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ORIGINAL COMMUNICATION

The development of ICF Core Sets for multiple sclerosis: results of the International Consensus Conference

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Abstract To systematically and comprehensively describe functioning and disability in Multiple sclerosis (MS), practical tools based on the International Classification of Functioning, Disability and Health (ICF), such as ICF Core Sets, are needed. Objective: to report on the results of an evidence-based International Consensus Conference to develop the Comprehensive and Brief ICF Core Set for MS. A formal and iterative decision-making and consensus process was undertaken, involving the integration of evidence from preparatory studies (expert survey, systematic literature review, qualitative study, empirical cross-sectional study) and expert opinion. The decision-making and consensus process included discussions and voting in working groups and plenary sessions involving selected international experts from different health professions. Twenty-one experts from 16 countries selected 138 ICF categories for the Comprehensive ICF Core for MS (40 *Body functions*, 7 *Body structures*, 53 *Activities and Participation* categories and 38 *Environmental factors*) and 19 categories for the Brief ICF Core Set for MS (8 *Body functions*, 2 *Body structures*, 5 *Activities and Participation* categories, 4 *Environmental factors*). An evidence-based and formal decision-making consensus process led to the approval of ICF Core Sets for MS which should be further validated.

Keywords Multiple Sclerosis (MeSH) · Consensus Development Conference (MeSH) · International Classification of Functioning, Disability and Health · ICF Core Set

The responsibility for the content of this publication lies with the ICF Research Branch.

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Introduction

Multiple sclerosis (MS) can follow a variety of clinical courses and is unpredictable in terms of prognosis. Individuals diagnosed with MS have to face various limitations in functioning and experience disability during the course of the disease [1, 2] having a significant impact on independence, employability, the performance of activities of daily living and social participation [3–5]. Disability in people with MS comprises impaired body functions and structures as well as limitations in activities and restrictions in participation modified by contextual factors such as environmental and personal factors. However, up to now

disability in MS is often specified exclusively based on impaired body functions, such as ambulation or cognitive functioning. Clinical trials also usually focus on body function-related changes, such as ambulatory issues, generally assessed with the Expanded Disability Status Scale (EDSS) [6] or the Multiple Sclerosis Functional Composite (MSFC) [7].

During recent years, there have been recommendations to focus on a more comprehensive perspective on functioning and disability in research and clinical practice [8–10]. It would, therefore, be valuable to have a practical tool that covers the spectrum of symptoms and limitations in functioning of people with MS taking into account environmental factors which make up the physical, social and attitudinal environment in which people live. For this purpose a comprehensive framework and classification which can serve as a universal language understood by health professionals, researchers, policy makers, patients, and patient organizations is needed.

With the International Classification of Functioning, Disability and Health (ICF) [11], we can now rely on a globally-agreed-upon framework and system for classifying the typical spectrum of functioning and disability of persons given the environmental context in which they live. Based on the biopsychosocial perspective of the ICF problems in functioning related to the disease can be understood and described using different components: *Body functions and structures*, *Activities and participation*, as well as *Personal* and *Environmental factors* (see Fig. 1).

To tailor the classification to specific health conditions, agreed-on lists of ICF categories such as ICF Core Sets are required [12, 13]. They allow clinicians and researchers to classify and describe functioning using widely accepted terminology. Up to now, ICF Core Sets have been developed for 21 (chronic) health conditions including depression [14], spinal cord injury [15, 16], stroke [17] and rheumatoid arthritis [18].

The project *Development of ICF Core Sets for MS* aims to identify the set of ICF categories which makes possible a comprehensive description of functioning of persons with MS in multidisciplinary assessments (Comprehensive ICF Core Set for MS) and an efficient and brief description in research and any other setting (Brief ICF Core Set for MS). The project was initiated in 2007 as collaboration among the World Health Organisation (WHO), the Department of Neurorehabilitation of the Valens Rehabilitation Centre (Switzerland), the ICF Research Branch in cooperation with the WHO Collaboration Centre for the Family of International Classifications in Germany (at DIMDI), the Multiple Sclerosis International Federation (MSIF), and the International Society of Physical Medicine and Rehabilitation (ISPMR). It was divided into a preparatory phase in which information was gathered from different studies and an International Consensus Conference [19] (see Fig. 2).

The objective of this paper is to report on the results of the consensus conference to develop the Comprehensive ICF Core Set for MS and the Brief ICF Core Set for MS, respectively.

Methods

During the International Consensus Conference, selected panellists followed a formal and iterative decision-making and consensus process by integrating evidence from preparatory studies and expert opinion to decide on the

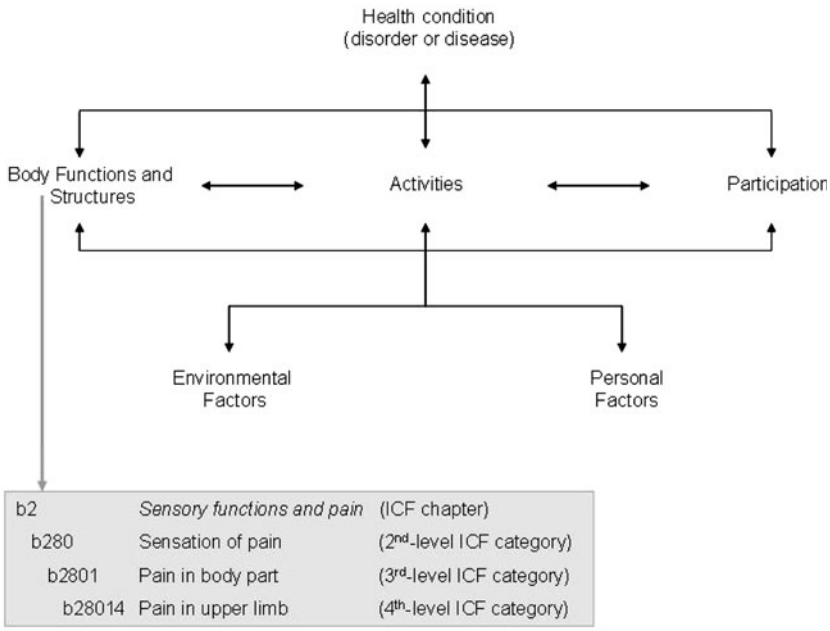

Fig. 1 The biopsychosocial perspective of the International Classification of Functioning, Disability and Health (ICF)

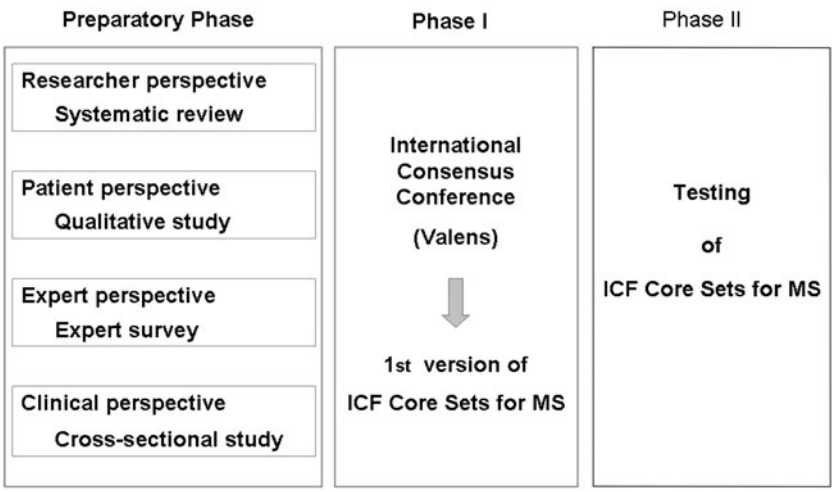

Fig. 2 Phases of the project *Development of ICF Core Sets for MS*

Comprehensive and Brief ICF Core Set for MS. The decision-making and consensus process included discussions and voting in working groups and plenary sessions. The operating language during the conference was English.

Preparatory studies

The preparatory studies were performed in order to preselect candidate ICF categories for the ICF Core Sets for MS that are relevant to persons with MS from four different perspectives: (1) The perspective of researchers was covered by a systematic literature review on areas of functioning, disability and health reported in 269 studies including people with MS published between 2002 and 2007. (2) The patient perspective was explored through a qualitative focus group study performed with 27 individuals with MS [20]. (3) The expert perspective was captured with an internet-based expert survey including 173 health professionals from 46 countries with at least 5 years of expertise in the treatment or rehabilitation of people with MS. (4) The clinical perspective was explored by a multicentre empirical study in Germany and Switzerland by applying ICF categories in 205 people with MS [21]. Based on the empirical study, 139 second-level categories were identified as candidate categories. The qualitative study, the expert survey and the systematic review revealed 171, 397 and 430 second-, third- and fourth-level categories, respectively. In total, a list of 199 second-level categories (60 *Body functions*, 22 *Body structures*, 65 categories on *Activities and participation*, 52 *Environmental factors*) resulted from the preparatory studies as candidate categories. The list of ICF categories finally presented to the participants at the consensus conference included 559 ICF categories at the second, third or fourth level (212 *Body functions*, 77 *Body structures*, 177 categories on *Activities and participation*, 93 *Environmental factors*).

Recruitment of participants of the consensus conference

The recruitment strategy for the participants of the consensus conference had to balance the needs for international expertise without compromising a feasible decision-making process. Potential participants were selected from a pool of candidates willing to participate in the expert survey performed as one of the preparatory studies. Additionally, health professionals who expressed their interest in the project in advance, as well as people who were suggested by the steering committee, constituted the pool of potential participants. Four hundred and fifty nine people (166 physicians, 87 physical therapists, 52 occupational therapists, 83 nurses, 38 psychologists, 21 speech and language therapists, 11 social workers) from 47 countries finally made up this pool. Participants were randomly selected from the six WHO world regions and the countries of origin, to assure a balanced representation of key health professions and all world regions. Based on this procedure, 21 health professionals were selected and invited to the conference (four physicians, four physical therapists, three occupational therapists, three nurses, three psychologists, one speech and language therapist, two social workers and the chief executive officer of an MS Society Centre). The selected participants were divided into three working groups of seven each comprising different health professions and countries. The groups worked actively together for 2 days.

Training and information exchange

At the beginning of the conference participants were trained in (1) the structure, the principles and nomenclature of the ICF, (2) the results of the preparatory studies, and (3) the principles and rules of the decision-making and consensus process applied during the conference. They were provided with summary sheets containing both the

Table 1 Fraction of the database including the results of the preparatory studies for each ICF category as presented to the participants of the consensus conference

ICF code			ICF category title	Empirical study $n = 205\%$	Expert survey $n = 173\%$	Systematic review $n = 269\%$	Qualitative study $n = 6n$
2nd level	3rd level	4th level					
+b134[a]			Sleep functions	68[b]	12[c]	20[d]	0[e]
b134			Sleep functions	68	12	20	0
	b1340		Amount of sleep			7	
	b1341		Onset of sleep		1	7	
	b1342		Maintenance of sleep			6	
	b1343		Quality of sleep			6	
	b1344		Functions involving the sleep cycle			2	
+b140[a]			Attention functions	64	26	33	5
b140			Attention functions	64	24	27	5
	b1400		Sustaining attention		3	19	
	b1401		Shifting attention			1	
	b1402		Dividing attention			1	
	b1403		Sharing attention				

[a] Combines results from second and higher-level categories

[b] This category was reported by 68% of 205 patients included in the empirical study

[c] This category was reported by 12% of 173 experts participating in the expert survey

[d] This category was identified in 20% of 269 papers included in the systematic review

[e] This category was identified in none of the focus groups

preselected candidate categories and the results of the preparatory studies (see Table 1).

The definitions of the Comprehensive and Brief ICF Core Set were also presented. The intended purpose of the Comprehensive ICF Core Set is for use in settings such as rehabilitation, in which a comprehensive multidisciplinary description and assessment of functioning is necessary. A Comprehensive ICF Core Set is available as a pool of categories including as few categories as possible to be practical, but as many as necessary to describe the aspects of functioning relevant to persons with MS in a comprehensive multidisciplinary assessment. In contrast, the intention of the Brief ICF Core Set is for use in settings in which a brief description and assessment of functioning is sufficient. Therefore, a Brief ICF Core includes the fewest number of ICF categories that can serve as a minimal standard to be used internationally for the reporting of functioning in persons with MS in any care setting and across sectors such as health, social welfare, education and labour and research.

Iterative decision making process

The categories to be included in the ICF Core Sets for MS were identified in an iterative decision-making and consensus process with discussions and voting in plenary sessions and working groups each led by a working group leader (JF, FK, DM). Additionally, in each working group there was a nonvoting assistant to document group results. The process in the plenary sessions was guided and moderated by a member of the ICF Research Branch (AC) with expertise in the ICF but without any personal experience in treating people with MS. The moderator did not have the right to vote. In plenary sessions the working group leaders presented their group decisions and arguments. However, all participants were allowed to speak up during these sessions.

The decision-making and consensus process consisted of two major activities: First, the participants were asked to select categories from the pool of candidate ICF categories to be included in the Comprehensive ICF Core Set for MS. This initial selection of ICF categories for the Comprehensive ICF Core Set was undertaken on the second level of the ICF classification followed by the selection of categories that require further specification at lower hierarchical levels (third- and fourth-level categories). Second, ICF categories that should be included in the Brief ICF Core Set for MS were selected as a minimal standard to be used internationally for the reporting of functioning in persons with MS in any care setting and across sectors. These categories were chosen from the second-level categories included in the Comprehensive ICF Core Set by means of a two-step ranking procedure and a final cut-off decision.

Throughout the conference, the data resulting from the voting and ranking processes were continuously recorded. In addition, discussions during the plenary sessions were recorded in writing.

Results

As a result of the consensus conference, the Comprehensive and Brief ICF Core Set for MS were decided on.

Comprehensive Core Set

The Comprehensive ICF Core Set includes 138 ICF categories with 123 categories at the second level and 15 at the third level of the classification. These third-level categories are a further specification of six ICF categories on the second level. The 138 categories of the Comprehensive ICF Core Set for MS are made up of 40 *Body functions* (29.0 %), 7 *Body structures* (5.1 %), 53 *Activities and participation* categories (38.4%), and 38 *Environmental factors* (27.5 %). From the *Body functions* component all chapters except chapter *b8 Functions of the skin and related structures* are represented in the Comprehensive ICF Core Set. From the *Body structures* component categories of four out of eight chapters are included. All chapters of the components *Activities and participation* and *Environmental factors* are represented in the Comprehensive ICF Core Set for MS. Tables 2, 3, 4 and 5 show the ICF categories included in the Comprehensive ICF Core Set for MS separated for the four ICF components.

Brief Core Set

Based on the Comprehensive ICF Core Set for MS the panellists decided in three ranking rounds on the selection of the categories for the Brief ICF Core Set. According to the final cut-off decision the participants of the conference selected 18 categories for the Brief ICF Core Set for MS. Based on this final cut-off the category 'b152 Emotional functions' would not have been included in the Brief ICF Core Set for MS. This, however, caused considerable concern among the participants so that the steering committee of the project decided on the inclusion of this category in the Brief ICF Core Set for MS. Thus, the Brief ICF Core Set includes a total of 19 second-level categories which represents nearly 13% of the categories of the Comprehensive ICF Core Set. Eight categories were chosen from the component *Body functions*, two from *Body structures*, five from *Activities and participation*, and four from *Environmental factors*, respectively (see Table 6).

Discussion

The formal and iterative decision-making and consensus process which integrated evidence from four preparatory studies and expert opinion at the International Consensus Conference led to the definition and formal adoption of the first versions of the Comprehensive ICF Core Set for MS and the Brief ICF Core Set for MS, respectively.

The 138 second- and third-level categories that were included in the Comprehensive Core Set for MS reflect the broad range of aspects related to functioning as well as *Environmental factors* potentially relevant to individuals with MS. Despite keeping in mind that the Comprehensive ICF Core Set should include as many categories as necessary to be comprehensive, but as few as possible to be practical, the participants felt at some point that a specific description of a problem was necessary. Thus, they included several third-level categories that provide specifications of the following second-level categories: 'b130 Energy and drive functions', 'b510 Ingestion functions', 'b550 Thermoregulatory functions', 'b765 Involuntary movement functions', 'e110 Products or substances for personal consumption' and 'e225 Climate'.

The Brief ICF Core Set for MS includes 19 categories as a minimal standard to be used internationally for the reporting of functioning in persons with MS in any care setting and across sectors.

It is important to note that the ICF Core Sets for MS are not health status measures in their own right. In principle the ICF Core Sets are comprehensive, agreed-upon lists of aspects that are relevant for the given health condition. They are intended as an international standard of *what to measure and report* (not how to measure it), and aim to facilitate the assessment, interpretation and aggregation of data for any kind of health information in any setting. Concerning the future use of the Core Sets, it is envisioned that the Brief ICF Core Set of MS can serve as the basis to be taken into account to describe functioning in any setting for any person diagnosed with MS. The Comprehensive ICF Core Set for MS, however, is intended to serve as a reference pool of potentially relevant areas of functioning and disability to be drawn upon if necessary to describe functioning for a specific individual in a specific situation. Especially in multidisciplinary clinical settings, the Comprehensive ICF Core Set for MS could be a comprehensive framework to structure the obtained information according to the biopsychosocial perspective of the ICF and to guide the treatment and rehabilitation process accordingly.

The following discussion of the results of the International Consensus Conference mainly focuses on the categories included in the Brief ICF Core Set for MS separated by the ICF components.

Body functions

Three of the *Body functions* categories of the Brief ICF Core Set rely on chapter *b1 Mental functions* ('b130 Energy and drive functions', 'b152 Emotional functions', and 'b164 Higher-level cognitive functions') taking into

Table 2 ICF categories of the component *Body functions* included in the Comprehensive ICF Core Set for MS

ICF code		ICF category title
2nd level	3rd level	
b114		Orientation functions
b126		Temperament and personality functions
	b1300	Energy level
	b1301	Motivation
	b1308	Energy and drive functions, other specified (Fatigue)
b134		Sleep functions
b140		Attention functions
b144		Memory functions
b152		Emotional functions
b156		Perceptual functions
b164		Higher-level cognitive functions
b210		Seeing functions
b235		Vestibular functions
b260		Proprioceptive function
b265		Touch function
b270		Sensory functions related to temperature and other stimuli
b280		Sensation of pain
b310		Voice functions
b320		Articulation functions
b330		Fluency and rhythm of speech functions
b445		Respiratory muscle functions
b455		Exercise tolerance functions
	b5104	Salivation
	b5105	Swallowing
b525		Defecation functions
	b5500	Body temperature
	b5508	Thermoregulatory functions, other specified (Sensitivity to heat)
	b5508	Thermoregulatory functions, other specified (Sensitivity to cold)
b620		Urination functions
b640		Sexual functions
b710		Mobility of joint functions
b730		Muscle power functions
b735		Muscle tone functions
b740		Muscle endurance functions
b750		Motor reflex functions
b760		Control of voluntary movement functions
	b7650	Involuntary contractions of muscles
	b7651	Tremor
b770		Gait pattern functions
b780		Sensations related to muscles and movement functions

account the broad range of mental functions potentially affecting people with MS irrespective of the stage and course of the disease.

The category 'b130 Energy and drive functions' includes, amongst others, 'energy level', 'motivation' and 'fatigue'. It represents one of the most burdensome problems for people with MS which is strongly associated with numerous aspects (see overview [22]) such as overall quality of life, disability, physical activity, mood and depressive symptoms, cognitive functioning and activities of daily living [23–26].

Emotional functions as defined by the ICF are specific mental functions related to the feeling and affective components of the process of the mind which are affected for

Table 3 ICF categories of the component *Body structures* included in the Comprehensive ICF Core Set for MS

ICF code 2nd level	ICF category title
s110	Structure of brain
s120	Spinal cord and related structures
s610	Structure of urinary system
s730	Structure of upper extremity
s750	Structure of lower extremity
s760	Structure of trunk
s810	Structure of areas of skin

example in people with depressive symptoms. Depressive symptoms are very common in MS [27, 28], even in the early disease stages [27, 29].

The selected categories from chapter *b2 Sensory functions and pain*, 'b210 Seeing functions' and 'b280 Sensation of pain', complete the 'invisible' symptoms of MS. From the clinical perspective there is clear evidence demonstrating that these functions have a great impact on motor-related functions and daily activities of individuals with MS [30, 31]. However, contrary to the mental functions mentioned above, with the exception of pain, they are rarely taken into account in MS studies. Pain, especially pain in back and limbs as well as neuropathic pain, is frequently seen in people with MS [32, 33] strongly interfering with quality of life [31, 34], physical and mental health status [35].

Referring to chapter *b6 Genitourinary and reproductive functions*, 'b620 Urination functions' was included in the Brief ICF Core Set for MS. Problems with urination are common among people with MS [36, 37], and it is well-known that this has a great impact on quality of life and participation and are associated with mood disorders and fatigue [38, 39].

Two categories of the chapter *b7 Neuromusculoskeletal and movement-related functions*' were included in the Brief ICF Core Set reflecting motor-related problems people with MS have to face. With the category 'b770 Gait pattern functions' one of the most relevant mobility-related functions [30, 40] and core intervention goals of neurorehabilitation was selected [41, 42]. Besides, gait pattern functions address functions of movement patterns associated with walking, running or other body movements which are strongly related to perceived independence, autonomy and productivity [30, 43, 44].

Body structures

The decision to vote for the inclusion of 's110 Structure of brain' and s120 'Spinal cord and related structures' was

Table 4 ICF categories of the component *Activities and participation* included in the Comprehensive ICF Core Set for MS

ICF code 2nd level	ICF category title
d110	Watching
d155	Acquiring skills
d160	Focusing attention
d163	Thinking
d166	Reading
d170	Writing
d175	Solving problems
d177	Making decisions
d210	Undertaking a single task
d220	Undertaking multiple tasks
d230	Carrying out daily routine
d240	Handling stress and other psychological demands
d330	Speaking
d350	Conversation
d360	Using communication devices and techniques
d410	Changing basic body position
d415	Maintaining a body position
d420	Transferring oneself
d430	Lifting and carrying objects
d440	Fine hand use
d445	Hand and arm use
d450	Walking
d455	Moving around
d460	Moving around in different locations
d465	Moving around using equipment
d470	Using transportation
d475	Driving
d510	Washing oneself
d520	Caring for body parts
d530	Toileting
d540	Dressing
d550	Eating
d560	Drinking
d570	Looking after one's health
d620	Acquisition of goods and services
d630	Preparing meals
d640	Doing housework
d650	Caring for household objects
d660	Assisting others
d710	Basic interpersonal interactions
d720	Complex interpersonal interactions
d750	Informal social relationships
d760	Family relationships
d770	Intimate relationships
d825	Vocational training
d830	Higher education
d845	Acquiring, keeping and terminating a job

Table 4 continued

ICF code 2nd level	ICF category title
d850	Remunerative employment
d860	Basic economic transactions
d870	Economic self-sufficiency
d910	Community life
d920	Recreation and leisure
d930	Religion and spirituality

done with high agreement among the participants of the conference.

Activities and participation

Regarding the component *Activities and Participation,* five categories representing five chapters were included in the Brief ICF Core Set for MS. This broad range of chapters selected by the participants reflects the diversity of problems in daily activities and participation associated with MS. The categories 'd175 Solving problems' and 'd230 Carrying out daily routine' refer to general activities and abilities to manage every-day life [45, 46].

In line with the category 'b770 Gait pattern functions' it was agreed that the category 'd450 Walking' is highly relevant for people with MS; contributing to the burden of disease and associated with lower quality of life [47]. Individuals with MS clearly state that walking difficulties are one of the major problems having an impact on their lives [30, 48].

The selection of 'd760 Family relationships' reflects the outstanding importance of the relationships of people with MS to family, peers and significant others for social participation as well as in coping with the disease [49–51].

The decision to include 'd850 Remunerative employment' reflects the essential role employment plays in an individuals life and participation within a community [52, 53]. This is supported by the results of several studies reporting reduced employment rates associated with the course of the disease [4] and identifying a number of facilitators and barriers related to employment [54–56].

Environmental factors

The inclusion of four environmental factors completed the Brief ICF Core Set for MS. These categories exclusively focus on the family and the health care system by representing the support and relationships, attitudes as well as services, systems and policies which were regarded as major facilitators or barriers of functioning and disability by the panellists. The included categories of chapters 3 and 4 reflect again the utmost importance of relationships and support for social participation, adjustment to the disease and quality of life [57–59]. Access to and availability of health services for people with MS within their respective countries as well as the policies of the health care system are highly relevant [60, 61].

Preliminary ICF Core Sets for MS

It is worth mentioning that in Australia preliminary ICF Core Sets were established based on evidence from a systematic review, an empirical study and a Delphi exercise involving health professionals [62]. The comparison of these preliminary ICF Core Sets for MS with those adopted at the International Consensus Conference shows large commonalities and only few differences in the selected ICF categories from the components Body functions and Environmental factors. A posterior the Australian preliminary ICF Core Sets for MS can be considered a validation of the internationally developed ICF Core Sets from a regional perspective. Researchers and clinicians from other world regions are encouraged to perform additional validation studies, since it is important to study worldwide the applicability of the ICF Core Sets.

Limitations

There are also some limitations of this paper that should be mentioned. The aim of the International Consensus Conference was to decide on the Comprehensive ICF Core Set by selecting ICF categories from those identified in preparatory studies. It is possible that relevant ICF categories were not identified based on those studies. Therefore, the selection of the ICF Core Sets' categories was limited to the preselected categories identified in the preparatory studies. Validation studies will be performed to show whether ICF categories need still to be added to the Comprehensive and Brief ICF Core Set for MS.

As in any decision-making and consensus process involving experts, the process has limitations and the results of the voting may have been influenced by some participants. It remains unclear whether other health professionals would have decided differently.

Finally, during the conference the participants remarked that some of the ICF category definitions were unclear, too general or even overlapping. This reflects the challenge of adopting a classification system that applies a universal and etiologically neutral way of wording that seeks to be applicable worldwide in various settings and by various professionals. The participating experts also sought to counter this structural problem of ICF by making concrete suggestions for additional 'other specified' categories that

Table 5 ICF categories of the component *Environmental factors* included in the Comprehensive ICF Core Set for MS

ICF code		ICF category title
2nd level	3rd level	
	e1101	Drugs
	e1108	Products or substances for personal consumption, other specified (Special formulations of food to maintain safety and nutrition)
e115		Products and technology for personal use in daily living
e120		Products and technology for personal indoor and outdoor mobility and transportation
e125		Products and technology for communication
e135		Products and technology for employment
e150		Design, construction and building products and technology of buildings for public use
e155		Design, construction and building products and technology of buildings for private use
e165		Assets
	e2250	Temperature
	e2251	Humidity
	e2253	Precipitation
e310		Immediate family
e315		Extended family
e320		Friends
e325		Acquaintances, peers, colleagues, neighbours and community members
e330		People in positions of authority
e340		Personal care providers and personal assistants
e355		Health professionals
e360		Other professionals
e410		Individual attitudes of immediate family members
e415		Individual attitudes of extended family members
e420		Individual attitudes of friends
e425		Individual attitudes of acquaintances, peers, colleagues, neighbours and community members
e430		Individual attitudes of people in positions of authority
e440		Individual attitudes of personal care providers and personal assistants
e450		Individual attitudes of health professionals
e460		Societal attitudes
e515		Architecture and construction services, systems and policies
e525		Housing services, systems and policies
e540		Transportation services, systems and policies
e550		Legal services, systems and policies
e555		Associations and organizational services, systems and policies
e570		Social security services, systems and policies
e575		General social support services, systems and policies
e580		Health services, systems and policies
e585		Education and training services, systems and policies
e590		Labour and employment services, systems and policies

might be considered for inclusion in the update of ICF (e.g. 'b1308 Energy and drive functions, other specified: Fatigue', 'b5508 Thermoregulatory functions, other specified: Sensitivity to heat' and 'b5508 Thermoregulatory functions, other specified: Sensitivity to cold').

Conclusion

In conclusion, a formal decision-making and consensus process integrating evidence from preparatory studies and expert opinion led to the definition of ICF Core Sets for

Table 6 ICF categories included in the Brief ICF Core Set for MS

ICF code	ICF category title
Body functions	
b130	Energy and drive functions
b152	Emotional functions
b164	Higher-level cognitive functions
b210	Seeing functions
b280	Sensation of pain
b620	Urination functions
b730	Muscle power functions
b770	Gait pattern functions
Body structures	
s110	Structure of brain
s120	Spinal cord and related structures
Activities and participation	
d175	Solving problems
d230	Carrying out daily routine
d450	Walking
d760	Family relationships
d850	Remunerative employment
Environmental factors	
e310	Immediate family
e355	Health professionals
e410	Individual attitudes of immediate family members
e580	Health services, systems and policies

MS. Both the Comprehensive Core Set of MS, as a pool of categories to describe functioning in settings in which a comprehensive multidisciplinary description and assessment of functioning is necessary, and the Brief Core Set as minimal standard taken into account in any setting in which a brief description and assessment of functioning is sufficient, are preliminary and need to be tested and validated. Besides validation, strategies for the implementation of the ICF Core Sets for MS in clinical practice should be developed. Finally, since the ICF Core Sets for MS indicate which areas of functioning should be measured but not how they should be measured, an operationalisation of the ICF categories included in the ICF Core Sets for MS will be useful and should be pursued in further studies.

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Conflict of interest None.

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