



White Book on Physical and Rehabilitation Medicine in Europe

Introductions, Executive Summary, and Methodology

European Physical and Rehabilitation Medicine Bodies Alliance

ABSTRACT

The White Book (WB) of Physical and Rehabilitation Medicine (PRM) in Europe is produced by the 4 European PRM Bodies (European Academy of Rehabilitation Medicine – EARM, European Society of PRM – ESPRM, European Union of Medical Specialists – PRM Section, European College of PRM-ECPRM served by the European Union of Medical Specialists-PRM Board) and constitutes the reference book for PRM physicians in Europe. It has now reached its third edition; the first was published in 1989 and the second in 2006/2007. The WB has multiple purposes, including providing a unifying framework for European countries, to inform decision-makers on European and national level, to offer educational material for PRM trainees and physicians and information about PRM to the medical community, other rehabilitation professionals and the public.

The WB states the importance of PRM, a primary medical specialty that is present all over Europe, with a specific *corpus disciplinae*, a common background and history throughout Europe. PRM is internationally recognized and a partner of major international bodies, including the World Health Organization (WHO). PRM activities are strongly based on the documents of the United Nations (UN) and WHO, such as the Convention of the Rights of Persons with Disabilities (2006), the World Report on Disability (2011), the WHO Global Disability Action Plan 2014-2021 (2014) and the WHO initiative “Rehabilitation 2030: a call for action” (2017).

The WB is organized in 4 sections, 11 chapters and some appendices. The WB starts with basic definitions and concepts of PRM and continues with why rehabilitation is needed by individuals and society. Rehabilitation focuses not only on health conditions but also on functioning. Accordingly, PRM is the medical specialty that strives to improve functioning of people with a health condition or experiencing disability. The fundamentals of PRM, the history of the PRM specialty, and the structure and activities of PRM organizations in Europe are presented, followed by a thorough presentation of the practice of PRM, *i.e.* knowledge and skills of PRM physicians, the clinical field of competence of PRM, the place of the PRM specialty in the healthcare system and society, education and continuous professional development of PRM physicians, specificities and challenges of science and research in PRM. The WB concludes with the way forward for the specialty: challenges and perspectives for the future of PRM.

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Key words: Physical and Rehabilitation Medicine - Europe - Functioning - Disability.

Foreword

The first edition of the White Book (WB) of PRM in Europe was written with the ambition of becoming a working instrument that would enable health sector authorities and teachers of medicine to take the necessary regulatory steps towards compulsory inclusion of PRM in medical studies, as well as to achieve effective, optimized harmonization of training of specialists in PRM in Europe.

The second edition of the WB of PRM in Europe aimed to ensure that PRM is seen as a significant European medical specialty, where high quality practitioners ensure good standards of care, practice based on scientific evidence and within their respective national contexts. This is achieved by defining the PRM special-

ty, its work, the competencies of its practitioners and its relationships to other medical disciplines and allied health professions.

Both editions of the White Book of PRM in Europe were well received not only by health professionals but also by policymakers who have widely used the information contained in the White Book for organizing rehabilitation delivery. Ten years after the release of the second edition, the European PRM bodies consider it timely to update the content of the White Book in order to illustrate how the specialty has developed and how recent trends are influencing practice.

The third edition of the White Book of PRM in Europe is produced by the European PRM Bodies Alliance (UEMS PRM Section, European College of PRM served by the UEMS PRM Board, ESPRM and EARM).

As the result of a joint effort by the representatives of these PRM bodies who are responsible for setting standards for PRM clinical practice, education, and scientific research in Europe, the White Book reflects different aspects essential for the development of appropriate, widely accessible, and sustainable rehabilitation care. It serves as the reference book for PRM physicians in Europe that guide their interactions with individuals with disability, with colleagues in other medical disciplines and health allied professionals, as well as in negotiations with respective national governments and national health system authorities.

This third edition of the White Book of PRM in Europe aims at:

- describing the work of the PRM specialty and its PRM physicians in a changing world of health care systems and shrinking resources;
- reacting and contributing to medical innovation;
- developing strategies to meet the challenge of scientific and technological advances;
- dealing with changing perspectives of disability;
- promoting and facilitating the autonomy of people with disabilities and their participation in everyday life;
- establishing itself as a reference for PRM practice and academic life for young health professionals (especially medical doctors in training);
- emphasizing a European perspective.

The White Book is organized in four sections, 11 chapters and some appendices. It is a “collective effort” by all delegates and members of the European Bodies. Its thoughtful and practical structure meticulously adhered to by the editors under the coordination of Prof. Stefano Negrini, will contribute to the White Book’s impact and successful implementation in PRM practice in Europe.

We wish to use this opportunity to congratulate all the authors who have contributed to the content of this important publication.

On behalf of the European PRM Bodies Alliance,
the Presidents of the European PRM Bodies:

Xanthi Michail (European Academy of Rehabilitation Medicine)

Alain Delarque (European Society of Physical
and Rehabilitation Medicine)

Nicolas Christodoulou (Physical and Rehabilitation Medicine)

Section of the European Union of Medical Specialists)

Maria Gabriella Ceravolo (European College of Physical
and Rehabilitation Medicine)

Preface

The White Book (WB) of Physical and Rehabilitation Medicine (PRM) in Europe has served as the reference book for PRM physicians in Europe since 1989, when the first edition was published by the Universidad Complutense of Madrid¹ upon the initiative of the European Academy of Rehabilitation Medicine (EARM), the Section of Physical Medicine and Rehabilitation of the European Union of Medical Specialists (UEMS), and the European Federation of Physical Medicine and Rehabilitation (EFPMR). This first edition is now of historical value, not only because the world has changed considerably since then, PRM has also evolved. Particularly, the terms of reference for the specialty has changed, reflecting the conceptual evolution of health according to World Health Organization’s (WHO) classifications — first in 1980 with the International Classification of Impairment, Disability and Health (ICIDH)² and then in 2001 with the International Classification of Functioning, Disability and Health (ICF).³ This evolution is testified by the name of the specialty, now called PRM. Accordingly, the European Bodies involved have also changed: they now comprise the European Academy of Rehabilitation Medicine (EARM — ethical and “philosophical” function), the European Society of PRM (ESPRM — scientific function), the European Union of Medical Specialists Section (professional function) and the European College of PRM (served by UEMS PRM Board - educational function).

They produced the second edition in 2006, published at that time by Europa Medicophysica (now European Journal of PRM)⁴ and the Journal of Rehabilitation Medicine.⁵ In this third edition, the European PRM Bodies have come together under the umbrella name “European PRM Bodies Alliance,” to state a collaboration that has existed and has been growing for many years. The Alliance holds the intellectual property and copyrights for the WB as well as for its editions in the various languages.

Since the second edition of the WB, the United Nations (UN) Convention on the Rights of Persons with Disabilities (referred to “Convention” from now on)⁶ has implemented the important Article 26 “Habilita-tion and Rehabilitation”.⁷ For first time, rehabilitation is defined as one of the most important interventions to

“enable persons with disabilities to attain and maintain maximal independence, full physical, mental, social and vocational ability and full inclusion and participation in all aspects of life.” Consequently, the Convention urged sovereign states to “organise, strengthen and extend comprehensive habilitation and rehabilitation services and programs, particularly in the areas of health, employment, education and social services.” This Article also included “the development of initial and continuing training for professionals and staff working in habilitation and rehabilitation services.” For PRM, there are two important messages, which are: 1) access to rehabilitation is a human right and 2) training of highly qualified rehabilitation professionals are keys to contributing to the Convention’s goals.

Responding the Convention, WHO and the World Bank produced the World Report on Disability⁸ in 2011, which relied on scientific evidence for the first time to describe the life experiences and situation of persons with disability and from which relevant recommendations were made. One of the main findings was that the prevalence of disability is higher than expected (amounting to around 15% of the world population). The WRD highlighted the contribution of rehabilitation to “a person achieving and maintaining optimal functioning in interaction with their environment.” The report described “Rehabilitation Medicine” as being “concerned with improving functioning through the diagnosis and treatment of health conditions, reducing impairments, and preventing or treating complications” and it highlighted the role of medical doctors with specific expertise in medical rehabilitation called “physiatrists, rehabilitation doctors, or physical and rehabilitation medicine specialists.” It also recognized that “Rehabilitation Medicine has shown positive outcomes, for example, in improving joint and limb function, pain management, wound healing, and psychosocial well-being”.

This “new” perspective of rehabilitation and PRM is underscored by the WHO Global Disability Action Plan 2014–2021, “Better Health for All People with Disabilities”, with its objective to “strengthen and extend rehabilitation, habilitation, assistive technology, assistance and support services, and community-based rehabilitation.” One of the success indicators for these goals is “the number of graduates from educational institutions per 10,000 people — by level and field of education”. In this indicator, PRM is explicitly mentioned.⁹

During the WB’s preparation, WHO launched “Rehabilitation 2030: a call for action”¹⁰ in February 2017 involving over 200 stakeholders and at which the WHO Recommendations on rehabilitation in health systems were presented. These initiatives are meant to:

- draw attention to the increasing unmet needs for rehabilitation in the world;
- highlight the role of rehabilitation in achieving the Sustainable Development Goals proposed by the United Nations; and
- call for coordinated and concerted global action towards strengthening rehabilitation in health systems.

Common to all of these initiatives, the training of PRM physicians and improvements in the quality of care are internationally agreed goals to improve health-related rehabilitation services and to enable persons with health conditions experiencing, or likely to experience, disability to achieve and maintain optimal functioning in interaction with their environment. The European PRM Bodies have adopted these goals and this third edition of the WB on PRM in Europe aims to contribute to achieving these goals.

The objective of the WB is thus to describe from a European perspective, the work of the specialty of PRM and of PRM physicians in:

- a changing world of health care systems and shrinking funding;
- reacting and contributing to medical progress and technological innovation;
- developing strategies to meet the challenge of scientific and technological advances;
- dealing with changing perspectives of disability;
- promoting and facilitating the autonomy and participation of persons with disabilities in everyday life;
- being a didactic reference for PRM practice and academic life for young health professionals (especially medical doctors in training).

Consequently, the WB has multi-faceted values that start from the educational role for PRM physicians in training, to the unifying function for European states and to the political utility facing governments across Europe and the EU. These are important for PRM, whose role is sometimes not well understood, particularly from the perception of those outside the specialty. PRM is continually collaborating with other specialties and other rehabilitation professionals on health, education and research activities. This book

aims to clarify the role of PRM in collaboration with other:

- medical specialties on treating patients with health conditions that cross discipline lines, with consideration of PRM's focus on activity and participation;
- rehabilitation professionals who also address activity and participation problems experienced by patients, while keeping its unique medical role in diagnosis, functional assessment and prognosis and team management.

PRM is an independent primary medical specialty, present in almost all European countries, with specific specialist competences and a common background and history. Moreover, PRM is internationally recognized and a partner of major international bodies, including WHO, lending PRM influence in the UN's and WHO's activities. In light of this, the publication of the WB by all of the European PRM bodies is valuable for persons (especially those with a disability) living in Europe, for European PRM as a specialty, for healthcare planners and policymakers and for society in general.

All of these concepts as well as some new concepts will be expanded in this latest edition of the WB. This edition of the WB is much more of a "collective effort" compared to the previous editions — as already mentioned, the European PRM Bodies Alliance was established and its collaborative efforts brought this new edition of the WB to fruition. There is also a new methodological chapter outlining the methodology that guided the development of content in each chapter of the WB. Furthermore, the historical chapter reflects the aforementioned developments, and a conceptualization of the fundamentals of PRM as a specialty is introduced.

The WB is presented in four sections (the background of PRM, its organization and practice in Europe and the conclusions) with appendices (including the methods section). The WB starts with basic definitions (the concepts and the specialty) before looking at the relevance of rehabilitation to people with disabling conditions and to society (*i.e.* why it is needed). General rehabilitation, that is not specifically medical, is then introduced, followed by a transition to describing PRM, the medical specialty devoted to rehabilitating patients and persons with disabilities. The definition of PRM as a primary medical specialty (the core concepts) is presented along with its development (where PRM comes from) and organization (PRM activities and their representation) in

Europe. Moving to practice, the fundamentals of PRM (knowledge, skills and abilities of PRM physicians), the field of competence (PRM in practice) and the place in healthcare systems and society are discussed. Education of PRM in Europe (shaping the future) and science and research in PRM (challenges and specificities) are also reported before reaching the conclusions: the way forward for PRM in Europe (challenges and perspectives for the future).

This edition of the WB is a further important step for the future of the specialty of PRM, in Europe and beyond. It results from the work of the following stakeholders (also see the acknowledgment section in the appendix).

- the initiative and authorship of the 4 European PRM Bodies joined in a single productive Alliance,
- the coordination of 11 editors,
- the efforts of 38 first authors and 63 co-authors to produce 62 individual contributions,
- the voluntary work of 38 internal and 39 external reviewers,
- the consensus of 241 delegates and academicians of 36 European countries reached in 30 months of work.

The editors of the 3rd Edition of the White Book:
Stefano Negrini, Pedro Cantista, Maria Gabriella Ceravolo,
Nicolas Christodoulou, Alain Delarque,
Christoph Gutenbrunner, Carlotte Kiekens,
Saša Moslavac, Enrique Varela-Donoso,
Anthony B. Ward, Mauro Zampolini

Executive summary

Overview

The third edition of the White Book (WB) of Physical and Rehabilitation Medicine (PRM) in Europe is produced by the European PRM Bodies Alliance including the European Academy of Rehabilitation Medicine (EARM), the European Society of PRM (ESPRM), the European Union of Medical Specialists (UEMS) PRM Section and the European College of PRM (served by the UEMS-PRM Board). It is the reference book for PRM physicians in Europe. It is dedicated to provide comprehensive information about PRM that is relevant for PRM physicians, other health professionals, health

care planners and other stakeholders, including those in European national governments. It also informs European governing bodies and the general public.

The WB informs about the importance of PRM for the individual patient or person experiencing disability and for society as a whole. It describes how PRM is a primary medical specialty, present in almost all European countries, with specific core competences and a common background and history throughout Europe.

The scope of PRM and its role in rehabilitation has a strong basis in the documents of the United Nations (UN) and World Health Organization (WHO), like WHO's International Classification of Functioning, Disability and Health (ICF) (2001), the UN Convention on the Rights of Persons with Disabilities (2006), the World Report on Disability (2011), the WHO Global Disability Action Plan 2014-2021 (2014) and the WHO initiative "Rehabilitation 2030: a call for action" (2017). PRM organizations are internationally recognized and have been working as a partner of major international organizations like the WHO.

The White Book has four sections and is presented in a series of 11 chapters, and appendices (that includes methodological notes). It starts by explaining basic definitions and concepts of PRM, the relevance of PRM for people and society and the definitions of disability and rehabilitation. It presents PRM as a primary medical specialty, its development and its organization in Europe. Knowledge and skills of PRM physicians, its field of competence and its position and role in health-care systems are discussed. Furthermore, principles of education and training as well as science and research are also described. Last but not least, the challenges and future perspectives for PRM in Europe are addressed.

Definitions and basic concepts of PRM

PRM is the primary medical specialty responsible for education and training patients and health care providers, health promotion, prevention, medical diagnosis, functional assessment, treatment and rehabilitation management of persons of all ages experiencing disabling health conditions and their co-morbidities. PRM physicians treat health conditions, impairment of physical, mental and cognitive functions, as well as activity limitations. PRM physicians aim at improving participation and quality of life of their patients. This

also includes improving health behavior and promoting the positive influence of personal and environmental factors on functioning.

The profile of PRM includes the following:

- PRM is a person- and functioning-oriented medical specialty (contrary to the organ- and disease-oriented specialties or specialties that focus on specific age groups).

- PRM physicians have medical responsibilities and additional competences in setting-up a functional assessment.

- PRM physicians can directly provide treatments, and/or lead the multi-professional rehabilitation team that works in a collaborative way with other disciplines.

- PRM has a multimodal approach including a wide range of treatment tools (including medicines, exercises, physical modalities and other rehabilitation interventions, some of which provided by other rehabilitation professionals).

- PRM treats the individual's health conditions focusing on reducing impairments and activity limitations in order to empower patients to achieve full participation.

- PRM has a transversal role and collaborates with all other specialties.

PRM is focused on the person and not on a specific disease or setting, thus PRM physicians collaborate with many other medical specialists and health professionals and have a role in different health care settings (e.g. acute and/or post-acute rehabilitation hospitals, rehabilitation centres, out-patient services, community services). PRM physicians take care of persons experiencing disabilities and patients with long-term health conditions but also acute dysfunction to prevent secondary impairments.

As recently underlined by the WHO with "Rehabilitation 2030 — A call for action", the relevance of PRM for society has increased as a result of the ageing population and growing number of people experiencing disability. Thus, any planning of services has to take into account the burden of disability within the society and should include PRM services at all levels of care.

Organization and history of PRM in Europe

Historically, PRM developed from some main streams throughout Europe. One is the use of physical agents (water, heat, cold, massage, joint manipulations,

physical exercise, etc.) (Physical Medicine). Another one the practice of rehabilitation that gained importance due to the survivals of wounded in the 2nd World War, as well as to various epidemics (e.g. poliomyelitis) (Rehabilitation Medicine). In some countries, it developed in relation with other medical specialties like neurology, rheumatology, orthopedic medicine, radiology, but also cardiology, pneumology, or paediatrics, with the specificity of primarily looking at functioning of patients with these health conditions. In other countries, it started in specific settings like balneology or sports medicine. Nowadays, due to the commonalities among all these streams, they converged in the single PRM multidimensional specialty.

For a uniform definition and positioning in Europe, different organizations of PRM have been created: the EARM, the ECPRM, the ESPRM; and the PRM Section of the UEMS. Nowadays such a uniform definition of the specialty exists in Europe, which is concordant with the internationally accepted description of PRM (based on the ICF-model).

Additionally, regional fora, such as the Mediterranean Forum of PRM and the Baltic and North Sea Forum of PRM, have been established and national PRM societies exist in most European countries. They take an important role to develop PRM at the interface of Europe with neighbouring regions as well as at national levels. The European PRM associations also take a strong role in related activities across the world.

Moreover, research in PRM has been significantly improved and the number of PRM journals increased (many of them indexed in international data bases and with impact factor), and scientific congresses and courses developed. Last but not least, the recent creation of the Cochrane Rehabilitation field will also give a great boost to this primary medical specialty.

Practice of physical and rehabilitation medicine in Europe

From a physiological perspective, the fundamental principles of PRM include physical and behavioral mechanisms including:

- repairing processes and functional adaptation (incl. tissue regeneration, improvement of functional capacity, training processes etc.) as well as supporting recovery processes;

- learning processes and behavioural change (incl. patient education and teaching new motor and behavioural strategies);

- compensatory processes both at the physical mental and intellectual levels as well assistive technologies and environmental adaptations.

Additionally, PRM physicians have management skills and play a role in supporting people to manage their resources to achieve optimal participation (including giving advice to their families and caregivers). Furthermore, PRM physicians have a high level of communication skills in order to teach, inform and educate patients and their relatives.

The clinical work of PRM physicians can be characterized as the “medicine of functioning”. Its core health strategy is rehabilitation aiming at optimizing functioning in light of health conditions. However, PRM physicians also use curative (to cure the disease), preventive (to prevent disease and/or complications and progression) and supportive strategies (aiming at maintaining optimal functioning). Clinical PRM processes are following the so-called rehabilitation cycle (all patients require an assessment with definition of their individual goals before providing the intervention; 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).

The spectrum of diseases treated by PRM physicians is extremely wide as many health conditions are associated with some form of disability. This includes diseases in musculoskeletal, nervous, circulatory, respiratory, urogenital system as well as to the skin and the digestive tract. PRM clinical activities also relate to some most common problems across diseases such as immobilization, spasticity, pain, communication disorders and others.

The diagnosis in PRM is a combination between the medical diagnosis (diagnosis of the disease) and the PRM specific functional assessment (assessment of functioning). The latter is based on the ICF conceptual framework, and obtained through functional evaluations and scales.

PRM physicians may apply a wide range of interventions, ranging from medications, exercises, manual therapies, physical modalities, technical aids, educational programs and environmental adaptations. Standardized PRM programs have been developed

for many health conditions and functioning problems based on scientific evidence and providing best practice models.

PRM interventions and programs are always patient-centered, and outcomes include functioning and personal dimensions (reducing impairments, activity limitations, and participation restrictions). They also aim at reducing costs as well as decrease in mortality for certain groups of patients. PRM programs in most cases are delivered by the multi-professional rehabilitation teams in a collaborative way with other disciplines, under the leadership of PRM physicians.

As numerous documents and reports from WHO and the UN call for the strengthening of rehabilitation as a key health strategy of the 21st century worldwide, further implementation of PRM in healthcare systems is crucial. Within this context, PRM should be provided along the whole continuum of care and at all levels of health care aiming at appropriate services functioning needs of the individual as well as on temporal aspects of a health condition (congenital or acquired, and acute, progressive or degenerative). This includes aspects of habilitation, rehabilitation as well as PRM in acute settings, in post-acute and in long-term settings.

Education and training in PRM

To achieve a good rehabilitation approach as needed by the European societies, all physicians and health professionals should receive an adequate undergraduate education. To acquire the wide field of competence needed, PRM physicians have to undergo a well organized and appropriately structured postgraduate training of adequate duration. Besides achieving medical knowledge, competencies in patient care, specific procedural skills, and 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 people with disabilities, capacity to master strategies for reintegration of disabled people into society, apply principles of quality assurance and promote a practice-based continuous professional development. At the European level, recommendations and standards required are provided by the UEMS-PRM Board. Last but not least, continuing professional development and medical education programs are provided by the European PRM

bodies (in collaboration with the European Accreditation Council of Continuous Medical Education).

Science and research in the field of PRM

Related to the wide spectrum of tasks of PRM, science and research in PRM also has a wide scope of topics. It ranges from basic research in mechanisms of disease and disability, mechanisms of action of interventions, studies on clinical outcomes, epidemiological studies as well as scientific approaches of the implementation of PRM services in health systems and developing the theoretical background on disability and rehabilitation. This is reflected in the topics of European and international congresses and PRM journals. However, the current situation of science and research activities in PRM in Europe is facing new possibilities and challenges.

The importance of rehabilitation research is defined, and its peculiar methodology due to the problem to bridge the gap between biology and behavior and facing topics like the relationship between biomedicine and PRM and PRM outcome research. PRM also has to face the challenges of Evidence Based Medicine that are also dealt with in the new Cochrane Rehabilitation Field. Finally, the transfer of scientific knowledge into clinical practice is of major importance.

The way forward

Challenges and future perspectives of PRM in Europe are emerging from the dramatic changes in demography, life expectancy, survival rates, disability burden, increasing prevalence of long-term health conditions, progress in technology, but also health costs and society changes in terms of requirements of wellness and quality of life together with health. All these challenges combine with the specificities of PRM, that is the medical specialty focusing on the whole person and his or her functioning in the various health conditions, with the aim to guarantee the best possible participation through improvement of activities and reduction of impairments. The possible consequences of these changes in the future evolution of PRM clinical practice, services, education, research are presented; moreover, the vision on the progress to harmonization of the development of PRM across Europe, and the possible contribution of PRM to policy planning are presented.

Introduction

The White Book (WB) sets out the nature, area of work and parameters of Physical and Rehabilitation Medicine (PRM) in Europe. It describes the specialty and the competencies expected of fully trained specialists (PRM physician) in the field, as well as the clinical context of the work and the nature of education and specialist training. The book builds on the two previous editions of WB, which appeared in 1989¹ and in 2006/2007.^{4, 5}

The WB primarily targets five groups:

- PRM physicians and other rehabilitation professionals;
- health care professionals in other medical specialties and professions allied to medicine
- PRM residents, medical and other rehabilitation professional students
- policy makers and planners in healthcare, rehabilitation and disability issues
- the general public and, in particular, persons with disabilities and representatives of their organizations.

The European medical community is continuously enlarging and this offers further opportunities and challenges, particularly from the East of the continent to learn what the PRM European community is doing by developing specific projects with the PRM Section of the European Union of Medical Specialists (UEMS) and the European Society of PRM (ESPRM). This publication seeks to assist the process of harmonization of specialist PRM activity to help ensure that persons experiencing disabilities are well served by the specialty irrespective of where they live in this enlarged community. The WB is offered to the PRM community across the world as a reference, even in the face of different situations and challenges.

Healthcare is undergoing great changes both at European and at national levels. The general public has increasing expectations of medical care, which mirror the philosophical debate about human rights and responsibilities across society, particularly in relation to the full participation of persons with disabilities. Medical practice is continually evolving, with the improvement in clinical standards and the need for excellence through continuing professional development, revalidation and enhancement of specialist training. As the need for greater competency increases, it is important for PRM to re-define what it is, what it can offer, how it can best

deliver its services and expertise, and what standards of training should be demanded of entrants into the specialty. This book aims to respond to these requirements.

The text is presented in four parts (the background of PRM, its organization and practice in Europe and the conclusions) with appendices (including the methods section). The contents start with basic definitions (the concepts and the specialty) before looking at the relevance of rehabilitation to people with disabling conditions and to society (*i.e.* why it is needed). The text then moves from general rehabilitation, that is not specifically medical, to PRM, which is the medical specialty devoted to rehabilitating patients and persons with disabilities. The definition of PRM as a primary medical specialty (the core concepts) is presented along with its development (where PRM comes from) and organization (PRM activities and their representation) in Europe. Moving to practice, the fundamentals of PRM (knowledge, skills and abilities of PRM physicians), the field of competence (PRM in practice) and the place in healthcare systems and society are discussed. Education of PRM in Europe (shaping the future) and science and research in PRM (challenges and specificities) are also reported before reaching the conclusions: the way forward for PRM in Europe (challenges and perspectives for the future).

Methodology of the third edition of the WB of PRM in Europe

The 3rd edition of the White Book (WB) of Physical and Rehabilitation Medicine (PRM) in Europe has been developed according to a specific methodology in order to achieve the most consistent and true representation of the text. It has been produced and approved by all delegates and academicians of the European PRM Bodies Alliance. All delegates are officially nominated by their national competent authorities or national societies and consulted the members of their relevant authorities during the process. Consequently, the WB represents the views of the whole PRM European community. Its production has been a truly collective effort involving the 4 European PRM Bodies, 11 editors, 38 first authors, 63 co-authors, 38 internal and 39 external reviewers, 241 delegates and academicians, representing 36 PRM societies in the continent.

During 2014 the idea of a new edition of the WB was

proposed inside the European Academy of Rehabilitation Medicine (EARM) and a discussion was started inside the other European PRM Bodies: the European Society of PRM (ESPRM) and the European Union of Medical Specialists (UEMS) PRM Section and Board. According to the methods of work of the Bodies, motions were proposed and were all unanimously approved throughout the process.

Among the first decisions was the creation of a Steering Committee, including 2 members per European Body. The Steering Committee included:

- Stefano Negrini (UEMS PRM Section) – Coordinator;
- Saša Moslavac (UEMS PRM Board) – Secretary;
- Pedro Cantista (ESPRM),
- Gordana Devečerski (ESPRM),
- Alvydas Juocevicius (UEMS-PRM Board),
- Christoph Gutenbrunner (EARM),
- Enrique Varela-Donoso (UEMS-PRM Section),
- Anthony B. Ward (EARM).

The Steering Committee met regularly and proposed the main motions to be approved. At all stages the Presidents and Secretaries of the Societies have been involved. They have been:

- EARM: Guy Vanderstraeten and Xanthi Michail (Presidents), and Angela McNamara (Secretary)
- ESPRM: Xanthi Michail and Alain Delarque (Presidents), Elena Ilieva and Charlotte Kiekens (Secretaries)
- UEMS PRM Section: Nicolas Christodoulou (President), Mauro Zampolini (Secretary)
- UEMS PRM Board (for the College): Alvydas Juocevicius and Maria Gabriella Ceravolo (Presidents), Nikolaos Barotsis (Secretary)

In the first semester of 2015 the need of a new edition (3rd) of the WB, due to the many changes in the European Societies, and consequently in PRM practice, reflected by European and World documents was finally defined. The WB is authored by the 4 European PRM Bodies, that are also the copyright holders:

- European Academy of Rehabilitation Medicine (EARM);
- European Society of PRM (ESPRM);
- PRM Section of the European Union of Medical Specialists (UEMS PRM Section);
- European College of PRM (served by the UEMS-PRM Board).

The stakeholders are the National PRM Societies.

The WB follows the outline of the previous editions:

- First Edition (1989): Book published by Universidad Complutense de Madrid in four languages: English, French, Italian, Spanish. Author: EARM with UEMS Physical Medicine and Rehabilitation Section and European Federation of Physical Medicine and Rehabilitation;
- Second Edition (2006-7): published in Special issues of 2 journals (in PubMed), *Europa Medicophysica* (now *European Journal of Physical and Rehabilitation Medicine*); *Journal of Rehabilitation Medicine*. Language: English, then translated in various other European languages by the National Societies. Authors: EARM and UEMS PRM Section and Board with collaboration of ESPRM.

The aim of the WB is to describe, from a European perspective, the work of the specialty of PRM and of PRM physicians in:

- A changing world of health care systems and shrinking funding;
- Reacting and contributing to medical progress and technological innovation;
- Developing strategies to meet the challenge of scientific and technological advances;
- Dealing with changing perspectives of disability;
- Promoting and facilitating the autonomy and participation of persons with disabilities in everyday life;
- Being a didactic reference for PRM practice and academic life to young health professionals (especially medical doctors in training).

It was decided to start from the contents of the second edition and accept all what was already written if still applicable, modifying the text as required. This has been true for:

- the chapters (some new chapters have been included – specifically chapters 3 and 6) sometimes expanding previous paragraphs;
- the single paragraphs inside the chapters.

In the second semester of 2015 a Provisional Summary was approved including:

- 11 chapters with an editor for each chapter– it was decided to publish each chapter as an independent paper in PubMed so to better expose the contents to the scientific world audience; each chapter consequently has its own abstract and includes the collective names of authors. In the final version, the chapters are:

- Definitions and concepts of PRM
 - Why rehabilitation is needed by individuals and society
 - A primary medical specialty: the fundamentals of PRM
 - History of the specialty: where PRM comes from
 - The PRM organizations in Europe: structure and activities
 - Knowledge and skills of PRM physicians
 - The clinical field of competence: PRM in practice
 - The PRM specialty in the healthcare system and society
 - Education and continuous professional development: shaping the future of PRM
 - Science and research in PRM: specificities and challenges
 - Challenges and perspectives for the future of PRM
- 62 paragraphs – each paragraph has some key persons with specific roles:
- First Author: paragraphs writing: draft (starting from the text of the previous second edition of the WB) and final version; coordination with co-authors; deadlines respect
 - Co-authors: correcting and improving the first draft; they come from the authors' call and/or are nominated by the first authors; in each paragraph, they come from different European areas (North, South, West and East)
 - Internal reviewers: from the European PRM Bodies – first review of paragraphs
 - External reviewers: PRM experts out of the European PRM Bodies – first review of paragraphs.

The first authors of each single paragraph have been decided by the Steering Committee according to specific criteria after a call to all delegates and academicians. The criteria included: specific expertise, number of publications in PubMed listed journals, other specific publications, acceptance to fulfil the task and deadlines.

The editors of the WB have been chosen by the Steering Committee primarily among their members but also in the European Bodies according to their specific expertise in editing and on their chapter. Stefano Negrini served as Coordinator and Saša Moslavac as Secretary

of the editors. The editors of the single chapters are:

- Chapter 1: Pedro Cantista, Nicolas Christodoulou
- Chapter 2: Anthony B. Ward
- Chapter 3: Stefano Negrini
- Chapter 4: Enrique Varela-Donoso
- Chapter 5: Mauro Zampolini
- Chapter 6: Stefano Negrini
- Chapter 7: Christoph Gutenbrunner
- Chapter 8: Carlote Kiekens
- Chapter 9: Maria Gabriella Ceravolo
- Chapter 10: Alain Delarque
- Chapter 11: Stefano Negrini

The writing process has been organized with the following steps:

- December 31st 2015 - Deadline of first call for authors to all Delegates and Academicians
- February 28th 2016 - Deadline of second call for authors to all Delegates and Academicians
- July 15th 2016 - Deadline for writing of “sensitive” paragraphs:

- 3.2 Ethical aspects;
- 4.5 PRM team;
- 5.1 The streams of developing the field of competence in PRM;
- 8.9 Relationship with other specialties;
- 8.10 Relationship with other rehabilitation professionals

— August 15th 2016 - Deadline for all other paragraphs

The process of reviews and revisions has been quite elaborated and is fully described in Tables I and II. It included:

- four Consensus Conferences
- four review/revision cycles involving either all delegates/academicians (1st and 3rd) or all editors and Presidents (2nd and 4th).

Overall each review and revision round was aimed at improving and refining the text, making it coherent among chapters and paragraphs. Revisions have always been performed by the editors individually and/or collectively to guarantee uniformity to the text.

The first stage of review (Table I) has concluded with the most important Consensus Conference (the 3rd) held in Munich on 9th of March 2017. Participants have been all delegates of ESPRM and UEMS-PRM Section and Board, and all academicians of EARM. Each editor for his chapter has presented: contents of chapter, com-

TABLE I.—*Review and revision process until the Consensus Conference in Munich (9 March 2017).*

	Review	Revision
First Consensus Conference (UEMS PRM Section Professional Practice Committee)	25-8-2016 Prague (Czech Republic) On “Sensitive” paragraphs	
First Review/revision	30-9-2016 Internal and external reviewers on single paragraphs Delegates, academicians and editors on single paragraphs	30-11-2016 Editors on their chapter
Second Review/revision	15-12-2016 Editors on the whole WB	7-1-2017 Editors on their chapter
Second Consensus Conference (editors)	16/17-12-2016 Don Gnocchi Foundation Rovato (Brescia) - Italy On each single chapter	
Third Review/revision	21-1-2017 Editors on the whole WB	31-1-2017 Editors on their chapter
Third Consensus Conference (European PRM Bodies)	9-3-2017 Munich (Germany) Delegates and academicians on the whole WB	

ments received, answer to the comments, changes to the text according to the comments. Since a general discussion was not possible due to time constraints, some comments have been allowed, and then all participants had to send their last comments as reported in Table II.

Publication of the WB has been planned in January 2018. In spring 2017, it has been decided to ask first to the journals that published the previous Second Edition (the European Journal of PRM and the Journal of Rehabilitation Medicine). Only the European Journal of PRM accepted the rules, and is now the only publishing journal. The rules included:

- Copyright remains on the European PRM Bodies Alliance
- On-line Open Access
- Printed version for free, including only the White Book
- Publication in January 2018
- A PubMed entry for the whole WB including preface, introduction, executive summary and methodology
- Each chapter is published as a single PubMed entry with a common title as follows: White Book of PRM in Europe. “Title”. “Sub-title”

TABLE II.—*Review and revision process after the Consensus Conference in Munich.*

	Review	Revision
Fourth Review/revision	15-3-2017 Comments of the Consensus Conference 15-4-2017 Collection of references from all delegates and academicians	20-6-2017 editors on their chapter
Fourth Consensus Conference (editors)	30-6/1-7-2017 University Hospital Leuven (Belgium) Collective by editors on each single chapter	
August 2017	Distribution of final paragraphs to all delegates and academicians	
Fifth Consensus Conference (UEMS PRM Section Professional Practice Committee)	8-9-2017 Bratislava (Slovakia) On preface, executive summary, dictionary and methodology	
Autumn 2017	ESPRM, UEMS-PRM Section and Board voting in Bratislava	
November 2017	EARM voting in Hannover	
August-November 2017	Linguistic correction	

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— Recognition that the papers will be immediately linked on the website to the Journals, and that there will be a 2 years embargo before publishing the pdf on the European PRM Bodies Alliance website

The official launch will be during the ESPRM (with EARM and UEMS-PRM S&B) Meeting in Vilnius from 1 to 6 May 2018. The WB will be presented during the Opening Ceremony, and the various chapters will be presented as Lectures throughout the Meeting in the appropriate thematic sessions, so to constitute a “fil rouge” of the whole Conference. Also a world presentation is programmed and has been agreed with the International Society of PRM (ISPRM) from 8 to 12 July 2018 during the ISPRM Meeting in Paris.

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For this paper, the collective authorship name of European PRM Bodies Alliance includes:

- European Academy of Rehabilitation Medicine (EARM)
- European Society of Physical and Rehabilitation Medicine (ESPRM)
- European Union of Medical Specialists PRM section (UEMS-PRM section)
- European College of Physical and Rehabilitation Medicine (ECPRM) – served by the UEMS-PRM Board
- the Editors of the 3rd edition of the White Book of Physical and Rehabilitation Medicine in Europe: Stefano NEGRINI; Pedro CANTISTA; Maria Gabriella CERAVOLO; Nicolas CHRISTODOULOU; Alain DELARQUE; Christoph GUTENBRUNNER; Carlotte KIEKENS; Saša MOSLAVAC; Enrique VARELA-DONOSO; Anthony B. WARD; Mauro ZAMPOLINI
- the Presidents of the European PRM Bodies: Maria Gabriella CERAVOLO (President of the ECPRM and UEMS-PRM Board); Nicolas CHRISTODOULOU (President of UEMS-PRM Section); Alain DELARQUE (President of ESPRM); Xanthi MICHAIL (President of EARM)

Glossary

Activity	According to ICF is the execution of a task or action by an individual
Activity limitations	According to ICF are difficulties an individual may have in executing activities.
Acute phase	Refers to the period during an acute hospital admission following injury or illness, or after complex medical treatment or its complications. It can also apply to an acute event in a person with an established disability.
Adapted physical activity	Is defined as a cross disciplinary body of knowledge directed towards the identification and solution of individual differences in physical activity. It is a service delivery profession and an academic field of study which supports an attitude of acceptance of individual differences, advocates enhancing access to active lifestyles and sport, and promotes innovation and cooperative service delivery and empowerment systems. Adapted Physical Activity includes, but is not limited to, physical education, sport, recreation, and rehabilitation.
Applied research	Using existing knowledge, is directed towards specific goals such as the development of a new medication, a new medical device, or a new rehabilitation procedure
Aquatic therapy	Generic term that refers to all therapies that can be performed through water, regardless of the composition of this
Balneology	The branch of medical science concerned with the study of the therapeutic use of natural mineral waters, steam, gases and peloids. This use is called Balneotherapy and includes not only the application of baths but also other modalities such as drinking cures, inhalation and other complementary techniques (physical agents, environmental factors / Climatotherapy) giving it a character of a holistic and complex therapy approach.
Barriers	Environmental factors that reduce functioning / increase disability
Basic research (fundamental or pure research)	Is knowledge for knowledge, the study of a biomedical phenomena to have a full understanding of it.
Bed-blocker	Patient who has been approved for discharge from inpatient care, but has no alternative facility to which he or she can go, thus blocking use of that bed by other patients, especially by those with more acute disease or higher needs
Bibliomed	it is a Spanish Virtual Medical Library
Biomedical research	Involves the investigation of the biological process, the causes of diseases, their medical diagnosis, the evaluation of their consequences on functioning, disability and health at an individual and a societal level. Biomedical research evaluates also the effects of the PRM interventions at all these levels.
Biopsychosocial model	It is a health model developed in contrast to the widely applied biomedical one. It states that health and illness are determined by a dynamic interaction between biological (genetic, biochemical, etc.), psychological (mood, personality, behaviour, etc.) and social factors (cultural, familial, socioeconomic, medical, etc.). This also expresses the view that disease outcome is attributable to this complex interaction.
Body functions	According to ICF are physiological functions of body systems (including psychological functions).
Body structures	According to ICF are anatomical parts of the body such as organs, limbs and their components.
Capacity	According to ICF it is a qualifier that describes an individual's ability to execute a task or an action. This construct indicates the highest probable level of functioning of a person in a given domain at a given moment.
Chiropractic	School and current of manual therapy described by Palmer in the 19 th century by which small joint adjustments are performed in the body. It etymologically means „practice by hands“.
Clinical impact research	Is a new concept defined as a research field aiming to assess what are the impacts of healthcare and public health interventions targeted to persons with disabilities.
Committee on Publication Ethics (COPE)	Is a non-profit organization. The mission is to define best practice in the ethics of publishing.
Compensatory processes	Processes to adapt to the new (acquired) health condition using mechanisms based on other body structures/ functions, behavioural changes and/or assistive devices (prosthesis, orthosis or technical aids)
Contextual factors	Circumstances that may influence our life and health. Among contextual factors are external environmental factors and internal personal factors
Continuing Professional Development	The process of tracking and documenting the skills, knowledge and experience gained (by the PRM physician), both formally and informally during work experience, beyond any initial training.
Continuous Medical Education	Educational activities aimed at maintaining, developing or increasing the knowledge, skills and professional performance that the PRM physician uses when providing health services.
Cumulative Index to Nursing and Allied Health Literature (CINAHL)	Is an index of English-language and selected other-language journal articles about nursing, allied health, biomedicine and healthcare.

(To be continued)

Glossary (*continues*)

Current Contents	Is a rapid alerting service database from the Institute for Scientific Information, now part of Thomson Reuters that is published online and in several different printed subject sections.
Disability	Is a umbrella term, covering impairments, activity limitations and participation restrictions that may be defined as the problem a person has performing the actions that he or she needs and wants to do, because of how an underlying health condition – a disease, injury or even ageing – affects his or her performance in his or her actual environment.
Disease	A disorder of structure or function that produces specific symptoms or that affects a specific location and is not simply a direct result of physical injury
Environmental factors	Among contextual factors are the external factors (for example, social attitudes, architectural characteristics, legal and social structures, as well as climate, terrain and so forth)
European Disability Strategy 2010-2020	Strategy to increase the participation of people with disabilities in society and the economy, and enable them to fully exercise their rights
European Physical and Rehabilitation Medicine Bodies	The four European Physical and Rehabilitation Medicine Organizations: European Academy of Rehabilitation Medicine (EARM), European Society of Physical and Rehabilitation Medicine (ESPRM), European Union of Medical Specialists PRM Section (UEMS-PRM Section) and European PRM College (served by UEMS-PRM Board)
Extracorporeal shock waves therapy (ESWT)	Non-invasive surgical procedure that use abrupt, high amplitude pulses of mechanical energy, similar to soundwaves, generated by an electromagnetic coil or a spark in water to encourage the healing of some physical disorders (“Extracorporeal” means that the shockwaves are generated externally to the body and transmitted from a pad through the skin).
Facilitators	Environmental factors that improve functioning / increase disability
Functional assessment	Is the determination of a person’s level of function and ability to perform everyday tasks and requirements of living.
Function-centred	Any health care intervention aimed at improving/recovering body functions
Functioning	All that human bodies do and the actions that people perform. In the ICF, functioning is operationalised in terms of functioning domains, and these domains are partitioned into the dimensions of Body Functions and Structures, Activities and Participation. Functioning is a umbrella term describing the interaction between a person with a health condition and his or her environment (defined in the International Classification of Functioning, Disability and Health, WHO 2001)
Goal-directed (or goal-oriented or task-oriented)	It is said for exercises based on the practice of purposeful motor acts
Habilitation	Within PRM this term refers to the part of Rehabilitation dealing with growing age, when not all functions have been developed and when consequently diseases and impairments can negatively impact on the correct development of some otherwise normal functions
Health condition	The situation that interferes with health (diseases, disorders and injuries). In ICF disability and functioning are viewed as outcomes of interactions between health conditions (diseases, disorders and injuries) and contextual factors.
Holism	The treating of the whole person, taking into account mental and social factors, rather than just the symptoms of a disease. In PRM it is not used to justify scientifically unproven treatments, since: PRM is a primary medical specialty totally based on evidence
Impairments	According to ICF are problems in body function or structure such as a significant deviation or loss.
Implementation research	Evaluate health interventions at home, in “real world” settings
Inter disciplinary research	Is performed within teams including different disciplines or bodies of specialized knowledge
Learning processes	In PRM, new motor and behavioural strategies to be learned to counter-act disability and improve functioning in a specific health condition.
Lived health	Is a person’s level of functioning in his or her current environment and depends both on the person’s environment and biological health.
Long-term phase	Refers to the long-term period following the post-acute phase for people who are experiencing chronic disease and long-term disabilities or difficulties in functioning, when the situation is stabilized; emphasis lays on maintenance and secondary prevention.
Manual medicine	Discipline that incorporates all the valid methods of diagnosis, assessment and treatment that a duly qualified physician can carry out using preferably his expert hands. It includes both soft tissue and structural techniques.
Mechanotherapy	Modality of physical treatment devised by Zander in the 19 th century and consisting of the performance of therapeutic exercise through the use of mechanical devices.
Medical diagnosis	The classical process of diagnosis by Medical Doctors.

(*To be continued*)

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Glossary (*continues*)

MEDLINE	(Medical Literature Analysis and Retrieval System Online, or MEDLARS Online) is a bibliographic database of life sciences and biomedical information.
Collaborative team action	See below Physical and Rehabilitation Medicine team
Multimodal approach	Due to the focus on impairment, activity limitations and participation restrictions, the attention to personal factors and environmental factors, and the multi-professional team, the approach in PRM is rarely based on a single treatment. In PRM patients are usually treated with a broad range of therapies, provided by a broad range of health professionals. These can include, among others, exercise therapy, occupational therapy, speech therapy, neuropsychological treatments, behavioural therapies, physical therapies, manual therapies. Each patient is treated with a unique approach, according to his disease, impairments, activity limitations, participation restrictions, environmental and personal factors, in a totally multimodal and individualised approach.
Multi-professional	It is said of the rehabilitation team, whose members typically belong to different professional profiles (e.g. physiotherapists, speech therapists, occupational therapists, etc.).
Multi-professional team	See below Physical and Rehabilitation Medicine team
Neuroplasticity (or brain plasticity)	It is used to describe the life-long experience-driven remodelling of brain networks, especially occurring during childhood and immediately after a brain lesion.
Osteopathy	School and current of manual therapy created by Still in the 19 th century that evaluates and treats different physical disorders through joint adjustments. It etymologically means „the way of the bones“.
Participation	According to ICF is involvement in a life situation.
Participation restrictions	According to ICF are problems an individual may experience in involvement in life situations.
Patient classification system	Is a system to classify patients in homogeneous groups according to their needs of care and related financing.
Patient-centred	Any health care intervention aimed at improving the overall functioning /well-being of an individual
Peer counsellor	Is a person, with a health or disability status equal to that of the patient, who provides counselling including emotional and informational assistance and encouragement.
Performance	According to ICF it is a qualifier that describes what an individual does in his or her current environment. Since the current environment always includes the overall societal context, performance can also be understood as “involvement in a life situation” or “the lived experience” of people in their actual context.
Performance	What an individual does in his or her current environment. (Since the current environment always includes the overall societal context, performance can also be understood as “involvement in a life situation” or “the lived experience” of people in their actual context).
Personal factors	Among contextual factors are the internal factors which include gender, age, coping styles, social background, education, profession, past and current experience, overall behaviour pattern, character and other factors that influence how disability is experienced by the individual.
Physical agent	A form or a mean of physical energy application to living tissues in a systematic manner to alter physiologic processes, in conjunction with or for therapeutic purposes. Physical agents include different modalities such of thermal, acoustic, aqueous, mechanical, electrical, magnetic or light techniques. Etymologically it means “agents of nature” and in fact some of the physical agents are still applied without any modifications from their nature origin.
Physical and Rehabilitation Medicine	The actual definition of the specialty according to the White Book is: PRM is the primary medical specialty responsible for the prevention, medical diagnosis, treatment and rehabilitation management of persons of all ages with disabling health conditions and their 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.
Physical and Rehabilitation Medicine physician	Medical Doctor with the specialty in Physical and Rehabilitation Medicine. Physical and Rehabilitation Medicine specialist; the same as Physiatrist.
Physical Medicine	The part of Physical and Rehabilitation Medicine dealing with the application of Physical Modalities, including Diagnostic or Therapeutic techniques; it includes Therapeutic Exercises, since they are based on physical forces.
Physical Medicine and Rehabilitation	Old definition of the Specialty, still maintained in some countries out of Europe (notably US, but not only). It has now been substituted by Physical and Rehabilitation Medicine
Physical Modalities	Instruments used to apply physical external therapeutic forces. Sometimes also called Physical Therapy and/or Physiotherapy
Physical Therapy	The part of Physical and Rehabilitation Medicine dealing with the application of Physical Modalities. Sometimes also called Physiotherapy.

(*To be continued*)

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Glossary (continues)

Physiotherapist	Rehabilitation health professional practicing Physiotherapy. It is not a Medical Doctor. Not to be confused with Physical and Rehabilitation Medicine physician
Physiotherapy	One of the Physical and Rehabilitation Medicine areas or modalities of intervention, usually practiced by Physiotherapists. Sometimes also called Physical Therapy. In some cases some of these interventions are applied by PRM physicians.
Post-acute phase	Refers to the period following the acute phase after a sudden onset condition, when the patient is medically sufficiently stable; also patients with intermittent, progressive or stable conditions can benefit in phases of changing needs; in this phase the patient is still evolving.
Postgraduate	Usually, any academic course dedicated to individuals with a first-level degree. For medical doctors, it also includes learning and studying for achieving knowledge and skills in a specialized medical domain.
Potential of recovery	Due to the repairing processes, they are also linked to the individual and environmental factors; PRM physicians propose and plan rehabilitation if there is a potential of recovery (functional prognosis).
Pre-clinical trials	Involve experiment in cells and in non-human animal models.
Prehabilitation	An educational programme and pre-operative physical and/or psychological conditioning enhancing functional and mental capacity aimed at improving postoperative functional out-comes.
Primary research	Is an original first hand research; the publication of its results will be written by the person(s) who participated in the research.
Physical and Rehabilitation Medicine intervention	Is any diagnostic or therapeutic act or procedure related to the Field of competence of PRM.
PsycINFO	Is a database of abstracts of literature in the field of Psychology.
Rehab-cycle	Is the re-iterating process of assessment, assignment, intervention and evaluation of the rehabilitation needs and goals of a person.
Rehabilitation	A set of measures that assist individuals, who experience or are likely to experience disability, to achieve and maintain optimum functioning in interaction with their environments.
Rehabilitation Medicine	Name given to the specialty in some European countries, but not accepted internationally. Considered by some as the part of Physical and Rehabilitation Medicine dealing with rehabilitation excluding Physical Modalities and/or Physical Therapy: since rehabilitation is holistic and includes all evidence based treatments allowing to rehabilitate people experiencing disability, also Physical Modalities with evidence cannot be excluded.
Rehabilitation programme	A rehabilitation programme is the chronological list of diagnostic and therapeutic actions and interventions needed to respond to a patient's rehabilitation needs and goals; this can be for a specific phase or over the continuum of care.
Rehabilitation service	Rehabilitation services are personal and non-personal intangible products, offered to persons with a health condition experiencing or likely to experience disability, or to their informal care-givers within an organisational setting, in interaction between provider and person, addressing individual functioning needs that aim at enabling persons to achieve and maintain optimal functioning, considering the integration of other services addressing the individual's needs including health, social, labour and educational services, and delivered by rehabilitation professionals, other health professionals, or appropriately trained community-based workers.
Repairing processes	Ability of the body to recover from a disease, disorder or injury. They are mainly related to the quantity and natural history of diseases and impairments.
Robotic	Medical discipline whereby, using intelligent technological devices that interact with subjects and / or their environment, individuals are helped to train and recover a lost physical function.
Science Citation Index (SCI)	Is a citation index originally produced by the Institute for Scientific Information (ISI), covers more than 8,500 notable and significant journals, across 150 disciplines, from 1900 to the present.
SCImago	Is a Journal Rank (SJR indicator) that measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from.
Scopus	Is a bibliographic database containing abstracts and citations for academic journal articles covering nearly 22,000 titles from over 5,000 publishers, of which 20,000 are peer-reviewed journals in the scientific, technical, medical, and social sciences (including arts and humanities);
Secondary research	Is the analysis and interpretation of primary research publications in a field with a specific methodology. Cochrane Rehabilitation is an example of secondary research.
Sedbase	It is a drugs side effects database.
SPA-physician	Expert physician in natural mineral water, its effects in the body and management usually working in Thermal establishments or Balneotherapy units; when qualified (by acquiring in some European countries a specific specialty or competence), SPA- physicians are called Medical Hydrology Doctors (Hydrologists) or Balneology Doctors (Balneologists).

(To be continued)

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Glossary (continues)

Team-based	Any healthcare intervention delivered as the result of a shared decision making within the multi-professional team.
Thermal establishment	Place where medical treatments are carried out by means of natural mineral water.
Translational medical research	Research and development represent the transfer from basic research to commercially viable applications (from “bench to bedside”)
Triage	The selection and allocation of treatment to patients according to a system of priorities, based on the patients’ need of care designed to maximize the outcome.
UN Convention of Human Rights 2005	Implementation of Universal Declaration.
UN Universal Declaration of Human Rights	Governments’ commitment to progressive measures to secure the universal and effective recognition and observance of the human rights.
Undergraduate	The entry level of university students. It includes all the academic programs up to the level of a bachelor’s degree or, in case of medical students, of master’s degree.
Virtual reality	Discipline based on the use of computers and other devices, whose purpose is to produce an appearance of reality that allows the user to have the sensation of being present in it.
Vocational rehabilitation	Process which enables persons with functional, psychological, developmental, cognitive and emotional impairments or health disabilities to overcome barriers to accessing, maintaining or returning to employment or other useful occupation.
Walking laboratory	Measurement system that allows the monitoring as the ambulation develops, collecting information of all the aspects and characteristics of this
WHO Global Disability Action Plan	2014-2021 initiative for “Better health for all people with disability”

Physical and Rehabilitation Medicine team

In the literature dealing with team work and collaboration in rehabilitation, terms sometimes are used differently from their definition in scientific literature on team models and interaction between team members. Therefore, a clarification of terms is needed here.

In PRM literature the terms are mostly used to describe collaboration partners working together in the team:

- Multi-professional team: team consisting of multiple rehabilitation professionals (e.g. PRM, PT, OT, SLT and/or others)
- Inter-disciplinary collaboration: collaboration

among different medical specialties (e.g. PRM, trauma surgeon, neurologist, cardiologist and/or others)

The term “multi-professional team” will be used for a rehabilitation team consisting of different rehabilitation professionals, the term “interdisciplinary counselling” for collaboration of PRM physicians with other medical specialists and the term “collaborative team work” for a team working in an interdisciplinary, multidisciplinary or transdisciplinary way according to the setting and needs.

The Physical and Rehabilitation Medicine team is a multi-professional team working in collaborative way with other disciplines, under the leadership of a PRM physician.

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Abbreviations

ABI	Acquired Brain Injury
ABMS	American Board of Medical Specialties
ABPMR	American Board of Physical Medicine and Rehabilitation
ADL	Activities of Daily Living
APRM	Annals of Physical and Rehabilitation Medicine
ART	Acute Rehabilitation Team
ARU	Acute Rehabilitation Unit
ARUR	All Russian Union Rehabilitators
ASSIA	Applied Social Science Index & Abstracts
BNF-PRM	Baltic and North Sea Forum on Physical and Medical Rehabilitation
CAC	Clinical Affairs Committee of European Union of Medical Specialists - Physical and Rehabilitation Medicine Section
CARF	Commission on Accreditation of Rehabilitation Facilities
CBR	Community Based Rehabilitation
CCU	Critical Care Unit
CDP	Community Development Policy
CINHAL	Cumulative Index to Nursing and Allied Health Literature
CME	Continuing Medical Education
CNS	Central Nervous System
COPE	Committee on Publication Ethics
CPD	Continuing Professional Development
Cr	Clinical Rehabilitation (Journal)
CRPD	Convention on The Rights of Persons With Disabilities
CST	Classification. Terminology and Standards
Dalys	Disability-Adjusted Life-Years
DAR	Disability and Rehabilitation
EACCME	European Accreditation Council of Continuing Medical Education
EARM	European Academy of Rehabilitation Medicine
EBM	Evidence Based Medicine
EBPRM	European Board of Physical and Rehabilitation Medicine
ECMEC	European Continuing Medical Education Credit
ECPRM	European College of Physical and Rehabilitation Medicine
EEA	European Economic Area
EFPRM	European Federation of Physical Medicine and Rehabilitation
EJPRM	European Journal of Physical and Rehabilitation Medicine
EMRSS	Euromediterranean Rehabilitation Summer School Haim Ring in Syracuse
EPR	Early Physical Rehabilitation
ESM	European School Marseille
ESPRM	European Society of PRM
EU	European Union
FES	Functional Electrical Stimulation
Fin	Finland
FREDA	Freedom, Respect, Equality, Dignity, Autonomy
GDP	Gross Domestic Product
Ger	Germany
GMC(UK)	UK General Medical Council
HALE	Healthy Life Expectancy
IBECs	Indice Bibliográfico Español en Ciencias de la Salud (Spanish Bibliographic Index in Health Sciences)
ICD	International Classification of Diseases, Produced By The World Health Organization
ICF	International Classification of Functioning, Disability and Health
ICHI	International Classification of Health Interventions
ICIDH	International Classification of Impairments, Disabilities and Handicaps Produced By The World Health Organization
ICSO-R	International Classification of Service Organisations For Rehabilitation
ICT	Information and Communication Technologies
ICU	Intensive Care Unit
IJRR	International Journal of Rehabilitation Research
Insci	International Survey on Spinal Cord Injury
INSERM	French National Institute For Health and Medical Research

(To be continued)

Abbreviations (*continues*)

ISPRM	International Society of PRM
JPRM	Journal of Physical and Rehabilitation Medicine
JRM	Journal of Rehabilitation Medicine
LOS	Length of Stay
Madr	Madrid
MCQ	Multiple Choice Questions
MFPRM	Mediterranean Forum of Physical and Rehabilitation Medicine
NGO	Non-Governmental Organization
NMES	Neuro-Muscular Electrical Stimulation
OT	Occupational Therapy/Occupational Therapist
PhD	Doctor of Philosophy (Latin Philosophiae Doctor)
PPC	Professional Practice Committee of European Union of Medical Specialists - Physical and Rehabilitation Medicine Section
PR	Pulmonary Rehabilitation
PRM	Physical and Rehabilitation Medicine
PT	Physical Therapy
QoL	Quality of Life
RAT	Rehabilitation Advisory Team
RCT	Randomized Controlled Trial
RFO	European Research Funding Organizations
RM	Rehabilitación (Madr.)
RPO	Research Performing Organizations
SALT	Speech and Language Therapy
SCI	Spinal Cord Injury
Scot	Scotland
SERMEF	Sociedad Española de Rehabilitación y Medicina Física (Spanish Society of Rehabilitation and Physical Medicine)
SIMFER	Società Italiana di Medicina Fisica e Riabilitazione
Slo	Slovenia
SLT	Speech and Language Therapy/ Speech and Language Therapist
SPA	“Salus Per Aquam”. Health Through The Water
Swisci	Swiss Spinal Cord Injury Cohort Study
TBI	Traumatic Brain Injury
TENS	Transcutaneous Electrical Nerve Stimulation
TMS	Transcranial Magnetic Stimulation
UEMS	Union Européenne Des Médecins Spécialistes - European Union of Medical Specialists
UN	United Nations
UNCRPD	United Nations Convention on Rights of Persons With Disabilities
UV	Ultra Violet (Radiation)
VR	Vocational Rehabilitation
WB	White Book of Physical and Rehabilitation Medicine in Europe
WHO	World Health Organization
WRD	World Report on Disability