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SPECIAL ARTICLE

The standards and tools of the European Union of Medical Specialists Physical and Rehabilitation Medicine Section and Board for rehabilitation management and care: an evidence brief for rehabilitation practitioners

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ABSTRACT

In line with the World Health Organization's Rehabilitation 2030 initiative that led to its landmark resolution on rehabilitation, the Physical and Rehabilitation Medicine (PRM) Section and Board of the European Union of Medical Specialists have been developing functioning-based standards and tools using the International Classification of Functioning, Disability and Health (ICF) as a reference framework the past few years. This evidence brief aims to enable rehabilitation practitioners to implement these functioning-based standards and tools in rehabilitation care, management, and programming by clarifying functioning as the foundational concept for rehabilitation, introducing the functioning-based standards and tools and presenting concrete applications. This evidence brief also calls for the continuous development of these standards and tools and discusses the implementation challenges and opportunities in the context of the interaction between practice, science and governance.

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KEY WORDS: Functioning; International Classification of Functioning, Disability and Health; Rehabilitation; Delivery of health care; Standard of care.

The World Health Organization's (WHO) Rehabilitation 2030 initiative[1, 2] and the World Health Assembly landmark resolution on rehabilitation ("WHA Resolution" from now on)[3] calls for strengthening rehabilitation in health systems. In response to this call, the Physical and Rehabilitation Medicine (PRM) Section and Board of the European Union of Medical Specialists (UEMS-PRM) have been developing functioning-based standards and

tools for rehabilitation management and care since 2017.[4] This development initiative was built upon a longstanding and wide-ranging effort of PRM organizations, including UEMS-PRM Section and Board, the International Society of PRM (ISPRM), the European Society of PRM (ESPRM) and the European Academy of Rehabilitation Medicine (EARM) to integrate functioning information in PRM practice and employ the concept of functioning as the foundation for the standards and tools presented in this evidence brief.[4, 5]

The aim of this evidence brief is to enable rehabilitation practitioners to implement the functioning-based standards and tools developed by UEMS-PRM Section and Board in rehabilitation care, management and programming by clarifying functioning as the foundational concept for rehabilitation practice and management, introducing the functioning-based standards and tools and presenting concrete applications. In this evidence brief, we, on behalf of the UEMS-PRM Section and Board, also call for the continuous development of these standards and tools and discuss the implementation challenges in the context of the interaction between practice, science and governance.

Functioning as the foundational concept for rehabilitation practice and management

As rehabilitation aims to optimize patient functioning,[3, 6, 7] both Rehabilitation 2030 and the WHA Resolution recognize the central role functioning plays in the health system's response to patient needs. Functioning, sometimes called "functional status" or "functions", goes beyond the diagnosis and how the health condition manifests itself in bodily or mental impairments. It reflects the dynamic interaction between a person's health condition, how well the person's body functions (*e.g.* sleep quality, bodily sensations, muscle tone) work, the integrity of the body structures and organs, and the extent the person performs (or is able to perform) everyday activities (*e.g.* self-care, wheelchair use), and can participate in society (*e.g.* work, community events), given the person's physical and social environment (*e.g.* assistive devices, building accessibility, family).[8] The biopsychosocial components of this interaction can be operationalized with WHO's International Classification of Functioning, Disability and Health (ICF).[8] According to the WHA Resolution, the ICF "provides a standard language and a conceptual basis for the definition and measurement of health, functioning and disability", and it is recommended that the ICF be used "to collect information relevant to rehabilitation, including system-level rehabilitation data, and information on functioning."[3]

One response to this recommendation is the development of functioning-based standards and tools to support collaborative and patient-oriented rehabilitation management and care at all levels of healthcare and across the care continuum,[9-20] in research[21, 22] and rehabilitation quality management,[4, 23-28] and is an essential element of academic capacity building in rehabilitation.[29] Before the WHA Resolution was published, UEMS-PRM Section and Board embarked on an initiative to develop a set of functioning-based standards and tools using the ICF as the reference framework and to collaborate with other international PRM bodies.

Presentation of the functioning-based standards and tools

UEMS-PRM Section and Board's initiative to develop functioning-based standards and tools was kicked off by the 2017 paper "Practice, science and governance in interaction: European effort for the system-wide implementation of the ICF in PRM."[4] This paper presented an action plan for systemwide implementation of the ICF in Europe comprising intertwining activities that included the development of a framework of rehabilitation service types ("European Framework" from now on),[27] a clinical assessment schedule (CLAS) for each of the rehabilitation service types,[30] an ICF-based clinical tool[14] and an individual rehabilitation project[18] for use in patient-centered assessment and reporting of patient functioning, rehabilitation needs and prognosis. These standards and tools have now been developed and are available and accessible (published in open access). See Table I for a short description of these standards and tools.[14, 18, 20, 27, 30, 31]

First efforts to modify these functioning-based standards and tools for the national context and for specific purposes have also been undertaken, *e.g.*, development of the framework of rehabilitation service types for spinal cord injury (SCI) rehabilitation in Switzerland.[26]

Complementary to the functioning-based standards and tools developed by UEMS-PRM Section and Board, there are other standards and tools being managed under the auspices of other PRM organizations, namely ISPRM, with the support of UEMS-PRM Section and Board: the Clinical Functioning Information Tool (ClinFIT)[14, 20] and the International Classification of Service Organization in Rehabilitation (ICSO-R) 2.0.[31, 38] These standards and tools are also briefly described in Table I.

Table I.—*Short description of the functioning-based standards and tools and their applicability at various health system levels.*[14, 18, 20, 27, 30, 31]

Standard/Tool	Description	Micro	Meso	Macro
European framework of rehabilitation service types (European Framework)[27]	• A typology of 14 types of rehabilitation services that are being provided in a specific healthcare facility or in a country across the care continuum. • Specifically developed for Europe but may be applicable for other geographical contexts. • Supports the development and continuous improvement of rehabilitation services by providing a framework for standardizing the reporting of functioning outcomes, that, in turn, facilitates the comparison of services across facilities and countries.		✓	✓
Clinical assessment schedule (CLAS)[30]	• A specification of the aspects of functioning (employing ICF Core Sets[32] and ICF generic sets[11, 33]) for the assessment and documentation of functioning of specific patient groups for each European Framework service type. • Ideally indicates the timepoint(s) when to assess and the assessment tools to use. • Supports the planning of clinical assessments and guides the reporting of patient functioning.	✓	✓	✓
Individual Rehabilitation Project (IRP)[18]	• A comprehensive, multi-element scheme for providing interdisciplinary rehabilitation care. • Has a start and an end, comprising basic information, *e.g.*, rehabilitation service type, referral and patient information, variables related to the Rehab-Cycle, *e.g.*, short and long-term goals, and discharge information, *e.g.* results of pre-discharge assessments. • To be established for each individual patient and for each rehabilitation service the patient is engaged in, whereby incorporating relevant information in the IRP of one service into the IRP of the subsequent service across the care continuum. • Supports the individualized documentation of a patient's functioning outcomes, rehabilitation needs and prognosis.	✓	✓	
Clinical Functioning Information Tool (ClinFIT)[14, 20]	• A universal ICF-based tool for assessing the functioning of individual rehabilitation patients in a clinical setting irrespective of health condition. • Generally comprises the 30 ICF Generic-30 Set categories (previously called "Rehabilitation Set")[11] with corresponding simple descriptions[20, 34] and three scoring options: 0-4 scale, 0-10 Numeric Rating Scale and 0-4 scale with information to consider for deciding whether to rate 1,2,3 or 4.[35] A shorter ClinFIT option using the ICF Generic 6/7 Set[15, 33] is also available. • Available in English, Croatian, Flemish/Dutch, French, German, Greek, Italian, Polish, Turkish and diverse non-European languages.[20] • Facilitates the standardized assessment of status and change in patient functioning over time and provides a basis for goalsetting and intervention planning. Has potential for monitoring care quality.[16, 17, 28, 36, 37]	✓	✓	
International Classification of Service Organization in Rehabilitation (ICSO-R) 2.0[31]	• A universal standard for systematically describing rehabilitation services. • Encompasses two dimensions: provider dimension (infrastructure and resources of a rehabilitation facility) and service delivery dimension (specifics on services/interventions), each comprising categories and sub-categories. • Supports clinical quality management by enabling a standardized comparison of services of rehabilitation facilities at the local and national level and by highlighting potential gaps and redundancies in service provision.		✓	✓

Diverse applications

These standards and tools offer opportunities for health systems in supporting rehabilitation practice, clinical quality management and accreditation of rehabilitation programs.

An example of how a functioning-based tool can be used in rehabilitation practice and clinical quality management is the Nottwil Standard, a CLAS developed for spinal cord injury (SCI) rehabilitation.[39] Specifically developed for and piloted at a specialized clinic in Switzerland, the Nottwil Standard encompasses a battery of 10 examinations, 23 assessments and two questionnaires covering 55 ICF categories derived from the ICF Core Set for SCI in post-acute settings[40] and the ICF Generic-30 Set.[11] The one-year pilot testing showed that implement-

ing the Nottwil Standard in routine practice and in an existing health information system is feasible given a well-structured process that includes a controlling mechanism, effective and interdisciplinary information-sharing and the active involvement of rehabilitation team members from diverse disciplines.[39]

Other examples of applying functioning-based tools in rehabilitation practice, namely ClinFIT,[14] are illustrated by pilot studies conducted in China,[13, 15, 41] Japan,[16, 17] Australia,[36] Italy[37] and Switzerland,[28] of which three are showcased here. For example, in a multicentre prospective study of 4510 patients with diverse health conditions all over China, the 6-category version of ClinFIT with the 0-10 scale was found to be a reliable and valid tool for assessing functioning and for informing the prediction of length of stay and treatment cost.[15] In the Australian example, the 30-item version of ClinFIT with the 0-10 scale was able to detect changes in patient functioning over time across different health conditions. Lastly, the results of a cross-sectional study in Italy showed that the 30-item ClinFIT with a 0-4 scale was easy to use to capture the functioning profile of 364 outpatients with a neurological condition.

In terms of applying the functioning-based standards and tools in the accreditation of PRM programs, UEMS-PRM Section and Board have started to integrate these standards and tools in its European Accreditation of PRM Programs of Care (https://uems-prm.eu/accreditation-of-prm-programmes-of-care/) process. The UEMS-PRM accreditation application form now contains questions about the integration of ICF principles and the IRP model[18] in the PRM program. Furthermore, on the program description for review form, the applicant is asked to identify the program's rehabilitation service type(s) according to the European Framework[27] and the goals according to body functions and structures and activity and participation.[8] Applicants are also asked to describe the IRP components and the ICF-based goal approach embedded in the rehabilitation program as part of a clinical pathways diagram describing the program's structure. The integration of the functioning-based standards and tools in the UEMS-PRM Section and Board accreditation process inherently acknowledges their benefits for rehabilitation management and care.

Call for action for implementation

These applications are only the starting point for a wide-ranging implementation of the functioning-based standards and tools. Other potential applications that have yet to be explored include triaging, reimbursement, and calculation of disability. In a step forward, UEMS-PRM Section and Board call for rehabilitation professionals to integrate the functioning-based standards and tools in their routine practice. Despite the availability and accessibility of these functioning-based standards and tools, their implementation in real-life rehabilitation practice, especially in a systemwide manner, has yet to be realized. To address this, more effective dissemination of information on these standards and tools as well as education and training on how to use them are needed.

One strategy for effectively disseminating information about the functioning-based standards and tools is the present paper and other scientific publications that highlight the benefits and uses of the functioning-based standards and tools. Another strategy is the face-to-face sharing of experiences in applying the functioning-based standards and tools in real-life practice, for example at the UEMS-PRM Section Professional Practice Committee meetings and ESPRM and ISPRM congresses.

In terms of education and training, to emphasize the relevance of training PRM residents in the use of the functioning-based standards and tools, the relevant chapter of the European PRM Curriculum included in the European Training Requirements (ETR)[42] in PRM can be further enriched and updated. The competencies of PRM trainees in the use of the aforementioned standards and tools could be boosted by integrating a half-day hands-on workshop in European training programs endorsed by the European Board of PRM (https://uems-prm.eu/board-supported-prm-schools). Furthermore, to assess the proficiency of PRM trainees in using the standards and tools in routine practice, an Entrustable Professional Activity, *i.e.*, applied clinical knowledge and skills that a trainee must possess at the end of the training, can be designed and added in the Annex of the last edition of the ETR. To support the training of PRM physicians on using the standards and tools, a module on functioning and functioning-based tools, including the joint use of these tools, can be integrated into Continuing Medical Education programs as well as in hands-on workshops at PRM meetings/congresses. UEMS-PRM Section and Board can collaborate with the education committee of PRM societies to develop such a training module. One medium for both information dissemination and for training PRM physicians are the society websites. ISPRM, for example, posts educational videos and webinars on its website (www.isprm.org). Lastly, the 2018 White Book on Physical and Re-

habilitation Medicine in Europe (3rd Edition)[5] is another educational resource that could be updated with details on the functioning-based standards and tools.

Call for continuous development

One catalyst for implementation in clinical practice may be the confirmation of the validity, reliability and feasibility of using these standards and tools. Conducting demonstration projects or pilot testing in which clinicians can experience using the standards and tools themselves and see potential benefits and challenges in a tangible way is one strategy for not only fostering implementation but also supporting the continuous development of the functioning-based standards and tools. The pilot studies using the Nottwil Standard (CLAS) and ClinFIT are good examples. However, additional pilot testing in other contexts and pilot testing of other standards and tools, such as for the IRP, would be essential. And in the case of ClinFIT, studies to collect data for developing a common metric and psychometric studies with the 30-item version are warranted. Regarding ICSO-R 2.0, a next step is the development of value sets for the different (sub)categories.

Practice, science and governance

The functioning-based standards and tools and examples of their application in Europe and in other parts of the world attest to the achievements of the goals outlined in the ICF implementation action plan presented in the aforementioned paper "Practice, science and governance in interaction…"[4] This 2017 paper also emphasized the importance of the interaction between practice, science and governance, underscoring the learning health system notion that knowledge improves practice, and practice improves knowledge, and highlighted so-called "ICF implementation governance challenges" at different levels of care. Many of these challenges, primarily at the care provision level, have been addressed. That is, a CLAS for each European Framework rehabilitation type has been developed, and UEMS-PRM Section and Board was instrumental in establishing an ICF-based data collection tool (*i.e.* ClinFIT) in diverse European languages by spearheading the work to develop simple descriptions in Croatian, Flemish/Dutch, Greek, Italian, Polish and Turkish.[20]

Now that functioning-based standards and tools have been developed, new implementation challenges have come to light. For one, the lack of understanding about functioning and the use of the ICF continues to plague implementation efforts. Even when rehabilitation practitioners are familiar with the concept of functioning and the ICF, the existence of the functioning-based standards and tools have yet to permeate the consciousness of potential users, such as PRM physicians. This paper hopes to contribute to combatting these challenges. Other potential strategies to tackle these challenges are indicated in Table II.

In addition to challenges, there are opportunities (synergies) to implementing the functioning-based standards and tools:

- key to implementation is the concerted effort of the European PRM Bodies Alliance (UEMS-PRM Section and Board, ESPRM, EARM) and ISPRM, other rehabilitation professional and scientific societies, academic institutions, governmental stakeholders, private sector stakeholders and civil society to enable the systemwide implementation of the functioning-based standards and tools;
- close collaboration between WHO, the European PRM Bodies Alliance and ISPRM would also foster implementation. One platform where outreach to these diverse actors may be possible is the World Rehabilitation Alliance (WRA; https://www.who.int/initiatives/world-rehabilitation-alliance), specifically in its primary care and research workstreams.[43] Launched in 2023, the WRA is a

TABLE II.—*Potential strategies to address implementation challenges.*

Challenge	Strategies to address challenges
Lack of understanding about functioning and use of the ICF	• Assess current curricula of education and training programs and accordingly integrate targeted modules on the use of functioning information and the ICF in routine practice • Provision of practical manuals or guidelines on how to use the ICF and the functioning-based standards and tools • Use of electronic/social media to disseminate information about the ICF
Lack of knowledge about existing functioning-based standards and tools	• Expand curricula of education and training programs of health professionals to include a module on the functioning-based standards and tools • Update the White Book on PRM in Europe[5] • Provision of practical manuals or guidelines on how to use the standards and tools • Integrate the use of these standards and tools in guidelines for accreditation • Use of electronic/social media to disseminate information about the standards and tools for rehabilitation management

WHO global network of stakeholders that aims to support the implementation of the Rehabilitation 2030 Initiative through advocacy activities;

• in light of the new definition of rehabilitation for research purposes[22] and the recent call for better reporting of patient characteristics in rehabilitation trials, both functioning-based with the ICF as a reference, the functioning-based standards and tools provide a valuable resource in research. For example, CLAS and ClinFIT can be employed in mapping a wide range of outcome measures used in rehabilitation studies to the ICF; such mapping would clarify which functioning aspects are covered by the measures. This in turn would support comparability across studies, especially in meta-analyses.[21] CLAS and ClinFIT may also have utility as a reference framework in the work of the Observational Medical Outcomes Partnership Common Data Model within the Observational Health Data Sciences and Informatics initiative (https://www.ohdsi.org/data-standardization/) to standardize the structure and content of big observational data;

• in this age of digitalization, the interest in employing machine learning and artificial intelligence technology in improving rehabilitation services has gained tremendous ground.[44-47] First efforts toward applying this technology in the assessment, optimization and reporting of patient functioning have already been undertaken.[45, 48, 49] Thus, a logical next step would be to explore the potential of these technologies in refining the functioning-based standards and tools for better integration in health information systems of hospitals and primary care practices and for increasing their user-friendliness.

Conclusions

This evidence brief provides the basis for rehabilitation practitioners to implement the functioning-based standards and tools developed by UEMS-PRM in rehabilitation care and management. It also can inform policy briefs for decision-makers responsible for the accreditation of rehabilitation programs and establishing clinical guidelines at the national level.

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Authors' contributions
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History
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