAN BOARD DIPLOMA IN PRM (COURSE LEARNING OUTCOMES)

| Content /Learning Unit | Standard minimum levels to be achieved on completion of postgraduate course | |
|---|--|-------------------------------|
| | Applied clinical knowledge | Applied clinical skill |
| CHAPTER 1. THE FUNDAMENTALS OF PRM | | |
| Definition of functioning & health | 3 | |
| WHO’s integrative model of functioning disability and health: Body Structure and Functions, Activity and Participation, Environmental factors, Capacity and Performance concepts | 3 | |
| Social inclusion concepts | 3 | |
| Epidemiology of disabling health conditions | 3 | |
| The rehabilitation process: principles and goals | 3 | |
| The individual rehabilitation project/plan and its main components | 3 | |
| How to collect patient’s history according to the biopsychosocial model | | 3 |
| How to conduct physical examination and functional assessment | | 3 |
| Comprehensive PRM intervention definition: rehabilitation goal setting in the short, medium and long-term | | 3 |
| Rehabilitation prescription writing 1 (exercise, orthotics, prosthetics, wheelchairs, assistive devices for ambulation, and other durable medical equipment or assistive devices) | | 3 |
| Rehabilitation prescription writing 2 (evaluation and treatment by physical therapists, occupational therapists, speech/language pathologists, therapeutic recreational specialists, psychologists, and vocational counsellors) | | 3 |
| CHAPTER 2. BODY STRUCTURES AND BODY FUNCTIONS | | |
| (e.g. HUMAN ANATOMY, PHYSIOLOGY, APPLIED PHYSICS, BIOCHEMISTRY, BIOMECHANICS, GENETICS) | | |
| Applied physics: forces, couples of forces, levers, moments, power, work, inertia, acceleration. | 1 | |

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|--|---|
| Principles of behaviour and resistance of materials under force. A general understanding of strain and the effects of strain. Characteristics of homogeneous and composite materials. An elementary knowledge of the measurement of strain and deformity of various materials. | 1 |
| Biomechanics: the biomechanics of the different tissues in the human body (particularly of the musculoskeletal system). An elementary knowledge of biomechanics of fluids and its application to fluids in the human body. | 1 |
| Anatomy of the musculoskeletal system: joint structure, classification and characteristics of joint movements. Factors limiting the range of movement | 3 |
| Muscle anatomy. Physiology of muscle contraction, mono and polyarticular muscles. Static or isometric contractions, dynamic or isokinetic contractions. Plyometric contractions. Agonists, antagonists, synergic muscle systems. Kinetic chains. | 3 |
| Kinesiology: application to the human body of systems of levers; the different constituents of levers with relation to the musculoskeletal system. | 3 |
| Anatomy of the central, peripheral and autonomic nervous system. The neuromuscular junction. | 3 |
| Principles of Genetics: related to motor impairment, learning disorders and cognitive impairment, communication, mood and behaviour disorders, musculoskeletal disorders and others as well as genetic influences on responses to specific treatments or interventions (e.g. certain medications, exercise). | 2 |
| Neurophysiology of posture, balance, goal-oriented and automatic movement | 3 |
| Mechanisms of motor learning. Experience and training-dependent neuroplasticity, cortical reorganization after brain lesion and motor recovery | 3 |
| Pain: anatomic and physiologic bases of pain transmission and perception. Genetic, cellular and molecular basis of pain and analgesia. Animal models of pain. Somatic and visceral pain. Interaction of pain and movement. Multidimensional nature of pain. | 3 |
| Cardiovascular and respiratory functions | 3 |
| Biochemical effects of exercise. Energy expenditure, thermal regulation. Physiological costs, cardiovascular and pulmonary effects of exercise. Principles of cardiovascular fitness. Sports physiology. | 3 |
| Physiology of consciousness | 2 |
| Anatomical bases and neurophysiology of cognitive functions | 2 |
| Physiology of gastrointestinal and urogenital functions (mechanisms of swallowing and excretion) | 3 |
| Physiology of aging | 3 |

CHAPTER 3. CLINICAL DIAGNOSIS AND FUNCTIONAL ASSESSMENT IN PRM

How to assess and measure body structure/function impairment and their impact on activity limitation and participation restriction

Knowledge concerns the clinical use of selective clinical and instrumental measures, and the information provided.

Skills concern:

- the ability to administer selective clinical measures, interpreting the results and exploiting them for clinical decision making.

- the ability to prescribe selective instrumental investigations, interpreting the results (elaborated by specialised physicians and typically including images, graphs, figures and the report of the examination findings) and exploiting them for clinical decision making.

- the ability to perform instrumental investigations marked with a star (*) is considered an advanced skill, not a standard.

| | | |
|---|----------|----------|
| Psychometric properties of clinical measures and self-reported questionnaires (accuracy, reliability, validity, feasibility, ceiling and floor effect, transcultural validation) | 3 | |
| Clinical diagnosis and functional assessment of motor impairment: (measurement of range of motion, muscle strength, involuntary movements, muscle tone alterations with special focus on spasticity and dystonia) | 3 | 3 |
| Instrumental assessment of musculoskeletal lesions (plain X-ray, dual X-ray absorptiometry, ultrasound *, CT, MRI) | 3 | 2 |
| Clinical assessment of sensory impairment | 3 | 3 |
| Clinical and functional assessment of impairment in axial motor features (trunk control, posture, balance and gait) | 3 | 3 |
| Clinical and functional assessment of hand dexterity impairment | 3 | 3 |
| Quantitative instrumental assessment of motor impairment (electromyography*, nerve conduction studies*, motor evoked potentials*, posturography*, stabilometry*, computerized movement analysis*) | 2 | 2 |
| Assessment of pain through quantitative sensory testing and self-reported questionnaires of pain-related activity limitation/participation restriction. | 3 | 3 |
| Instrumental assessment of pain conditions (teletermography, neurophysiology testing of pain threshold*, diagnostic nerve blocks*) | 2 | 2 |
| Clinical assessment of consciousness impairment and coma severity | 3 | 3 |
| Instrumental assessment of brain/spinal cord lesions (CT, MRI) | 3 | 2 |
| Imaging of peripheral nervous system (MRI, Ultrasound, CT) | 3 | 2 |

| | | |
|---|---|---|
| Instrumental assessment of brain activity damage (EEG, evoked potentials, functional MRI, PET, SPECT) | 2 | 2 |
| Clinical and functional assessment of global and selective cognitive impairment and behavioural troubles | 2 | 2 |
| Clinical and functional assessment of global and selective learning disorders in developmental age | 1 | 1 |
| Clinical and functional assessment of communication disorders | 2 | 2 |
| Clinical and functional assessment of swallowing disorders | 3 | 2 |
| Instrumental assessment of swallowing (e.g. fiberoptic endoscopy*, videofluoroscopy) | 2 | 1 |
| Clinical and functional assessment of bladder and bowel dysfunctions | 2 | 1 |
| Instrumental assessment of bladder dysfunction (urodynamic testing*) | 2 | 1 |
| Clinical assessment of cardiopulmonary function impairment and reduced tolerance to effort | 3 | 2 |
| Instrumental assessment of cardiopulmonary function impairment (cardiopulmonary test*, spirometry*) | 2 | 1 |
| Laboratory testing | 3 | 3 |
| Assessment of independence in basic and instrumental activities of daily living | 3 | 3 |
| Assessment of patient-reported outcomes (quality of life, mood disorders, personal expectations and values) | 3 | 3 |
| Assessment of environmental factors and their influence on activity limitation/participation restrictions | 3 | 2 |
| Perspectives on remote assessment within the context of telerehabilitation | 3 | 2 |

CHAPTER 4. INTERVENTIONS IN PRM

Knowledge concerns Indications and evidence-based cost-to-benefit ratio;

Skills concern:

- indications and prescription/referral for intervention by allied health professionals based on the expected outcome and within the framework of the individual rehabilitation project/plan

- the direct administration of the intervention ().*

| | | |
|--|---|---|
| Therapeutic exercise: muscle (re)training, stimulation of muscle activity, task-oriented training. Techniques of muscle strengthening, endurance training. | 3 | 3 |
| Techniques and tools for exercises applying advanced technology and robotics. (i.e. Virtual reality, exergaming and others) and robotics | 3 | 2 |
| Manual therapy: manual and instrumental joint mobilization, lymphodrainage, massage | 3 | 3 |

| | | |
|---|----------|----------|
| Joint manipulations* | 3 | 2 |
| Physiotherapy techniques: Neuromuscular facilitation-inhibition techniques, eg. Kabat, Bobath, Bronström, Vojta and others. | 3 | 3 |
| Physical therapy modalities: Electrotherapy: galvanic currents; low, medium and high frequency treatment, Mechanical vibration, Biofeedback, Thermotherapy (cold and heat treatment) | 3 | 3 |
| Balneotherapy | 3 | 3 |
| ESWT: Extracorporeal shock wave therapy. * | 3 | 1 |
| Pulmonary rehabilitation: Active and passive techniques of bronchial and postural drainage, manual clapping, instrumental techniques. Patient education and training. | 3 | 3 |
| Ventilatory aids. Non-invasive ventilatory support, tracheostomy management. Equipment for assisted respiration. | 3 | 2 |
| Occupational therapy: fundamental ergonomics, principles and methods of occupational therapy, materials, equipment and technology in occupational therapy, applications of occupational therapy in functional rehabilitation and in reintegration into the community. | 3 | 3 |
| Orthotics (spine, limbs) and prosthetics (upper and lower limbs) : knowledge of materials used in orthoses and prostheses and their mechanical properties | 3 | 3 |
| Locomotion aids/adaptive equipment: wheelchair advice and management | 3 | 3 |
| Assistive technology/ augmentative communication | 3 | 2 |
| Neuropsychological rehabilitation (cognitive retraining, cognitive stimulation, computer-based interventions in the context of cognitive rehabilitation) | 2 | 2 |
| Education, psychological support, biofeedback techniques | 2 | 2 |
| Reintegration of people with disabilities into society: vocational assessment, guidance and training in collaboration with Occupational Medicine services, use of work simulators and methods to ensure financial security | 3 | 2 |
| Ergonomic considerations in the home, workplace. | 3 | 2 |
| Sports therapy | 3 | 2 |
| Drug treatment: pharmacokinetics of drugs used in rehabilitation medicine; possible interactions with the rehabilitation programme and with therapeutic exercise. | | |
| Sites, mechanisms of action and clinical use of analgesic drugs: opioids. NSAIDs and anti-thermic analgesics, Alpha-2 adrenergic agonists and cannabinoids, antidepressants and antiepileptic drugs, local anaesthetics sites, mechanisms of action and clinical use of antispastic/spasmodic drugs | 3 | 3 |
| Joint infiltration and injection techniques for pain management* | 3 | 2 |

| | | |
|---|---|---|
| Muscle injection with Botulinum toxin for spasticity and neurodegenerative disorders management * | 3 | 2 |
| Other uses of botulinum toxin (sialorrhea, neurogenic bladder, etc) | 3 | 1 |
| Regional anaesthetic techniques, sensory nerve blocks and sympathetic blocks.* | 3 | 2 |
| Baclofen infusion pump management * | 3 | 1 |
| Fluoroscopically, CT or ultrasound-guided invasive procedures* | 3 | 1 |
| Neurostimulation techniques: Spinal, radicular and peripheral neurostimulation, deep brain stimulation | 3 | 1 |
| Noninvasive brain stimulation* | 3 | 1 |
| Radiofrequency ablation | 3 | 1 |
| Multidisciplinary pain management: Multidisciplinary Pain Units. Psycho-social aspects in patients with chronic musculoskeletal pain. Management of acute pain in the drug abuser and management of addiction in chronic pain sufferers | 3 | 3 |
| Music/art/pet therapy and other complementary/alternative medicine | 3 | 2 |
| Acupuncture* | 2 | 1 |

CHAPTER 5. REHABILITATION FOR PERSONS WITH SPECIFIC HEALTH CONDITIONS

Knowledge concerns: epidemiology, pathogenesis, clinical assessment, rehabilitation techniques, prognostic factors of recovery, for each health condition
Skills concern functional assessment and prognosis of functional recovery in the affected subject, planning the individual rehabilitation project, teamwork coordination, monitoring of intervention delivery and assessment of outcome, throughout the continuum of care in the inpatient and outpatient setting.

The subheadings given in following subchapters refer to health conditions for the sake of simplicity. Since we rehabilitate persons with specific health conditions and not the health conditions themselves, it is always meant people with the specific health condition (e.g. when “Nervous system disorders” it is meant “Persons with nervous system disorders”).

5.1 The immobile patient.

| | | |
|--|---|---|
| Pathophysiology of immobilisation and its consequences on the Cardiovascular, Respiratory, Nutritional, Metabolic system (osteoporosis), Nephrological and urological system, Cutaneous system (skin-pressure sores), Musculoskeletal system (joint contractures, muscle wasting) and Nervous system (Learned non-use Cognitive decline- Mood and behaviour disorders) | 3 | 3 |
|--|---|---|

5.2 Nervous system disorders

| | | |
|--|---|---|
| Stroke | 3 | 3 |
| Traumatic Brain Injury in adults | 3 | 3 |
| Acquired brain injury in adults | 3 | 3 |
| Spinal cord injury (traumatic and non-traumatic) | 3 | 3 |
| Autoimmune & inflammatory neurological conditions (e.g. Multiple Sclerosis) | 3 | 3 |
| Movement Disorders (e.g. Parkinson's disease, Huntington's disease, dystonia) | 3 | 2 |
| Neuromuscular junction disease (e.g. myasthenia gravis) | 2 | 1 |
| Neuromuscular disease in adults (including post-polio syndrome) | 3 | 1 |
| Neuropathies and peripheral nerve injuries | 3 | 3 |
| Neuropathic pain conditions (diabetic and infectious neuropathies; post-amputation and post-spinal cord injury pain, plexopathies) | 3 | 3 |
| | | |
| Focal disorders of Cognition and behaviour | 3 | 2 |

5.3 Musculoskeletal Disorders

| | | |
|--|---|---|
| Osteoarthritis, crystal-induced & degenerative musculoskeletal conditions | 3 | 3 |
| Joint arthroplasty | 3 | 3 |
| Rheumatologic Disorders (Inflammatory & autoimmune disorders) | 3 | 3 |
| Musculoskeletal Injuries: muscle sprains and strains, ligamentous injuries, joint dislocations | 3 | 3 |
| Specific disorder of the lower limb, including foot disorders | 3 | 3 |
| Specific disorder of the upper limb, including shoulder and hand disorders | 3 | 3 |
| Spinal disorders (back pain, neck pain, scoliosis) | 3 | 3 |
| Temporomandibular joint disorders | 3 | 1 |
| Amputations (congenital and acquired Limb Loss) | 3 | 3 |
| Osteoporosis | 3 | 3 |
| Sports injuries. | 3 | 3 |
| Work related musculoskeletal disorders | 3 | 3 |

5.4 Pain syndromes

| | | |
|------------|---|---|
| Acute pain | 3 | 3 |
|------------|---|---|

| | | |
|---|---|---|
| Chronic primary pain including nociplastic and chronic widespread pain (e.g. fibromyalgia), complex regional pain syndrome, headache or orofacial pain, visceral pain, and musculoskeletal pain | 3 | 3 |
| Chronic secondary pain including cancer-related pain, postsurgical and posttraumatic pain, and neuropathic pain | 3 | 3 |
| Other widespread pain syndromes: chronic fatigue syndrome, myofascial pain syndrome, painful joint hypermobility syndrome | 3 | 3 |
| Pelvic pain (including pelvic pain during intercourse) | 3 | 1 |
| 5.5 Respiratory and cardiovascular disorders | | |
| Acute and chronic obstructive and restrictive syndromes | 3 | 3 |
| Cardiac disorders. Valvulopathy, myocardial infarction, cardiomyopathies, cardiac surgery | 3 | 3 |
| Arterio-venous system disorders: Lower limb arterial occlusive disease; deep venous thrombosis; ulcers, varicose ulcers. | 3 | 3 |
| 5.6 Bladder and bowel disorders | | |
| Urinary stress incontinence, urge incontinence, urine leakage | 3 | 2 |
| Post-delivery or post-prostatectomy urinary loss | 3 | 2 |
| Loss of stools or difficulty in evacuating them or anal pain when doing so. | 3 | 2 |
| 5.7 Sexual disorders (related to nervous system disorders, multitrauma, amputations, burn etc) | | |
| | 3 | 2 |
| 5.8 Cancer rehabilitation | | |
| Post-surgery complications, management of fatigue, promotion of healthy lifestyle and prevention of relapses, pain management and palliative care | 3 | 3 |
| 5.9 Rehabilitation for Burns and Reconstructive Interventions | | |
| Including wound care and management | 3 | 3 |
| 5.10 Vestibular rehabilitation | | |
| Dizziness and vertigo (particularly benign paroxysmal vertigo) management with patient education, manoeuvres, and exercises | 3 | 3 |
| 5.11 COVID-19 rehabilitation | | |
| Early management, follow-up assessment and rehabilitation | 3 | 3 |

CHAPTER 6. PRM APPROACH TO DISABLING CONDITIONS IN THE ELDERLY

Knowledge concerns: epidemiology, pathogenesis, clinical assessment, rehabilitation techniques, prognostic factors of recovery, for each disabling health condition

Skills concern functional assessment and prognosis of functional recovery in the affected subject, planning the individual rehabilitation project, team work coordination, monitoring of intervention delivery and assessment of outcome, throughout the continuum of care in the inpatient and outpatient setting, with special attention to the early PRM intervention in the acute hospital stay, the involvement of family carers and social workers, the development of community rehabilitation projects aimed at preventing functional decline and complications.

| | | |
|---|----------|----------|
| The frail patient, comorbidities and polytherapy, | 3 | 3 |
| Sarcopenia (diagnosis, prevention and treatment) | 3 | 3 |
| Postural instability and risk for falls, | 3 | 3 |
| Dementia and functional decline, | 3 | 2 |
| Pain management in the elderly | 3 | 3 |
| Fall prevention strategies | 3 | 3 |

CHAPTER 7. PRM APPROACH TO DISABLING CONDITIONS IN CHILDREN.

Knowledge concerns: epidemiology, pathogenesis, clinical assessment, rehabilitation techniques, prognostic factors of recovery, for each disabling health condition

Skills concern functional assessment and prognosis of functional recovery in the affected subject, planning the individual rehabilitation project, teamwork coordination, monitoring of intervention delivery and assessment of outcome, throughout the continuum of care, adapting rehabilitation goals to the changing needs of disabled individuals during growth, also through the active involvement of parents, caregivers, school teachers and other education professionals

| | | |
|--|----------|----------|
| Psychomotor development and generalized/selective learning disorders | 2 | 1 |
| Cerebral palsy and the neuro orthopaedic consequences of neurological disorders. | 2 | 1 |
| Dysraphic disorders (Spina bifida, myelomeningocele). | 2 | 1 |

| | | |
|---|---|---|
| Neuromuscular disorders. | 2 | 1 |
| Congenital malformation of musculoskeletal system (spine, limbs, skeletal agenesis, congenital aplasias and dysplasias; hip dysplasia, club foot, other foot malformations. | 2 | 1 |
| Lower limb discrepancy. | | |
| Idiopathic, congenital, secondary scoliosis | 2 | 3 |
| The consequences of acquired brain lesion in infancy | 2 | 1 |
| Amputations in children. | 2 | 1 |
| Pain management in children | 2 | 1 |

CHAPTER 8. RESEARCH IN REHABILITATION

Knowledge concerns the theoretical bases of each thematic area and their relevance to clinical practice and research in PRM

Skills concern the ability to develop the different components of the research studies

| | | |
|--|---|---|
| Principles of epidemiology, quantitative and qualitative research | 2 | |
| Research study designs (experimental and observational studies, single-case studies, meta-analysis and reviews) | 3 | 2 |
| Fundamentals of inferential statistics (mean, SD, variance, confidence intervals, median, range, interquartile range; normal distribution) | 3 | 1 |
| Reporting results in graphics and tables, narrative assessment of outcome | 3 | 2 |
| Specificities of research in PRM | 3 | 2 |
| Qualitative research in PRM | 3 | 2 |

CHAPTER 9. INTEGRATIVE AND CLINICAL REHABILITATION SCIENCES

Knowledge concerns the theoretical bases of each thematic area and their relevance to clinical practice in PRM

Skills concern the ability to transfer theoretical knowledge to clinical practice

| | | |
|---|---|---|
| Application of bioethical principles to decision making in the diagnosis and management of patients | 3 | 3 |
| Administration and management | 3 | 3 |

| | | |
|---|----------|----------|
| A general idea on the health and medico social agencies in the different countries of the European Community: Health Insurance Systems Social Security. Hospitalisation, private and public. Hospitalisation at home. Domiciliary care, health workers, home helps. Assistance and surveillance by telephone and other telecommunication methods. | 3 | |
| Research on best care including guidelines, organization, coordination, and education | 3 | 2 |
| Standards and guidelines for the provision of best care (including Evidence Based Medicine) in PRM | 3 | |
| PRM quality management | 3 | 3 |
| Scientific education and training of professionals in PRM | 3 | 2 |
| Development and evaluation of the PRM team and multidisciplinary care | 3 | 3 |
| Community-based rehabilitation issues | 3 | |
| Networks and pathways in PRM | 3 | |

PRACTICE LEARNING OUTCOMES

The following key competencies, and relevant activities, should be integrated in the curriculum. These are outcomes that a resident/trainee is expected to have achieved by the end of the training programme in preparation for the independent practice of Physical & Rehabilitation Medicine (PRM).

Competencies and activities relevant to PRM practice can be grouped into five different domains

| DOMAIN | COMPETENCIES | ACTIVITIES |
|---------------------------|---|--|
| PRACTICE | <p>The PRM physician:</p> <p>C1. Places the person and their family at the centre of practice</p> <p>C2. Establishes a collaborative relationship with the person and their family</p> <p>C3. Communicates effectively with the person, their family, and their health-care team</p> <p>C4. Adopts a rigorous approach to problem-solving and decision-making</p> <p>C5. Works within scope of practice and competence</p> | <p>A1. Obtaining informed consent for rehabilitation</p> <p>A2. Documenting information</p> <p>A3. Conducting rehabilitation assessments</p> <p>A4. Developing and adapting rehabilitation plans</p> <p>A5. Referring to other providers</p> <p>A6. Implementing rehabilitation interventions</p> <p>A7. Evaluating progress towards desired outcomes</p> <p>A8. Discharging and ensuring appropriate continuity of care</p> |
| PROFESSIONALISM | <p>The PRM physician:</p> <p>C1. Demonstrates ethical conduct</p> <p>C2. Maintains professionalism</p> <p>C3. Works collaboratively</p> <p>C4. Manages professional responsibilities</p> | <p>A1. Managing risks and hazards</p> <p>A2. Undertaking quality improvement initiatives</p> <p>A3. Participating in team forums</p> <p>A4. Advising on rehabilitation</p> |
| LEARNING AND DEVELOPMENT | <p>The PRM physician:</p> <p>C1. Continues to learn and develop</p> <p>C2. Supports the learning and development of others</p> <p>C3. Works to strengthen rehabilitation education and training</p> | <p>A1. Managing own professional development</p> <p>A2. Supervising and teaching others</p> |
| MANAGEMENT AND LEADERSHIP | <p>The PRM physician:</p> <p>C1. Works to enhance the performance of the rehabilitation team</p> <p>C2. Works to enhance the performance of rehabilitation service delivery</p> <p>C3. Acts as a rehabilitation advocate</p> | <p>A1. Leading and managing a rehabilitation team</p> <p>A2. Managing, monitoring and evaluating rehabilitation service delivery</p> |
| RESEARCH | <p>The PRM physician:</p> <p>C1. Integrates evidence in practice</p> <p>C2. Works to strengthen evidence for rehabilitation</p> | <p>A1. Designing and implementing research</p> <p>A2. Disseminating evidence</p> <p>A3. Strengthening rehabilitation research capacity</p> |

For assessing the achievement of competencies, the following levels are used:

1. The trainee needs help and supervision to work and solve the problems of the thematic area
2. The trainee needs partial professional supervision to work and solve the problems of the thematic area
3. The trainee is able to work independently and solve the problems of the thematic area, has knowledge of own capacities and limitations, is ready for referral to other specialists

Annex 1 details the comprehensive list of EPA to be used to assess competencies a trainee has to achieve on exit examination with a standard minimum level of 3.

More properly, competencies related to Professionalism, Learning and Development, Management and Leadership and Research are usually appraised through a 360-degree multi-source feedback that should take place at intervals to be defined locally

Appendix. Data to be provided to a receiving country about a doctor.

Record of clinical work and clinical skills

When a doctor seeks to gain employment in an EU country other than his/her own (or the one in which he/she has been trained) he/she will be required to provide access to appropriate records (logbook) demonstrating the extent and nature of his/her clinical experience and skills to a future potential employer and any other relevant body (for example a statutory medical body that grants employment rights within a country).

Independent confirmation of progress of a trainee (or of work as a specialist)

Doctors seeking to gain employment in a country other than their own or the country in which they have been trained will be required to provide references for the following details:

1. The curriculum that the trainee has followed.
2. The nature of assessments completed by the trainee and the outcomes of any assessments undertaken by him/her.
3. The outcomes of assessments of a trainee's professional behaviours
4. The good standing of the trainee.
5. The nature of the quality assurance processes by which it is known locally that the quality of the curriculum and its delivery are satisfactory.
6. As regards a specialist seeking to work in another country, references will be required to contain confirmation regarding an individual's clinical experience and good standing, including outcomes of any assessments of professional behaviours.

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| PR | Recognizes the risks related to the clinical condition and work environment and actively reacts to situations that are directly risky for patients and others. | | | | | | | | | | |
|---|---|--|--------------------|-----------------|--------------------------------|--------------------------------|------------------------|----------------|-------|--|--|
| COMPETENCY DOMAIN | | CLINICAL SETTING | | | | | | | | | |
| PRACTICE | Managing a nutritional policy that includes prevention and rehabilitation | Clinical rehabilitation unit | Acute care serving | Outpatient care | Specialized Brain injury rehab | Specialized spine injury rehab | Rehab in developmental | Geriatric care | Other | | |
| | Has knowledge of the mechanisms and neurogenic control of swallowing; knows risk factors and consequences of dysphagia, knows how to apply treatment options. Applies a functional assessment to identify the risk factors that cause dysphagia / altered nutritional status and draws up a functional prognosis and treatment plan. Knows the referral options within primary and secondary care . | | | | | | | | | | |
| | Managing a bladder / bowel policy that includes prevention and rehabilitation | | | | | | | | | | |
| | Has knowledge of neurogenic control of the bladder, bowel and sexual function; knows risk factors and treatment options, including prevention, and knows how to apply treatment options. Uses a functional assessment to identify risk factors that cause or maintain neurogenic bladder / bowel and sexual problems and draws up a functional prognosis and treatment plan. Knows the referral options within primary and secondary care . | | | | | | | | | | |
| | Managing a pressure ulcer policy | | | | | | | | | | |
| | Can adequately describe, classify and name pressure ulcers. Knows the risk factors that influence the development of pressure ulcers when sitting and lying down. Is familiar with different methods of pressure injury prevention, wound treatment and surgical options. Effectively conducts a targeted clinical evaluation with medical history and physical examination Draws up a functional prognosis based on the origin of the injury and a treatment plan and requests further investigation if necessary. Knows the referral options within primary and secondary care . | | | | | | | | | | |
| | PRACTICE | Managing patients with altered trunk and postural control | | | | | | | | | |
| | | Knows the anatomy, pathophysiology and prognostic factors relevant to trunk and postural control and the treatment options for these disorders Takes the medical history and provides physical examination timely and in a structured way and integrates information to draw up the functional prognosis and the treatment plan | | | | | | | | | |
| | | Collects additional information from other sources including family members and other professionals as needed. | | | | | | | | | |
| | | Interprets additional investigations and translate the results into an individual rehabilitation project | | | | | | | | | |
| Refers the patients to the rehabilitation professionals or other medical specialists, if needed | | | | | | | | | | | |
| PRACTICE | Managing patients with impaired walking ability | | | | | | | | | | |
| | Knows the functional anatomy of the trunk and lower limbs muscles. Takes the medical history and provides physical examination timely and in a structured way and integrates information to draw up the functional prognosis and the treatment plan Collects additional information from other sources including family members and information from other professionals as needed. | | | | | | | | | | |
| | Knows the prognosis, the underlying biomechanical and pathophysiological factors and the treatment of walking disorders. | | | | | | | | | | |
| | Can assess the gait pattern, draw up a diagnosis and a functional prognosis integrating the results of the clinical assessment. | | | | | | | | | | |
| | If necessary, can request further investigations, such as computerized gait analysis, and can interpret them, translating the results into an individual rehabilitation plan. | | | | | | | | | | |
| | Has knowledge of orthopedic shoes, based on foot assessment, provides foot care guidance and advice on footwear, including orthopedic shoes. | | | | | | | | | | |
| | Knows the centers providing the prescription of footwear in the network. | | | | | | | | | | |
| | Foresees the patient's compliance with footwear, can assess the degree and pattern of use and adjust the advice on orthopedic shoes accordingly. | | | | | | | | | | |
| | Refers the patient to other rehabilitation professionals or other medical specialists, if needed | | | | | | | | | | |
| | Refers the patient to the orthopedic surgeon, if needed | | | | | | | | | | |

