WHO-FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK MEETING 2005

ICF: a multi-dimensional approach for measuring health and disability

16-22 October
Tokyo Japan

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P2-17

Abstract ICF provides the basic premise for the definition of health state and disability. The poster presents the (i) core definition of the ICF concepts (i.e. functioning, health, health status, health state, decrement in health, disability); (ii) characteristics and boundaries of these concepts and (iii) operational implications for measuring health and disability.

Core definitions of ICF concepts

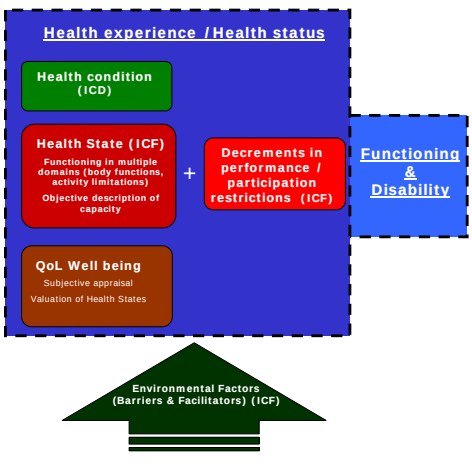
Functioning is an umbrella term for body functions, body structures, activities and participation. It denotes the positive aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).

Health states and health domains: A health state is the level of functioning within a given health domain of ICF. Health domains denote areas of life that are interpreted to be within the "health" notion, such as those which, for health systems purposes, can be defined as the primary responsibility of the health system. ICF does not dictate a fixed boundary between health and health-related domains. There may be a grey zone depending on differing conceptualizations of health and health-related elements which can then be mapped onto the ICF domains. But ICF defines all domains in a operational way

Health-related states and health-related domains: A health-related state is the level of functioning within a given health-related domain of ICF. Health-related domains are those areas of functioning that, while they have a strong relationship to a health condition, are not likely to be the primary responsibility of the health system, but rather of other systems (e.g. education, labour or employment) contributing to overall well-being. In ICF, only those domains of well-being related to health are covered.

Disability is an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).

Diagram 1: Conceptualization of health and disability



Characteristics of ICF concepts

The health state is an attribute of the individual: The health state is an exclusive attribute of the person it cannot be outside of the person. The function of breathing, the capacity to walk is intrinsic to the person, whereas participation and environmental factors are not part of the health state.

The health state is measured as capacity without assistance.

Disability lies on continuum with health. Any decrement in a health state is a disability, but disability is more than this, because it also includes decrements in health-related states (i.e. participation restrictions).

Functioning is broader than the health state of the individual. Functioning can be every domain, i.e. health and non-health domains.

Disability is broader that health decrements. It includes performance in activity/ participation domains and denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).

The performance construct is used to measure the person participation in life situation. The notion of doing something complex or doing something together with people is not the characteristic of participation.

Table 1: Illustrations of the underlying conceptual debate

VALID statement according to ICF definitions	INVALID statement according to ICF definitions
"I am blind but my blindness has not become my handicap." Note: a person with impairment in body function (e.g. blindness) has no functioning problems in his/her day to day life (communication, mobility, work) because of an enabling environment.	*"I am blind but I am fully healthy"* Note: a person with impairment in body function (e.g. blindness) has health state less which is less than perfect health. Hence he/she has a decrement in his health state.
"I am deaf, but most of my disability is due to barriers in my environment" Note: Disability is multi-dimensional and hence used as an umbrella term for impairments in body functions & structure, activity limitations and participation restrictions.	*"I am deaf but I am not disabled, the society makes me disabled"* Note: The disability experience of a deaf person includes impairments in body functions & structure, activity limitations and participation restrictions (multi-dimensional)
"A person with epilepsy has a health problem and is disabled" Note: Disability is not restricted to certain diagnostic or impairment categories. All people irrespective of their health condition may face a disability.	*"A person with epilepsy has a health problem but is not disabled"* Note: A person with epilepsy has some degree of disability due to impairments in body functions & structure, activity limitations and participation restrictions.

Operational implications

Health & disability measures share the same conceptual features

Multi-dimensional: Functioning and disability are understood as occurring in three distinct dimensions, that of the body in its functions and structure, that of the capacities of person as a whole, and that of the actual performance of the person in his or her complete physical and social environment.

Universal model: The measure applies to all people irrespective of their health condition, gender or age.

Linking health & disability measures

Although purpose and focus of health and disability measure may differ, they share the similar information rubrics. ICF domains can therefore be used in both health and disability surveys.

Health Surveys	Disability Surveys
Health condition	Cause of disability
Level of functioning	Type of disability Severity of disability
Interventions	Assistance required Facilitators / barriers
Risk factors	
Prognosis	Impact of disability
Satisfaction	Satisfaction

How to operationalise ICF for use in surveys

1. Clarify
   - purpose of measurement
   - scope
   - coverage
   - duration
   - use of assistive devices
2. Select an appropriate measurement approach
   - Impairment approach
   - Activity & Participation approach
   - Environmental factors approach
   - Comprehensive approach
3. Identify most relevant ICF domains (see Table 2): selection criteria include:
   - Linked to ICF
   - which explain most of the variation in disability
   - Importance in terms of public health burden
   - Psychometrics and feasibility
   - Suitable for self report
   - Cross-Population Comparability
4. Question phrasing: Questions should be:
   - Fit for purpose
   - Simple
   - Using non offensive language
   - Include meaningful thresholds
   - Avoid causal attributions
   - Undergo cognitive testing
   - established psychometric properties
   - Use ICF compatible response scale

Table 2: Recommended ICF domains for use in surveys and Health Information Systems

Body Functions and Structures	Chapter and code		Classification block or category
Vision	2	b210–b220	Seeing and related functions
Hearing	2	b230–b240	Hearing and vestibular functions
Speech	3	b310-b340	Voice and speech functions
Digestion	5	b510–b535	Functions of the digestive system
Bodily excretion	6	b610–b630	Urinary functions
Fertility	6	b640–b670	Genital and reproductive functions
Sexual activity	6	b640	Genital and reproductive health
Skin and disfigurement	8	b810–b830	Skin and related structures
Breathing	4	b440–b460	Functions of the respiratory system
Pain*	2	b280	Pain
Affect*	1	b152–b180	Specific mental functions
Sleep	1	b134	Global mental functions
Energy/vitality	1	b130	Global mental functions
Cognition *	1	b140,b144,b164	Attention, memory and higher–level cognitive functions
Activities and Participation			
Communication	3	d310–d345	Communication receiving – producing
Mobility*	4	d450–d465	Walking and moving
Dexterity	4	d430–d445	Carrying, moving and handling objects
Self-care*	5	d510–d570	Self-care
Usual activities*	6 and 8		Domestic life; Major life areas
Interpersonal relations	7	d730–d770	Particular interpersonal relationships
Social functioning	9	d910–d930	Community social and civic life