



## EVALUATION OF THE TOPIC LISTS USED IN TWO WORLD CONGRESSES (2015 AND 2016) IN PHYSICAL AND REHABILITATION MEDICINE

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**Background:** Evaluation of the initial list of proposed abstract topics for Congresses of Physical and Rehabilitation Medicine (PRM) was needed in order to ensure its feasibility for use in future congress announcements and invitations for abstract submission.

**Methods:** The initial proposals were based on 5 main areas of PRM research: biosciences in rehabilitation, biomedical rehabilitation sciences and engineering, clinical PRM sciences, integrative rehabilitation sciences, and human functioning sciences. This list became a model for structuring the abstracts for the 9<sup>th</sup> and 10<sup>th</sup> World Congresses of PRM, held in Berlin, Germany (2015) and Kuala Lumpur, Malaysia (2016), respectively. The next step was to evaluate the implementation of this model in both congresses.

**Results:** It was found that the 5 main research areas were still used as the main principles (chapters) in which to organize the abstracts. However, some modifications have been made to cover topics that were not included in the initial proposal.

**Conclusion:** A more comprehensive list of topics has been developed, not only for topic list announcements, but also for the structuring and classification of abstracts for future international, regional or national PRM congresses.

**Key words:** Physical and Rehabilitation Medicine; World Congresses; scientific field; research topics.

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The scientific field of Physical and Rehabilitation Medicine (PRM) is very broad. In addition to clinical trials on the effectiveness and efficacy of PRM interventions, it includes research on biomedicine of disabling health conditions and interventions, and on rehabilitation technology and effects of interventions. In addition, science in PRM includes theories and models on disability and rehabilitation, as well as the development of rehabilitation services and programmes. This broad field creates a challenge regarding communication among scientists and with the public,

setting up the programmes of PRM congresses, and structuring publications (e.g. scientific journals, scientific web platforms).

In 2007, Stucki & Grimby (1) published a model to structure the scientific field of PRM within 2 axes: from cell to society and from basic sciences, applied sciences to professional (clinical) sciences. In order to make this concept applicable to structuring PRM sciences in congress journals and for other purposes, a topic list has been developed, published by Gutenbrunner et al. (2). This topic list was developed according to a consensus process between senior experts in the field, based on the description of the scientific field of PRM (3), proposal for continuous streams in PRM congresses (4), abstract topic list for international PRM congresses (5) and an analysis of topics for the 2003 International Society of Physical and Rehabilitation Medicine (ISPRM) World Congress (Prague, Czech Republic) (6). The list was intended for use in grouping PRM research publications and papers, e.g. in international PRM congresses and journals. It has subsequently been applied to the abstract submission process of the 9<sup>th</sup> World Congress of ISPRM in Berlin (Germany). After reflecting on the congress in Berlin, this method was also applied in the 10<sup>th</sup> World Congress of ISPRM in Kuala Lumpur (Malaysia). Based on experience of this application, some modifications are now proposed for application in future international, regional or national PRM congresses.

The authors of the initial topic list stated that there is a need to test and evaluate this list. This was done by evaluating its feasibility for use in structuring the abstracts of the 9<sup>th</sup> World Congress of the ISPRM held in June 2015 in Berlin, Germany (7), and the 10<sup>th</sup> World Congress of the ISPRM in May–June 2016, in Kuala Lumpur, Malaysia (8). From the results of this evaluation some corrections and amendments were made to the first list, both as consideration of the main principles (chapters) and based on data evaluation.

### METHODS

#### *Consideration of principals*

As in the field of PRM, many studies not only address a specific health condition, but also refer to a specific

functioning issue and at the same time apply an intervention. This results in the possibility of classifying a study or paper under the dimension of health condition, functioning category, or type of intervention. This also applies to health systems research dealing with a specific phase of healthcare, type of services and group of patients. For scientific programme committees, this results in difficulties in regrouping the abstracts for the programme and arranging them in a meaningful order. In order to make this process precise and transparent a multiple classification of the abstracts may be useful.

### Classification methodology

A. Abstract handling of the 9<sup>th</sup> and 10<sup>th</sup> World Congress of ISPRM was organized as follows:

1. The congress announcement was structured according to the PRM Topic List (2);
2. Authors submitting abstracts had to propose which topic the abstract fitted best;
3. All abstracts were reviewed and evaluated by 2 members of the International Scientific Congress Committee, selected from ISPRM World areas (9). The reviewers checked the classification of the topic and modified it if necessary;
4. Results of the classifications were reviewed by the congress President and General Secretary, who were responsible for programme structure. If some abstracts fitted more than one topic a decision was made as to which one was used to assign the presentation to the congress sessions. If the theme of the abstract could not be properly classified new topics were added to the list. Statistical analysis of the use of single areas and topics was performed.

B. Using the results of the evaluation and in light of the above-mentioned principal considerations the ISPRM Scientific Topic List was updated by:

1. Adding some topics/subtopics that have been used frequently by authors but were missing in the first draft;
2. Rearranging some topics into different areas and regrouping;
3. Correcting some terms that could lead to misunderstanding.

## RESULTS

### Evaluation of abstracts submitted to the 9<sup>th</sup> and 10<sup>th</sup> World Congresses of the ISPRM

On the occasion of the 9<sup>th</sup> World Congress of the ISPRM in Berlin, 1,925 abstracts were received from 83 countries. Following a review process, 1,360 abstract were accepted for presentation, either for oral or poster

presentation. For the 10<sup>th</sup> World Congress of the ISPRM in Kuala Lumpur, abstracts were received from 66 countries. The review process resulted in 1,121 abstracts being accepted either for oral or poster presentation.

### Total number and proportion of abstracts in the 5 areas in both congresses

The proportion of abstracts in each of the 5 areas in both congresses is shown in Table I. The Table shows that the distribution of abstracts in the 5 areas is similar. Moreover, there was consistency in the 2 congresses between the proportion of presentations in each area (A: Clinical PRM Sciences; B: Biosciences in Rehabilitation; C: Biomedical Rehabilitation Sciences and Engineering, etc.). The overview of numbers and proportions of all abstracts in both congresses is shown in Table SI<sup>1</sup>. The table illustrates overall accepted abstracts classified into scientific area, topics or sub-topics. Most abstracts could be classified into either topics or sub-topics; however, abstracts that could not be classified into the topics and subtopics were classified into represented scientific area (e.g. abstracts in the Berlin Congress that classified into B. Biosciences in Rehabilitation and E. Human Functioning Sciences).

### Proposal for an updated topic list

Based on above-described principal considerations and evaluation of the use of the initially proposed topic list (2) the updated list for scientific PRM topic list was derived (Table II; *substantial changes underlined*). This proposal includes topics that are not mentioned in the initial proposal and an improved systematic order of topics.

### Short list of topics

For ease of reading and use, a short list of topics is shown in Table III. This list presents each scientific

<sup>1</sup><http://www.medicaljournals.se/jrm/content/?doi=10.2340/16501977-2232>

**Table I.** Summary of total number and proportion of abstracts in the 5 areas of 2 congresses

Area	Berlin (2015) n (%)	Kuala Lumpur (2016) n (%)
A. Clinical Physical and Rehabilitation Medicine Sciences	720 (69.6)	836 (74.5)
B. Biosciences in Rehabilitation	49 (3.6)	44 (3.9)
C. Biomedical Rehabilitation Sciences and Engineering	188 (13.7)	101 (9)
D. Integrative rehabilitation sciences	103 (7.6)	84 (7.5)
E. Human Functioning Sciences	61 (4.9)	34 (3.1)
X, Case studies, dysphagia, not classified	8 (0.6)	22 (2.0)
Total	1,129 (100)	1,121 (100)

**Table II.** Classification methodology (substantial changes underlined)*A. Clinical Physical and Rehabilitation Medicine Sciences*

Description: the clinical rehabilitation Sciences study how to provide best care with the goal of enabling people with health conditions experiencing or likely to experience disability to achieve and maintain optimal functioning in interaction with their immediate environment. It contains clinical research on best care including guidelines and standards, organization and quality management. No. A.1. to A.5. relate to specific health conditions; A.6. to A.11. to functioning issues and related rehabilitation goals

A.1. Pain<sup>a</sup>

- A.1.1. Acute pain
- A.1.2. Chronic generalized pain syndromes (including fibromyalgia)
- A.1.3. Complex regional pain syndromes
- A.1.4. Miscellaneous

## A.2. Musculoskeletal conditions

- A.2.1. Inflammatory joint diseases (e.g. rheumatoid arthritis, ankylosing spondylitis)
- A.2.2. Degenerative joint diseases (e.g. osteoarthritis)<sup>b</sup>
- A.2.3. Bone diseases (e.g. osteoporosis)
- A.2.4. Local and regional pain syndromes of the neck and upper extremity (including enthesopathy, tendinitis and others)
- A.2.5. Local and regional pain syndromes of the pelvis and lower extremity (including enthesopathy, tendinitis and others)
- A.2.6. Back pain and spine disorders
- A.2.7. Sports injury
- A.2.8. Miscellaneous

A.3. Health conditions of the nervous system

- A.3.1. Stroke
- A.3.2. Traumatic brain injury
- A.3.3. Spinal cord injury and other spinal cord diseases
- A.3.4. Autoimmune and inflammatory neurological conditions (e.g. multiple sclerosis)
- A.3.5. Neurodegenerative diseases (e.g. Parkinson's disease, dementia)
- A.3.6. Peripheral nerve injury
- A.3.7. Neuromuscular disorders
- A.3.8. Vegetative states, minimally conscious and low awareness states
- A.3.9. Miscellaneous

A.4. Mental health conditions

- A.4.1. Anxiety, depression, bipolar disorders
- A.4.2. Learning disabilities
- A.4.3. Addiction disorder
- A.4.4. Other mental health conditions

A.5. Internal medicine and related conditions

- A.5.1. Heart and cardiovascular system
- A.5.2. Diseases of the lymphatic system
- A.5.3. Pulmonary diseases
- A.5.4. Oro-laryngeal-pharyngeal diseases
- A.5.5. Metabolic disorders (e.g. obesity, diabetes mellitus)
- A.5.6. Cancer
- A.5.7. Infectious diseases
- A.5.8. Skin disorder and allergies
- A.5.9. Uro-gynaecological disorders (including bladder and bowel disorders)
- A.5.10. Miscellaneous

A.6. Post-surgery and post-traumatic rehabilitation<sup>c</sup>

- A.6.1. Multiple trauma
- A.6.2. Musculoskeletal injury, bone fractures
- A.6.3. Reconstructive surgery (e.g. tendon-transfer surgery)
- A.6.4. Burn injury
- A.6.5. Organ transplantation
- A.6.6. Joint arthroplasty/joint replacement
- A.6.7. Limb amputation
- A.6.8. Miscellaneous

A.7. Rehabilitation for children and youth

- A.7.1. Developmental disorders
- A.7.2. Cerebral palsy
- A.7.3. Spina bifida
- A.7.4. Traumatic brain injury in children
- A.7.5. Juvenile rheumatoid arthritis
- A.7.6. Infectious diseases in children and youth
- A.7.7. Autism and other mental disorders in children (including attention deficit disorder)
- A.7.8. Peripheral nerve injury
- A.7.9. Neuromuscular disorders
- A.7.10. Miscellaneous

A.8. Rehabilitation for people with old age<sup>d</sup>

- A.8.1. Dementia
- A.8.2. Frailty
- A.8.3. Sarcopenia
- A.8.4. Mood dysfunction in the elderly
- A.8.5. Risk of falls in the elderly
- A.8.6. Other geriatric conditions

A.9. Rehabilitation for rare (orphan) diseases<sup>e</sup>

**Table II.** cont

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- A.10. Rehabilitation addressing to specific functioning issues
  - A.10.1. Visual impairment and blindness
  - A.10.2. Auditory impairment and deaf
  - A.10.3. Speech and language dysfunction(including mute)
  - A.10.4. Sensory and motor control (including postural control, balance)
  - A.10.5. Management of spasticity
  - A.10.6. Management of hemiplegia and paraplegia
  - A.10.7. Management of dysphagia
  - A.10.8. Respiratory impairment (incl. management of patients with artificial ventilation and weaning)
  - A.10.9. Malnutrition in rehabilitation
  - A.10.10. Sphincter dysfunction (including incontinence)
  - A.10.11. Management of wound and pressure sores
  - A.10.12. Management of fatigue and sleep disorders
  - A.10.13. Rehabilitation of disability-related mental dysfunction (e.g. depression, anxiety)
  - A.10.14. Sexual functioning in people with disability and chronic health conditions
  - A.10.15. Other specific functions
  - A.11. Sports rehabilitation
  - A.12. Miscellaneous

**B. Biosciences in Rehabilitation**

Description: the Biosciences in rehabilitation are basic sciences that aim to explain body injury, adaptation and repair from the molecular to the cellular, organ system and organism level; and to identify targets for biomedical interventions to improve body functions and structures.

- B.1. Mechanisms of tissue injury (e.g. inflammation, repetitive strain) and development of organ dysfunction (e.g. atrophy, spasticity, chronic pain)
- B.2. Cell and tissue adaptation and mal-adaptation (e.g. plasticity, molecular mechanisms and mediators)
- B.3. Autonomous regulation (incl. HPA-Axis, hormonal regulation systems)
- B.4. Biological mechanism of interventions (e.g. pain relief, motor learning)
- B.5. Miscellaneous

**C. Biomedical Rehabilitation Sciences and Engineering**

Description: the Biomedical rehabilitation sciences and engineering are applied sciences that study diagnostic measures and interventions including physical modalities suitable to minimize impairment, control symptoms and to optimize people's capacity.

- C.1. Physical and Rehabilitation Medicine (PRM) diagnostics (e.g. cardio-vascular functions and physical endurance, lung function testing, or imaging techniques) as related to organ systems and body functions (based on the first level of the International Classification of Functioning, Disability and Health (ICF) component body functions)
    - C.1.1. Diagnosis and assessment of mental functions (including neuropsychological assessment)
    - C.1.2. Diagnosis and assessment of sensory functions and pain
    - C.1.3. Diagnosis and assessment of voice and speech functions
    - C.1.4. Diagnosis and assessment of functions of the cardiovascular, haematological, immunological, and respiratory systems
    - C.1.5. Diagnosis and assessment of functions of the digestive, swallowing, metabolic, and endocrine systems
    - C.1.6. Diagnosis and assessment of genitourinary and reproductive functions
    - C.1.7. Diagnosis and assessment of neurological, musculoskeletal and movement related functions (including gait analysis, posturography, electrophysiology, ultrasound)
    - C.1.8. Diagnosis and assessment of functions of the skin and related structures
    - C.1.9. Assessment of outcome measures, health perception and quality of life
    - C.1.10. Miscellaneous
  - C.2. PRM interventions research
    - C.2.1. Exercise
    - C.2.2. Muscle training
    - C.2.3. Ergonomics
    - C.2.4. Joint mobilization and manipulation techniques
    - C.2.5. Prosthetics and orthotics
    - C.2.6. Massage and myofascial techniques
    - C.2.7. Vibration and other mechanical stimulation
    - C.2.8. Transcranial magnetic stimulation
    - C.2.9. Lymph therapy (manual lymphatic drainage)
    - C.2.10. Heat and cold
    - C.2.11. Hydrotherapy and balneotherapy
    - C.2.12. Light (including UV)
    - C.2.13. Climatotherapy
    - C.2.14. Electrotherapy (including functional electrophysiological stimulation)
    - C.2.15. Pharmacological interventions (e.g. for pain, spasticity, anti-inflammatory drugs)
    - C.2.16. Nerve root blockades and local infiltrations
    - C.2.17. Acupuncture and complementary and alternative therapies
    - C.2.18. Nutrition and diet
    - C.2.19. Virtual reality
    - C.2.20. Rehabilitation technology, including implants, prosthesis, orthoses
    - C.2.21. Robots, aids and devices
    - C.2.22. Sports in rehabilitation
    - C.2.23. Injection techniques and infiltrations
    - C.2.24. Surgical interventions in rehabilitation
    - C.2.25. Patient and family education
    - C.2.26. Miscellaneous
  - C.3. Comprehensive rehabilitation program (continuum of care research)
    - C.3.1. Acute and early post-acute rehabilitation programs
    - C.3.2. Post-acute rehabilitation programs
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Table II. cont

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C.3.3. Long-term rehabilitation programs

C.3.4. Intermittent (boost) rehabilitation programs for chronic conditions

C.3.5. Programs for prevention of disability

C.3.6. Miscellaneous

C.4. Miscellaneous

*D. Integrative Rehabilitation Sciences*

Description: The Integrative rehabilitation sciences design and study rehabilitation systems, services, comprehensive assessments and intervention programmes, which integrate biomedical, personal factor and environmental approaches suited to optimize people's performance. This section includes the principles and contents of education and training of professionals in rehabilitation, as well as the evaluation of the rehabilitation team and multidisciplinary care.

D.1. Rehabilitation systems and services research

D.1.1. Health policy and law (including medical and social model of disability and rehabilitation)

D.1.2. Health strategies in Physical and Rehabilitation Medicine

D.1.3. Rehabilitation service organization

D.1.4. Rehabilitation economics

D.1.5. Community-based participation research

D.1.6. Miscellaneous

D.2. Comprehensive rehabilitation intervention research

D.2.1. Rehabilitation service evaluation (including acute, post-acute and community rehabilitation services)

D.2.2. Rehabilitation programme evaluation (e.g. home-based rehabilitation)

D.2.3. Rehabilitation technology assessment (e.g. telerehabilitation)

D.2.4. Rehabilitation strategies for specific issues (including rehabilitation strategies for developing countries and rehabilitation after natural disasters)

D.2.5. Technology transfer

D.2.6. Patient and proxy education

D.2.7. Miscellaneous

D.3. Social integration programmes and rehabilitation for specific socio-economic needs

D.3.1. Community based rehabilitation policy and management

D.3.2. Vocational rehabilitation

D.3.3. Support, assistance and independent living

D.3.4. Disability compensation

D.3.5. Miscellaneous

D.4. Education and training in rehabilitation

D.4.1. Undergraduate medical education

D.4.2. Specialist training

D.4.3. Continuous medical education and professional development

D.4.4. Training in science and research

D.4.5. Training of other rehabilitation professionals

D.4.6. Miscellaneous

D.5. Rehabilitation management and administration

D.5.1. Rehabilitation service management (including integrated care and service concepts)

D.5.2. Case management

D.5.3. Structures and processes in rehabilitation institutions

D.5.4. Miscellaneous

D.6. Miscellaneous

*E. Human Functioning Sciences*

Description: The human Functioning Sciences are basic sciences from the comprehensive perspective that aim to understand human functioning and to identify targets for comprehensive interventions.

E.1. Theories and models of functioning

E.2. Classification of functioning (e.g. ICF core Sets; ICF up-date and revision)

E.3. Measurement of functioning (e.g. psychometrics of assessment tools; operationalization of ICF categories)

E.4. Functioning epidemiology (population-based comparative studies of functioning across conditions, cultures, and time, e.g. on employment of people with disability)

E.5. Functioning impact assessment (e.g. prediction of the implications of policy and legislation on functioning)

E.6. Ethical issues and human rights

E.7. Cultural aspects of disability and rehabilitation (e.g. cultural influences, societal attitudes, religious beliefs)

E.8. Miscellaneous

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<sup>a</sup>Pain can be classified both as a health condition and a body function. <sup>b</sup>Arthroplasty/joint replacement is classified under post-surgery rehabilitation. <sup>c</sup>Traumatic brain injury and spinal cord injury under conditions of the nervous system. <sup>d</sup>This chapter also includes functioning issues. <sup>e</sup>Including case reports of specific rehabilitation issues.

area and topic within these areas without sub-topics. This short list can be used in congress announcements.

## DISCUSSION

Based on experience of using the topic list to structure abstract submission for a World Congress of Physical and Rehabilitation Medicine a meaningful grouping of topics and support to structure the programme with homogeneous sessions was developed. This confirms

that the concept is a meaningful tool to classify topics within the broad field of PRM.

As expected, the distribution of topics in both the 9<sup>th</sup> and 10<sup>th</sup> World Congresses of ISPRM was not equal among different topics, and topics such as Neurological and mental health conditions (A.3), PRM interventions research (C.2), and Musculoskeletal conditions (A.2), Paediatrics (A.5), and PRM diagnostics related to organ system and body functions (C.1) included the highest number of submitted abstracts.



**Table III.** Short list of topics. The underlining texts (topics) are the substantial changes that are not covered on previous topic list

A. Clinical PRM Sciences
A.1. Pain
A.2. Musculoskeletal conditions
A.3. <u>Health conditions of the nervous system</u>
A.4. <u>Mental health conditions</u>
A.5. Internal medicine and related conditions
A.6. <u>Post-surgery and post-traumatic rehabilitation</u>
A.7. <u>Rehabilitation for children and youth</u>
A.8. <u>Rehabilitation for people with old age</u>
A.9. <u>Rehabilitation for rare (orphan) diseases</u>
A.10. Rehabilitation addressing to specific functioning issues
A.11. Sports rehabilitation
A.12. Miscellaneous
B. Biosciences in PRM
B.1. Mechanisms of tissue injury and development of organ dysfunction
B.2. Cell and tissue adaptation and mal-adaptation
B.3. <u>Autonomous regulation</u>
B.4. Biological mechanism of interventions
B.5. Miscellaneous
C. Biomedical Rehabilitation Sciences and Engineering
C.1. Physical and Rehabilitation Medicine (PRM) diagnostics as related to organ systems and body functions
C.2. PRM interventions research
C.3. <u>Comprehensive rehabilitation programs research</u>
C.4. Miscellaneous
D. Integrative Rehabilitation Sciences
D.1. Rehabilitation systems and services research
D.2. Comprehensive rehabilitation intervention research
D.3. <u>Social integration programmes and rehabilitation for specific socio-economic needs</u>
D.4. Education and training in rehabilitation
D.5. Rehabilitation management and administration
D.6. Miscellaneous
E. Human Functioning Sciences
E.1. Theories and models of functioning
E.2. Classification of functioning
E.3. Measurement of functioning
E.4. Functioning epidemiology
E.5. Functioning impact assessment
E.6. Ethical issues and human rights
E.7. <u>Cultural aspects of disability and rehabilitation</u>
E.8. Miscellaneous

On the other hand, in the 2 congresses there was consistency between the proportions of presentations in each area (A: Clinical PRM Sciences; B: Biosciences in Rehabilitation; etc.) (see Table I), and even in some topics, e.g. topic Pain (A.1: in Berlin: 5.3%; in Kuala Lumpur: 6.0%), Musculoskeletal conditions (A.2: in Berlin: 16.6%, in Kuala Lumpur: 18.7%) and Internal medicine and other condition (A.4: in Berlin 7.2; in Kuala Lumpur: 7.3%). This result might be used as a preliminary hint for the organizers, in order to foresee the relative size of areas and some topics, and thus accordingly organize the first timetable with sessions.

However, application of the first version of the scientific topic list revealed some weaknesses, with some missing topics (e.g. dysphagia, rare (orphan) diseases, skin disorder and allergies, myopathies) and some unclear classifications (e.g. mental health conditions), although the miscellaneous option was often available. Along the same lines, some differences between the Berlin and Kuala Lumpur congresses in number/per-

centage of some subtopics (e.g. C.2 PRM Intervention Research) were probably due to: (a) different methods (and probable difficulty) of classifying them, due to different perceptions of how the abstracts should be classified (some classification guidelines from the scientific committee are always recommended); and (b) different research interests between persons attending the 2 congresses, held in different world regions (Europe vs. Asia).

Last, but not least, it became clear that much research can be classified into different dimensions, such as those linked to diseases, functions, and/or interventions. Thus, as discussed in the first proposal (2), the topics in the list are not mutually exclusive but multidimensional classification is possible. Therefore, for submission of abstracts to congresses, it is recommended that submitting authors are allowed to classify their abstracts in up to 3 dimensions and/or topics (e.g. related to the health condition(s), the area of functioning and the intervention, or to health services and health condition), adding a preference ranking for their classification. This gives congress organizers a certain freedom to arrange and merge the studies in a meaningful way (important and relevant), including when organizing the congress sessions.

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