

THE NEED FOR ICF

Studies show that diagnosis alone does not predict service needs, length of hospitalization, level of care or functional outcomes. Nor is the presence of a disease or disorder an accurate predictor of receipt of disability benefits, work performance, return to work potential, or likelihood of social integration. This means that if we use a medical classification of diagnoses alone we will not have the information we need for health planning and management purposes. What we lack is data about levels of functioning and disability. ICF makes it possible to collect those vital data in a consistent and internationally comparable manner.

For basic public health purposes, including the determine the overall health of populations, the prevalence and incidence of non-fatal health outcomes, and to measure health care needs and the performance and effectiveness of health care systems, we need reliable and comparable data on the health of individuals and populations. ICF provides the framework and classification system for these purposes.

For some time, there has been a shift in the focus from hospital-based acute care to community-based long-term services for chronic conditions. Social welfare agencies have noticed a marked increased in demand for disability benefits. These trends have underscored the need for reliable and valid disability statistics. ICF provides the basis for identifying kinds and levels of disability which provides the foundations for country-level disability data to inform policy

development.

There is also an increased recognition among social planners and service agencies that reductions in the incidence and severity of disability in a population can be brought about both by enhancing the functional capacity of the person and by improving performance by modifying features of the social and physical environment. To analyze the impact of these different interventions, we need a way of classifying domains of areas of life as well as the environmental factors that improve performance. ICF allows us to record this information.

HOW WILL WHO USE ICF?

WHO must provide tools that our Member States can use to improve their health policies, achieve better health for their population and to ensure that their health systems are as cost effective and fair as possible. We provide tools that are based on the best science and which represent the basic core values on which the Organization bases its work: equity, inclusion and the aim of all to achieve a life where each person can exploit his or her opportunities to the fullest possible degree.

Last year, the 191 Member States of the World Health Organization agreed to adopt ICF as the basis for the scientific standardization of data on health and disability world-wide. ICF directly contributes to WHO's efforts to establish a comprehensive population health measurement framework. We would like to go beyond the old, traditional mortality and morbidity measures by including measures of functional domains of health.

WHO uses a multi-dimensional health measure as the basis for health systems performance assessment. The health goal of a health system is measured on the basis of ICF. In this way, WHO can assist Member States in enhancing the performance of their health systems. With better functioning health systems, health levels across the population are raised and everyone benefits.

The ICF is key example of such a tool. ICF is a scientific tool for consistent, internationally comparable information about the experience of health and disability. As such, it also provides the basis for WHO overall approach to health.

HOW CAN ICF BE USED?

Because of its flexible framework, the detail and completeness of its classifications and the fact that each domain is operationally defined, with inclusions and exclusions, it is expected that ICF, like its predecessor, will be

used for a myriad of uses to answer a wide range of questions involving clinical, research and policy development issues. (For specific examples of the uses of ICF in the area of service provision, and the kinds of practical issues that can be addressed, see the box below.)

ICF Applications Service Provision

At the individual level

- For the assessment of individuals: *What is the person's level of functioning?*
- For individual treatment planning: *What treatments or interventions can maximize functioning?*
- For the evaluation of treatment and other interventions: *What are the outcomes of the treatment? How useful were the interventions?*
- For communication among physicians, nurses, physiotherapists, occupational therapists and other health workers, social service workers and community agencies
- For self-evaluation by consumers: *How would I rate my capacity in mobility or communication?*

At the institutional level...

- For educational and training purposes
- For resource planning and development: *What health care and other services will be needed?*
- For quality improvement: *How well do we serve our clients? What basic indicators for quality assurance are valid and reliable?*
- For management and outcome evaluation: *How useful are the services we are providing?*
- For managed care models of health care delivery: *How cost-effective are the services we provide? How can the service be improved for better outcomes at a lower cost?*

At the social level...

- For eligibility criteria for state entitlements such as social security benefits, disability pensions, workers' compensation and insurance: *Are the criteria for eligibility for disability benefits evidence based, appropriate to social goals and justifiable?*
- For social policy development, including legislative reviews, model legislation, regulations and guidelines, and definitions for anti-discrimination legislation: *Will guaranteeing rights improve functioning at the societal level? Can we measure this improvement and adjust our policy and law accordingly?*
- For needs assessments: *What are the needs of persons with various levels of disability - impairments, activity limitations and participation restrictions?*
- For environmental assessment for universal design, implementation of mandated accessibility, identification of environmental facilitators and barriers, and changes to social policy: *How can we make the social and built environment more accessible for all persons, those with and those without disabilities? Can we assess and measure improvement?*

Among the other kinds of uses for ICF are these:

Policy development...

In both the health sectors and other sectors that need to take into account the functional status of people, such as social security, employment, education and transportation, there is an important role that ICF can play. It goes without saying that policy development in these sectors requires valid and reliable population data on functional status. Legislative and regulatory definitions of disability need to be consistent and grounded in a single coherent model of the disability creation process. Whether it is devising eligibility criteria for disability pensions, developing regulations for access to assistive technology, or mandating housing or transportation policy that accommodates individuals with mobility, sensory or intellectual disability, ICF can provide the framework for comprehensive and coherent disability-related social policy.

Economic analyses...

Most applications of ICF lend themselves to economic analyses. Determining whether resources are effectively used in health care and other social services requires a consistent and standard classification of health and health-related outcomes that can be costed and compared internationally. We need information on the disability burden of various diseases and health conditions. To ensure that society can effectively prevent limitations on activities and restrictions on participation, it needs to cost the economic impact of functional limitations as compared to the costs of modifying the built and social environment. ICF makes both of these tasks possible.

Research uses...

Generally, ICF assists in scientific research by providing a framework or structure for interdisciplinary research in disability and for making results of research comparable. Traditionally, scientists have measured the outcomes of health conditions by relying on mortality data. More recently, the international concern about health care outcomes has shifted to the assessment of functioning at the level of the whole human being, in day-to-day life. The need here is for universally applicable classification and assessment tools, both for activity levels and overall levels of participation, in basic areas and roles of social life. This is what ICF provides and makes possible.

Intervention studies...

Of particular interest in research are intervention studies that compare the outcomes of interventions on similar populations. ICF can facilitate this kind of research by clearly distinguishing interventions – and coding outcomes – in light of the aspect of disability that the intervention addresses. Body level or impairment interventions are primarily medical or rehabilitative, and attempt to prevent or ameliorate limitations in person or societal level functioning by correcting or modifying intrinsic functions or structures of the body. Other rehabilitative treatment strategies and interventions are designed to increase capacity levels. Interventions that focus on the actual performance context of an individual may address either capacity-improvement or else seek environmental modification, either by eliminating environmental barriers or creating environmental facilitators for expanded performance of actions and tasks in daily living.

Uses of Environment Factors...

One of the major innovations in ICF is the presence of an environmental factor classification that makes it possible for the identification of environmental barriers and facilitators for both capacity and performance of actions and tasks in daily living. With this classification scheme, which can be used either on an individual basis or for population wide data collection, it may be possible to create instruments that assess environments in terms of their level of facilitation or barrier-creation for different kinds and levels of disability. With this information in hand, it will then be more practical to develop and implement guidelines for universal design and other environmental regulations that extend the functioning levels of persons with disabilities across the range of life activities.

THE MODEL OF ICF

Two major conceptual models of disability have been proposed. The *medical model* views disability as a feature of the person, directly caused by disease, trauma or other health condition, which requires medical care provided in the form of individual treatment by professionals. Disability, on this model, calls for medical or other treatment or intervention, to 'correct' the problem with the individual.

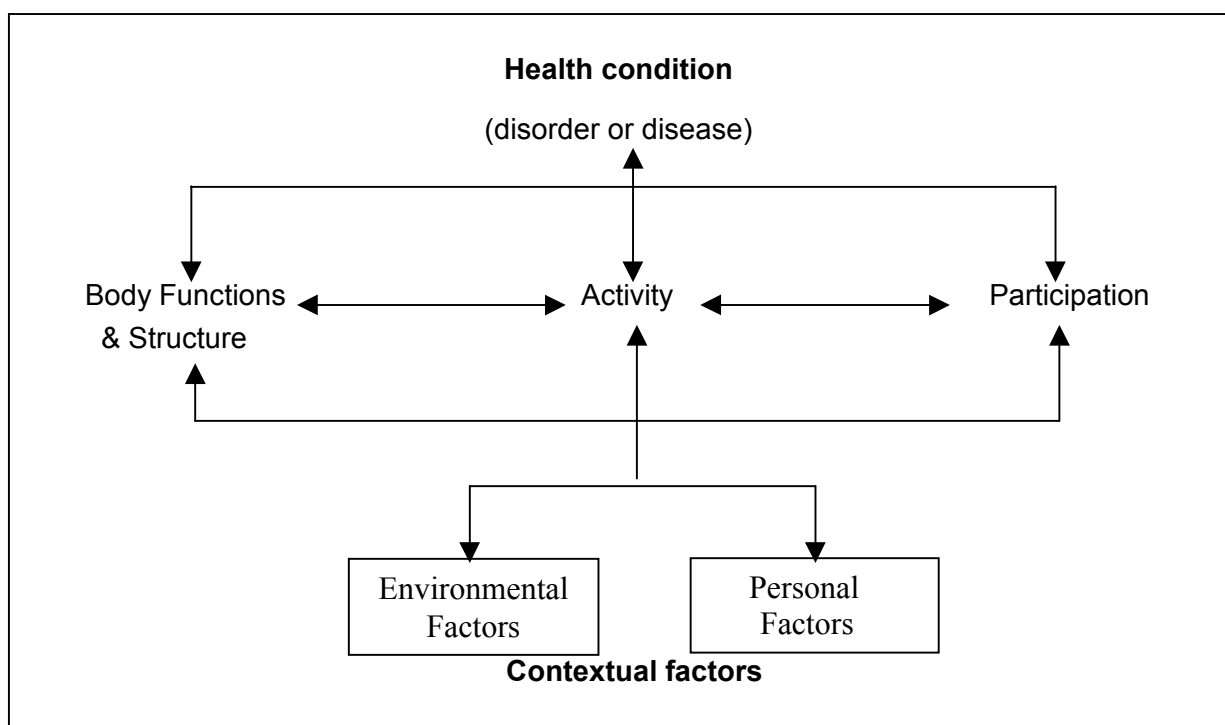
The *social model* of disability, on the other hand, sees disability as a socially-created problem and not at all an attribute of an individual. On the social model, disability demands a political response, since the problem is created by an unaccommodating physical environment brought about by attitudes and other features of the social environment.

On their own, neither model is adequate, although both are partially valid. Disability is a complex phenomena that is both a problem at the level of a person's body, and a complex and primarily social phenomena. Disability is always an interaction between features of the person and features of the overall context in which the person lives, but some aspects of disability are almost entirely internal to the person, while another aspect is almost entirely external. In other words, both medical and social responses are appropriate to the problems associated with disability; we cannot wholly reject either kind of intervention.

A better model of disability, in short, is one that synthesizes what is true in the medical and social models, without making the mistake each makes in reducing the whole, complex notion of disability to one of its aspects.

This more useful model of disability might be called the *biopsychosocial model*. ICF is based on this model, an integration of medical and social. ICF provides, by this synthesis, a coherent view of different perspectives of health: biological, individual and social.

The following diagram is one representation of the model of disability that is the basis for ICF



Concepts of functioning and disability

As the diagram indicates, in ICF disability and functioning are viewed as outcomes of interactions between *health conditions* (diseases, disorders and injuries) and *contextual factors*.

Among contextual factors are external *environmental factors* (for example, social attitudes, architectural characteristics, legal and social structures, as well as climate, terrain and so forth); and internal *personal 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.

The diagram identifies the three levels of human functioning classified by ICF: functioning at the level of body or body part, the whole person, and the whole person in a social context. Disability therefore involves dysfunctioning at one or more of these same levels: impairments, activity limitations and participation restrictions. The formal definitions of these components of ICF are provided in the box below.

Body Functions are physiological functions of body systems (including psychological functions).

Body Structures are anatomical parts of the body such as organs, limbs and their components.

Impairments are problems in body function or structure such as a significant deviation or loss.

Activity is the execution of a task or action by an individual.

Participation is involvement in a life situation.

Activity Limitations are difficulties an individual may have in executing activities.

Participation Restrictions are problems an individual may experience in involvement in life situations.

Environmental Factors make up the physical, social and attitudinal environment in which people live and conduct their lives..

The Qualifiers

The list of domains in ICF becomes a classification when qualifiers are used. Qualifiers record the presence and severity of a problem in functioning at the body, person and societal levels.

For the classifications of body function and structure, the primary qualifier indicates the presence of an impairment and, on a five point scale, the degree of the impairment of function or structure (no impairment, mild, moderate, severe and complete).

In the case of the Activity and Participation list of domains, two important qualifiers are provided. Together, these qualifiers enable the user to code essential information about disability and health.

The *Performance qualifier* 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. (The 'current environment' will be understood to include assistive devices or personal assistance, whenever the individual actually uses them to perform actions or tasks.)

The *Capacity qualifier* 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.

When a person has a capacity problem associated with a health condition, therefore, that incapacity is a part of their state of health. To assess the full ability of the individual, one would need to have a "*standardized environment*" to neutralize the varying impact of different environments on the ability of the individual. In practice, there are many possible environments that we could use for this purpose.

That is, a standardized environment might be: (a) an actual environment commonly used for capacity assessment in test settings; or (b) an assumed environment thought to have an uniform impact; or (c) an environment with precisely defined parameters based on extensive scientific research. Whatever it is in practice, this environment can be called 'uniform' or 'standard' environment. The capacity construct therefore reflects the environmentally-adjusted ability of the individual in a specified domain. The Capacity qualifier assumes a 'naked person' assessment, that is, the person's capacity without personal assistance or

the use of assistive devices. For assessment purposes, this environmental adjustment has to be the same for all persons in all countries to allow for international comparisons. For precision and international comparability, features of the uniform or standard environment can be coded using the Environmental Factors classification.

For a disability and health classification it is important that users be able to express these domains by means both of a performance and a capacity construct, even if, in particular cases for special uses only one of the two constructs are employed. ICF provides a single list of Activities and Participation which users can, for their needs and purposes, employ either by

A) designating some domains as Activities and others as Participation and *not allowing overlap*;

B) making this designation but *allowing overlap* in particular cases;

C) designating *detailed* (third- or fourth-level) categories within a domain as Activities and *broad* (second-level) categories in the domain as Participation;

D) *designating all domains* as potentially both Activity and Participation, and employing the qualifiers to distinguish the information that is required and collected.

(The approach described in D) is WHO's default approach and ICF country data submitted to WHO will be assumed to reflect this approach.)

Having access to both performance and capacity data enables ICF user to determine the 'gap' between capacity and performance. If capacity is less than performance, then the person's current environment has enabled him or her to perform better than what data about capacity would predict: the environment has facilitated performance. On the other hand, if capacity is greater than performance, then some aspect of the environment is a barrier to performance.

The distinction between environmental 'barriers' and 'facilitators', as well as the extent to which an environmental factor acts in one way or another, is captured by the qualifier for coding Environmental Factors.

Finally, an additional qualifier is available to supplement this information. Both the Capacity and Performance qualifiers can further be used with and without assistive devices or personal assistance. While neither devices nor personal assistance alter the impairments, they may remove limitations on functioning in

specific domains. This type of coding is particularly useful to identify how much the functioning of the individual would be limited without the assistive devices. The constructs and the operation of the qualifiers is set out in the next chart:

Construct	First qualifier	Second qualifier
Body Functions (b)	Generic qualifier with the negative scale used to indicate the extent or magnitude of an impairment <i>Example: b175.3 to indicate a severe impairment in specific mental functions of language</i>	None
Body Structure (s)	Generic qualifier with the negative scale used to indicate the extent or magnitude of an impairment <i>Example: s730.3 to indicate a severe impairment of the upper extremity</i>	Used to indicate the nature of the change in the respective body structure 0 no change in structure 1 total absence 2 partial absence 3 additional part 4 aberrant dimensions 5 discontinuity 6 deviating position 7 qualitative changes in structure, including accumulation of fluid 8 not specified 9 not applicable <i>Example: s7300.32 to indicate the partial absence of the upper extremity</i>
Activity & Participation (d)	PERFORMANCE Generic qualifier <u>Problem in the person's current environment</u> <i>Example: a5101.1_ to indicate mild difficulty with bathing the whole body with the use of assistive devices that are available to the person in his or her current environment</i>	CAPACITY Generic qualifier <u>Limitation without assistance</u> <i>Example: a5101._2 to indicate moderate difficulty with bathing the whole body and implies that there is moderate difficulty without the use of assistive devices or personal help</i>
Environmental Factors (e)	Generic qualifier, with negative and positive scale to denote extent of barriers and facilitators respectively <i>Example: e145.2 to indicate that products for education are a moderate barrier. Conversely, e145+2 would indicate that products for education are a moderate facilitator</i>	None

Underlying principles of ICF

There are general principles that underlay the conception of ICF as a health classification of functioning and disability, and are closely linked to the biopsychosocial model of disability. These principles are essential components of

the model of ICF and guided the revision process.

UNIVERSALITY

A classification of functioning and disability should be applicable to all people irrespective of health condition. Therefore, ICF is about all people. It concerns everyone's functioning. Thus, it should not become a tool for labeling persons with disabilities as a separate group.

PARITY

There should not be, explicitly or implicitly, a distinction between different health conditions as 'mental' and 'physical' that affect the structure of content of a classification of functioning and disability. In other words, disability must not be differentiated by etiology.

NEUTRALITY

Wherever possible, domain names should be worded in neutral language so that the classification can express both positive and negative aspects of each aspect of functioning and disability.

ENVIRONMENTAL FACTORS

In order to complete the social model of disability, ICF includes Contextual Factors, in which environmental factors are listed. These factors range from physical factors such as climate and terrain, to social attitudes, institutions, and laws. Interaction with environmental factors is an essential aspect of the scientific understanding of the phenomena included under the umbrella terms 'functioning and disability'.

THE DOMAINS OF ICF

The domains of ICF are arranged in a hierarchy (Chapter, second, third and fourth level domains), which is reflected in the coding:

Level	Example	Coding
Chapter	Chapter 2: Sensory Functions and Pain	b2
Second level	Seeing Functions	b210
Third level	Quality of vision	b2102
Fourth level	Colour vision	b21021

The follow chart sets out the complete list of chapters in the ICF:

Body	
<p>Function:</p> <p>Mental Functions Sensory Functions and Pain Voice and Speech Functions Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems Functions of the Digestive, Metabolic, Endocrine Systems Genitourinary and Reproductive Functions Neuromusculoskeletal and Movement-Related Functions Functions of the Skin and Related Structures</p>	<p>Structure:</p> <p>Structure of the Nervous System The Eye, Ear and Related Structures Structures Involved in Voice and Speech Structure of the Cardiovascular, Immunological and Respiratory Systems Structures Related to the Digestive, Metabolic and Endocrine Systems Structure Related to Genitourinary and Reproductive Systems Structure Related to Movement Skin and Related Structures</p>
Activities and Participation	
<p>Learning and Applying Knowledge General Tasks and Demands Communication Mobility Self Care Domestic Life Interpersonal Interactions and Relationships Major Life Areas Community, Social and Civic Life</p>	
Environmental Factors	
<p>Products and Technology Natural Environment and Human-Made Changes to Environment Support and Relationships Attitudes Services, Systems and Policies</p>	

The following chart gives some possible examples of disabilities that may be associated with the three levels of functioning linked to a health condition.

HEALTH CONDITION	IMPAIRMENT	ACTIVITY LIMITATION	PARTICIPATION RESTRICTION
Leprosy	Loss of sensation of extremities	Difficulties in grasping objects	Stigma of leprosy leads to unemployment
Panic Disorder	Anxiety	Not capable of going out alone	People's reactions leads to no social relationships
Spinal Injury	Paralysis	Incapable of using public transportation	Lack of accommodations in public transportation leads to no participation in religious activities
Juvenile diabetes	Pancreatic dysfunction	None (impairment controlled by medication)	Does not go to school because of stereotypes about disease
Vitiligo	Facial disfigurement	None	No participation in social relations owing to fears of contagion
Person who formally had a mental health problem and was treated for a psychotic disorder	None	None	Denied employment because of employer's prejudice

The next chart indicates how the different levels of disability are linked to three different levels of intervention.

	Intervention	Prevention
HEALTH CONDITION	Medical treatment/care Medication	Health promotion Nutrition Immunization
IMPAIRMENT	Medical treatment/care Medication Surgery	Prevention of the development of further activity limitations
ACTIVITY LIMITATION	Assistive devices Personal assistance Rehabilitation therapy	Preventive rehabilitation Prevention of the development of participation restrictions
PARTICIPATION RESTRICTION	Accommodations Public education Anti-discrimination law Universal design	Environmental change Employment strategies Accessible services Universal design Lobbying for change

CONCLUSION

ICF offers an international, scientific tool for the paradigm shift from the purely medical model to an integrated biopsychosocial model of human functioning and disability. It is a valuable tool in research into disability, in all its dimensions -- impairments at the body and body part level, person level activity limitations, and societal level restrictions of participation. ICF also provides the conceptual model and classification required for instruments to assess the social and built environment.

ICF will be an essential basis for the standardization of data concerning all aspects of human functioning and disability around the world.

ICF will be used by persons with disabilities and professionals alike to evaluate health care settings that deal with chronic illness and disability, such as rehabilitation centres, nursing homes, psychiatric institutions, and community services.

ICF will be useful for persons with all forms of disabilities, not only for identifying their health care and rehabilitative needs, but also in identifying and measuring the effect of the physical and social environment on the disadvantages that they experience in their lives.

From the viewpoint of health economics, ICF will help monitor and explain health care and other disability costs. Measuring functioning and disabilities will make it possible to quantify the productivity loss and its impact on the lives of the people in each society. The classification will also be of great use in the evaluation of intervention programmes.

In some of the developed countries, ICF and its model of disability have been introduced into legislation and social policy, across sectors. It is expected that ICF will become the world standard for disability data and social policy modeling and will be introduced in the legislation of many more countries around the globe.

In sum, ICF is WHO's framework for health and disability. It is the conceptual basis for the definition, measurement and policy formulations for health and disability. It is a universal classification of disability *and* health for use in health and health-related sectors.

THE WORLD-WIDE ICF NETWORK

For further information about ICF, and its application to regions or countries, contact the following organizations, agencies, and NGOs who form part of ICF collaborating network.

Collaborating Centers:

Australia: Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601, Australia
Contact: Ros Madden.

Canada: Canadian Institute for Health Information, 377 Dalhousie Street, Suite 200, Ottawa Ontario K1N9N8, Canada
Contact: Janice Miller.

France: Centre technique national d'Etudes et de Recherches sur les Handicaps et les Inadaptations (CTNERHI), 236 bis, rue de Tolbiac, 75013 Paris, France
Contact: Catherine Barral.

Japan: Japan College of Social Work, 3-1-30 Takeoka, Kiyosehi, Tokyo 204, Japan
Contact: Hisao Sato.

The Netherlands: Center for Standardization of Informatics in Health Care (CSIZ), Dribergseweg 3, 3708 JA Zeist, The Netherlands, Contacts: Willem Hirs and Marijke W. de Kleijn de Vrankrijker.

Nordic countries: Department of Public Health and Caring Sciences, Uppsala Science Park, SE Uppsala Sweden
Contact: Björn Smedby.

United Kingdom: NHS Information Authority, Coding and Classification, Woodgate, Loughborough, Leics LE11 2TG, United Kingdom. Contact: Ann Harding, Jane Millar

USA: National Center for Health Statistics, Room 850, 6525 Belcrest Road, Hyattsville MD 20782, USA
Contact: Paul Placek.

Networks:

La Red de Habla Hispana en Discapacidades (The Spanish Network). Co-ordinator: Jose Luis Vazquez-Barquero, Unidad de Investigacion en Psiquiatria Clinical y Social Hospital Universitario "Marques de Valdecilla", Avda. Valdecilla s/n, Santander 39008 Spain.

The Council of Europe Committee of Experts for the Application of ICIDH, Council of Europe, F-67075, Strasbourg, France. Contact: Lauri Sivonen.

Participating Non Governmental Organizations:

Disabled Peoples International, 11 Belgrave Road, London SW1V 1RB, United Kingdom. Contact: Rachel Hurst.

European Disability Forum, Square Ambiorix, 32 Bte 2/A, B-1000, Bruxelles, Belgium. Contact: Frank Mulcahy.

European Regional Council for the World Federation of Mental Health (ERCWFM), Blvd Clovis N.7, 1000 Brussels, Belgium. Contact: John Henderson.

Inclusion International, 13D Chemin de Levant, F-01210, Ferney-Voltaire, France. Contact: Nancy Breitenbach

Rehabilitation International, 25 E. 21st Street, New York, NY 10010, USA. Contact: Judith Hollenweger, Chairman RI Education Commission, Institute of Special Education, University of Zurich, Hirschengraben 48, 8001 Zurich, Switzerland.

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Tap the potential of the ICF home page

<http://www.who.int/classification/icf>

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