

Using the ICF in work-related physiotherapy: a contribution to data collection about functioning

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ABSTRACT

Introduction: In Brazil, the notification of the worker's health is made through the International Classification of Diseases (ICD). However, to assess their functionality and disability, the International Classification of Functioning, Disability, and Health (ICF) is more appropriate as it is a tool that generates data on human functioning at work and on the influence of the environment on the performance of occupational activities. **Objective:** This paper aims to develop a data collection form for use in Occupational Physiotherapy to facilitate the notification of disabilities or of environmental influences on functionality. **Method:** Based on the Delphi technique and after an informed consensus with specialists, relevant categories of the ICF were chosen and an instrument of data collection was structured that was eventually submitted to the participants of this selective process to evaluate its applicability. **Results:** We obtained a data collection instrument comprising 24 ICF categories with the possibility of using three qualifiers created for this purpose. The participants found this collection form easy to use. **Conclusion:** The data collection instrument that resulted from this study will be available for tests in the area of Occupational Physiotherapy and is expected to help in generating data on the workers' functioning.

Keywords: International Classification of Functioning, Disability and Health, Occupational Health, Data Collection, Physical Therapy Specialty

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INTRODUCTION

The use of the International Classification of Functioning, Disability, and Health (ICF) as a statistical tool that collects information on human functioning may be one of the most important purposes of its application. Even 12 years after the ICF was first published, there is no data on the functioning of workers based on common and standardized language such as what is offered by this classification.^{1,2}

In Brazil, information on the health of workers includes only data on the disease, condition or injury, for which it uses the International Statistical Classification of Diseases and Related Health Problems (ICD). Since its adoption, the ICD has had an important epidemiological role in the codification of mortality and morbidity. Thus, the information system on the health of workers generates important data from the pathological point of view, however, incomplete in the determination of functioning conditions. The ICF allows the collection of more specific data, as much for functioning in as for relating to the work environment and performing the activities related to it.³⁻⁶

Much more than establishing a common language and a standard for the area, the ICF can serve as a tool for strategic actions to improve productivity, work efficiency, and the distribution of financial resources.^{7,8}

Knowledge on the general state of worker health may come from data generated by the evaluation of this population, since the laws of the country demand, for example, that any worker be examined when hired, fired, and also in the interim periodically, which can feed the health information systems. Although we currently have both data, it does not include functioning. Having further information on the health of workers could be an important gain.

Physiotherapy is one of the main areas trying to use the ICF around the world, especially for the need to unify the diagnostic language of such professionals.^{9,10} However, in Brazil, physiotherapists have little contact with the classification, since part of these professionals knows only the model of functioning that it proposes.²

The ICF is composed of categories and its subdivisions, or constructs, of various dimensions, including the parts of the body. It encompasses functioning as activity and participation, that is, what a human being can do in different situations or under the influence of different environments, for example. To each category or construct there is a related group that must be comple-

ted by qualifiers, numbers that indicate the magnitude of a problem within a specific category. In general, the user must select the categories and qualifiers that identify and express each case.¹¹ The classification must be done based on the multidirectional model of functioning, which integrates the different dimensions, establishing relationships between the environment, the performance of activities, and social participation.¹²⁻¹⁵

For instance, one ICF subcategory, d4500 (walking short distances - less than 1km), is always part of a "mother-category," more general (or first level), which in this case is d4 (mobility). Considering only the first level, the ICF has 30 categories. Each category of the ICF can have up to four levels of specificity, in a hierarchical classification. It is also possible to use a smaller number of categories, using only those less complex.

In addition, the use of qualifiers can also be simplified. Qualifiers are numbers added to the categories and separated by a dot, for example: walking short distances without problems: d4500.0. A condition without alterations (or without any problems) is suffixed with the "0" qualifier. The magnitude of a problem is defined with the use of qualifiers that go from "1" to "4", with "4" identifying a complete problem, or with maximum magnitude. The ICF also proposes the use of the qualifier "8" (not specified), that indicates the existence of some alteration, without specifying its degree of magnitude, and "9" (not applicable).

In order to facilitate use, the use of only two qualifiers can be proposed: "0" for absence and "8" for presence of a certain problem in a specific category. This resource may avoid the calibration between the ICF qualifiers and the measuring instruments suggested by the WHO, making it possible to create a classifying instrument, easy to use and very helpful in the generation of data on functioning and disability.¹⁶

OBJECTIVE

This study seeks to structure an instrument to collect data on functioning with the ICF categories to be used in the Physiotherapy of Work specialty.

METHOD

A consensus study was made with the participation of a sample of professionals in the area of physiotherapy, indicated by

the *Associação Brasileira de Fisioterapia do Trabalho* - ABRAFIT (Brazilian Association of Occupational Therapy). The development of this study proceeded in six phases, shown below in detail.

Phase 1: Selection

In the first phase, we contacted the institution, presented the project and requested the indication of potential participants. From the 120 professionals indicated, 27 participated in the study.

Phase 2: Invitation to professionals and sending them didactic material on the ICF

In the second phase, the participants received an invitation via e-mail, with the details of the study and the acceptance form to participate in the research. Together with the invitation, we sent some descriptive material on the ICF. An electronic questionnaire, made available at the *Laboratório de Estudos Populacionais (LEP) da Faculdade de Saúde Pública da Universidade de São Paulo* (Populational Studies Laboratory, School of Public Health, University of São Paulo) should be filled in by each participant. The forms could be found in the link: <http://www.fsp.usp.br/site/paginas/mostrar/556>.

The descriptive material had two files, the first for compulsory reading and the second for supplementary reading. The first file was about the translation of an ICF document made by work groups from the WHO, called ICF Overview. The second file had the complete ICF Portuguese version. The participants only had access to the questionnaire after declaring having read and understood the material sent to them. Thus, the acceptance, the reading, and the understanding of the material were the conditions to participate in the study.

Phase 3: Presentation of the ICF categories for selection of those most used by their specialty, via the LEP electronic system

In the third phase, the participants were urged to answer the questionnaire that contained a description and explanation of each classification category. They should point out/select which classification categories were fundamental for their specialty within Physiotherapy. For the participants, an item should be considered for the list if it was indispensable for use in the activities of the specialist during his or her professional practices as to structure an instrument with a

minimum of ICF categories, but that allowed the most information possible and necessary. The participants were given 30 days to deliver their answers after receiving the material. Fifteen days after the material had been sent, all of them received a reminder about the delivery deadline. Each participant selected the ICF categories not applicable to his or her area of work and intervention, indicating a YES or NO beside each one of them on the questionnaire.

Phase 4: Analysis of the answers, preparation of the minimum list of ICF categories, based on the information obtained in the previous phase, and sending the final result to the participants

After examining all the questionnaires, the list of ICF categories and the frequency with which they were indicated by the participants was made. The categories that obtained 80% or more indications were included in the short list of ICF categories to be used in that area. This list was presented to the participants for their acknowledgement and new considerations.

Phase 5: Proposal of use of qualifiers and questions on the viability of the instrument

The final list, containing the categories selected and the proposal of use of qualifiers was sent to all the participants so that they could give their opinion on the viability of its use. This information was collected in a second questionnaire (Annex 1). This questionnaire contained questions that tried to identify whether the final instrument was easy to use, whether it unified the language, whether it would be able to generate data on functionality, and what would be its degree of importance.

Phase 6: Compilation and analysis of the answers

The proposals of the second questionnaire were compiled to learn the opinions of the participants on the possibility of using the tool in their daily professional practice. (Figures 1 and 2).

RESULTS

Table 1 shows the 24 ICF categories, with their different degrees of specificity selected by at least 80% of the participants.

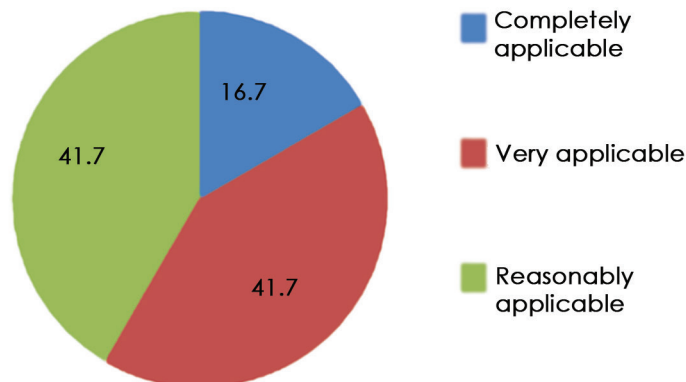


Figure 1. Applicability, second opinion of the participants

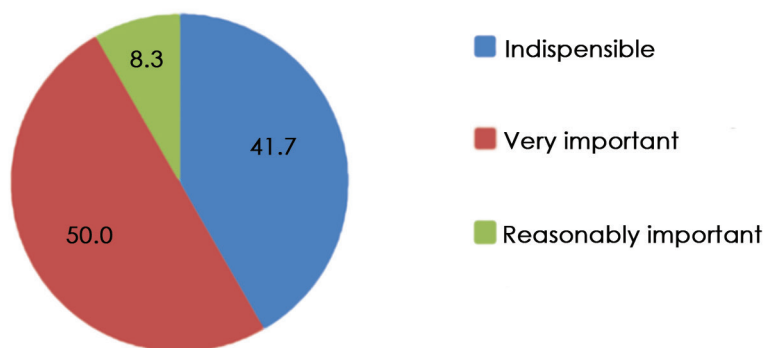


Figure 2. Relevance, second opinion of the participants

Other categories related to mental functions, respiratory functions, to respiratory system structures, and to metabolic and endocrine functions were indicated by a few participants, but did not reach the minimum percentage of 80% required to be included on the short list. These categories composed the final instrument (Annex 2) that includes the use of qualifiers.

After the instrument was presented, the second questionnaire was applied, with the following results:

- 91.7% of the respondents considered it acceptable to apply the instrument in their professional practice;
- 91.7% believed that the ICF concepts favored language unification in the specialty;

- 100.00% understood that the use of the instrument allows the generation of data on human functionality;
- 66.7% pointed out that the instrument developed from the ICF is able to feed information systems, as is the case for the ICD;
- 58.3% felt the instrument to be completely or very applicable;
- 91.7% considered the instrument as indispensable or very important.

According to 83.3% of the professionals consulted, the final instrument may bring benefits and advantages to the worker due to its generating information on worker functionality.

Table 1. List of ICF categories selected by the participants as important to the area of occupational physiotherapy

Categories	Description	Frequency
b260	Proprioceptive function	93.7%
b270	Sensory functions related to temperature and other stimuli	93.7%
b280	Sensation of pain	93.7%
b710	Mobility of articulations functions	100%
b715	Muscle power function	100%
b730	Muscle tone function	100%
b735	Muscle resistance function	100%
b740	Muscle resistance function	100%
s1	Nervous system structures	87.5%
s7	Structures related to movement	100%
d230	Performing daily routine	93.7%
d410	Changing body position	100%
d415	Keeping position of the body	100%
d420	Transferring the body	100%
d430	Lifting and carrying objects	100%
d435	Moving objects with lower limbs	100%
d440	Fine hand use	100%
d450	Walking	100%
d475	Driving	87.5%
d7	Interpersonal interactions and relationships	81.2%
e1	Products and technologies	87.5%
e2	Natural environment and man made changes	87.5%
e4	Attitudes	81.2%
e5	Services, systems, and policies	81.2%

DISCUSSION

In this study, the process was conducted via a worldwide network of computers, in an electronic system applying questionnaires. The selected categories represented the specificity of the area and indicated the functioning and disability aspects that the specialists consider most important. The instrument prepared from the consensus is based on the ICF qualifiers, however, in a simpler form: the use of "8" (problem with magnitude not specified) replaces the use of "1" (problem with light magnitude), of "2" (problem with moderate magnitude), and of "3" (problem with severe magnitude). In that way, we excluded the need to calibrate evaluation instruments with the ICF qualifiers, which demands more time for use and makes the classification more difficult. As the ICF has a single standard, it should be constantly calibrated under the perspective of the existing evaluation tools.^{16,17}

The preparation of short and specific lists that facilitate the user's applying the ICF has obeyed a consensus process among specialists.¹⁸ In this way, the Delphi method

has been used, which is an important stage to obtain these lists,^{19,20} and utilized by the project named Core Sets, a pioneer in this area. A review study on the publication of the ICF Core Sets found 44 studies published between 2001 and 2010.²¹

A few short ICF lists were published and are known as ICF Core Sets for health conditions, such as diabetes, obesity, and rheumatoid arthritis. There are Core Sets for specific health conditions that were analyzed from other perspectives,²² as well as the creation of these lists based on specialties. Many Core Sets for health conditions were developed as part of a multicentric project, involving specialists from all over the world and using different levels of complexity. Some were evaluated under the perspective of a certain area¹⁰ and may be useful instruments in the collection of data on the functionality of a group of patients with the same health condition.

However, in the case of an instrument to collect data to be used in a certain specialty, it is possible to include a greater number of health conditions (such as the most common in the area) with the more simplified use of the ICF

categories, which is an advantage over the Core Sets for health conditions. Even so, it is possible to survey relevant data on functionality.²³⁻²⁵ The basic aspects of activities combined with those of environmental factors widen the understanding of impacts on health that alterations in functionality and environment create.²⁶

The activities of the specialist in Occupational Physiotherapy involve prevention and treatment. It is important that a notification sheet be friendly, that it contain a minimum of questions that allow for the most information. Despite the existence of a vocational Core Set,²⁷ it cannot be compared to the instrument proposed in this study, since it is less specific in its inclusion of different areas of knowledge. Therefore, to verify the acceptance of those who will effectively use the instrument is one of the main steps to guarantee its adoption. The instrument created was accepted by more than 90% of those interviewed.

The results obtained in this study take care of the practical quality of the tool and of the importance of the data it collects, having been approved for use by the participants, including a form based on the specialty and not based on a health condition. This type of short list seeks information on functionality for a certain area, generating relevant data on the situation of the people evaluated.²⁷ The form presented includes the use of the ICF categories directly. The use of questions that represent the categories could facilitate the use of the tool even more, promoting its acceptance. In a review study on the use of the ICF in Physiotherapy,²⁸ it was verified that language unification is one of the advantages mentioned most in the use of this tool for Physiotherapy. According to most professionals interviewed in this study, the tool proposed is capable of solving the impasse of a language with no standard.

There is little involvement of Physiotherapy professionals with health information systems. Recognizing the importance, applicability, and advantages of using the ICF depends on many factors, such as clarity on what this information may generate as a return for the physiotherapeutic field. We defend that the instrument that facilitates the use of the ICF in the Occupational Physiotherapy be widely used and that it may be used with safety, to guarantee more detailing on the state of functioning of a specific population.²⁹

The list created is an easy-to-use instrument, which can be adapted to medical records or even to electronic medical records, in health services and systems. Thus, we have developed a quick and viable way to apply the classification using a practical instrument,

able to generate information on functionality, even if superficially. It is noteworthy that data essential to knowing the incidence and prevalence of disabilities in populations, as well as their temporal trend, are not collected (or are not available) in Brazil, only with the use of the ICD. Since the ICF and the ICD complement

each other, there is a clear need for a more complete information system.

CONCLUSION

The first version of a classifying instrument based on the ICF to be used in

Occupational Physiotherapy, structured by the selection of the most relevant categories and by the use of a “not specified” qualifier has been developed and is ready to be tested as a data generator on human functionality.

Annex 1. Suggestion of instrument to evaluate worker

Instrument to collect data on functioning and disability			
Specialty: Occupational Physiotherapy			
Name:			
Age:			
Gender:			
Race/Color:			
Previous history:			
ICD (if available):			
	Complete loss of function	Partial loss of function	Function preserved
b260 Proprioceptive functions			
b270 Sensory functions related to temperature and other stimuli			
b280 Sensation of pain	Present ()	Absent ()	
	Complete loss of function	Partial loss of function	Function preserved
b710 Mobility of articulations function			
b715 Stability of articulations function			
b730 Muscle power function			
b735 Muscle tone function			
b740 Muscle resistance function			
	There is injury/alteration	There is no injury/alteration	
s1 Nervous system structures			
s7 Structure			
Performance (the professional asks patient about his regular life)	NO	YES, but with partial difficulty	YES, no difficulty
d230 Performing daily routine			
d475 Driving			
d7 Interpersonal interactions and relationships			
Capacity (professional evaluates the physical condition of the patient)	Complete difficulty	Partial difficulty	No difficulty
d410 Changing body position			
d415 Keeping the body in one position			
d420 Transferring the body			
d430 Lifting and carrying objects			
d435 Moving objects with lower limbs			
d440 Fine hand use			
d450 Walking			
Environmental factors (additional/supplementary information)	Hinder	Facilitate	
On products and technologies available to the individual			
On items of the natural environment, workplace, and surroundings			
On attitudes of co-workers, according to the patient's impressions			
On services, systems and policies available in the country			

Annex 2. Viability

NAME:
 CREFITO:
 ABRAFIT:
 COUNTRY REGION: () Midwest () Northeast () North () Southeast () South

1. Is it acceptable to use the created instrument in your professional practice?
 () YES
 () NO
 Comment (optional):

2. Does the use of the ICF concepts favor language unification in your area of work?
 () YES
 () NO
 Comment (optional):

3. Does the instrument contribute to generate data on human functioning at work?
 () YES
 () NO
 Comment (optional):

4. Can the ICF supply health information systems with epidemiological data in the same way as the ICD-10?
 () YES
 () NO
 Comment (optional):

5. Does the use of the instrument offer advantages to the worker?
 () YES
 () NO
 Comment (optional):

6. How do you rate the applicability of the instrument?
 () not applicable
 () somewhat applicable
 () reasonably applicable
 () very applicable
 () completely applicable

7. How do you rate the importance of the created instrument?
 () without importance
 () somewhat important
 () reasonably important
 () very important
 () indispensable

REFERENCES

1. Ruaro JA, Ruaro MB, Souza DE, Fréz AR, Guerra RO. Panorama e perfil da utilização da CIF no Brasil: uma década de história. *Rev Bras Fisioter.* 2012;16(6):454-62. DOI: <http://dx.doi.org/10.1590/S1413-35552012005000063>
2. Sampaio RF, Madel TL. Funcionalidade e Incapacidade humana: explorando o escopo da classificação internacional da Organização Mundial da Saúde. *Cad Saúde Pública.* 2009; 25(3):475-83. DOI: <http://dx.doi.org/10.1590/S0102-311X2009000300002>
3. Pedro-Cuesta J, Comín Comín M, Virués-Ortega J, Almazán Isla J, Avellanal F, Alcalde Cabero E, et al. ICF-based disability survey in a rural population of adults and older adults living in Cinco Villas, Northeastern Spain: design, methods and population characteristics. *Neuroepidemiology.* 2010;35(1):72-82. DOI: <http://dx.doi.org/10.1159/000311040>
4. Fernández-López JA, Fernández-Fidalgo M, Cieza A. Quality of life, health and well-being conceptualizations from the perspective of the International Classification of Functioning, disability and health (ICF). *Rev Esp Salud Publica.* 2010;84(2):169-84.
5. McDougall J, Wright V, Rosenbaum P. The ICF model of functioning and disability: incorporating quality of life and human development. *Dev Neurorehabil.* 2010;13(3):204-11. DOI: <http://dx.doi.org/10.3109/17518421003620525>
6. Ueda S, Okawa Y. The subjective dimension of functioning and disability: what is it and what is it for? *Disabil Rehabil.* 2003;25(11-12):596-601.
7. Finger ME, Escorpizo R, Glässel A, Gmünder HP, Lückenkemper M, Chan C, et al. ICF Core Set for vocational rehabilitation: results of an international consensus conference. *Disabil Rehabil.* 2012;34(5):429-38. DOI: <http://dx.doi.org/10.3109/09638288.2011.608145>

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8. Lima MAG, Neves RF, Tironi MOS, Nascimento AMDN, Magalhães FB. Avaliação da funcionalidade dos trabalhadores com LER/DORT: a construção do Core Set da CIF para LER/DORT. *Acta Fisiatr.* 2008;15(4):229-35.
 9. Palisano RJ. A collaborative model of service delivery for children with movement disorders: a framework for evidence-based decision making. *Phys Ther.* 2006;86(9):1295-305. DOI: <http://dx.doi.org/10.2522/ptj.20050348>
 10. Bossmann T, Kirchnerberger I, Glaessel A, Stucki G, Cieza A. Validation of the comprehensive ICF core set for osteoarthritis: the perspective of physical therapists. *Physiotherapy.* 2011;97(1):3-16. DOI: <http://dx.doi.org/10.1016/j.physio.2009.11.011>
 11. Lima A, Viegas CS, Paula MEM, Silva FCM, Sampaio RF. Uma abordagem qualitativa das interações entre os domínios da Classificação Internacional de Funcionalidade, Incapacidade e Saúde. *Acta Fisiatr.* 2010;17(3):94-102.
 12. Kalay L, Fujimori S, Suzuki H, Minamoto K, Ueda K, Wei CN, et al. Description of environmental determinants of quality of life in children with intellectual disability in Japan using the Delphi technique. *Environ Health Prev Med.* 2010;15(2):73-83. DOI: <http://dx.doi.org/10.1007/s12199-009-0109-6>
 13. Pollard B, Dixon D, Dieppe P, Johnston M. Measuring the ICF components of impairment, activity limitation and participation restriction: an item analysis using classical test theory and item response theory. *Health Qual Life Outcomes.* 2009;7:41. DOI: <http://dx.doi.org/10.1186/1477-7525-7-41>
 14. Tesio L. From codes to language: is the ICF a classification system or a dictionary? *BMC Public Health.* 2011;11 Suppl 4:S2.
 15. Francescutti C, Gongolo F, Simoncello A, Frattura L. Description of the person-environment interaction: methodological issues and empirical results of an Italian large-scale disability assessment study using an ICF-based protocol. *BMC Public Health.* 2011;11 Suppl 4:S11.
 16. Cieza A, Brockow T, Ewert T, Amman E, Kollerits B, Chatterji S, et al. Linking health-status measurements to the international classification of functioning, disability and health. *J Rehabil Med.* 2002;34(5):205-10. DOI: <http://dx.doi.org/10.1080/165019702760279189>
 17. Madans JH, Loeb ME, Altman BM. Measuring disability and monitoring the UN Convention on the Rights of Persons with Disabilities: the work of the Washington Group on Disability Statistics. *BMC Public Health.* 2011;11 Suppl 4:S4.
 18. Kostanjsek N, Escorpizo R, Boonen A, Walsh NE, Ustün TB, Stucki G. Assessing the impact of musculoskeletal health conditions using the International Classification of Functioning, Disability and Health. *Disabil Rehabil.* 2011;33(13-14):1281-97.
 19. Weigl M, Cieza A, Andersen C, Kollerits B, Amann E, Stucki G. Identification of relevant ICF categories in patients with chronic health conditions: a Delphi exercise. *J Rehabil Med.* 2004;(44 Suppl):12-21.
 20. Hirsch KD, Zick C. International Classification of Functioning, Disability and Health (ICF). Basis for cutaneous rehabilitation management. *Hautarzt.* 2010;61(4):294-301. DOI: <http://dx.doi.org/10.1007/s00105-009-1868-0>
 21. Riberto M. Core Sets da Classificação Internacional de Funcionalidade, Incapacidade e Saúde. *Rev Bras Enferm.* 2011;64(5):938-46. DOI: <http://dx.doi.org/10.1590/S0034-71672011000500021>
 22. Starrost K, Geyh S, Trautwein A, Grunow J, Ceballos-Baumann A, Prosiogel M, et al. Interrater reliability of the extended ICF core set for stroke applied by physical therapists. *Phys Ther.* 2008;88(7):841-51. DOI: <http://dx.doi.org/10.2522/ptj.20070211>
 23. Good A. Using the ICF in Ireland. *BMC Public Health.* 2011;11 Suppl 4:S5.
 24. Salvador-Carulla L, Garcia-Gutierrez C. The WHO construct of health-related functioning (HrF) and its implications for health policy. *BMC Public Health.* 2011;11 Suppl 4:S9.
 25. Kostanjsek N. Use of The International Classification of Functioning, Disability and Health (ICF) as a conceptual framework and common language for disability statistics and health information systems. *BMC Public Health.* 2011;11 Suppl 4:S3.
 26. Myezwa H, Buchalla CM, Jelsma J, Stewart A. HIV/AIDS: use of the ICF in Brazil and South Africa-comparative data from four cross-sectional studies. *Physiotherapy.* 2011;97(1):17-25. DOI: <http://dx.doi.org/10.1016/j.physio.2010.08.015>
 27. Escorpizo R, Ekholm J, Gmünder HP, Cieza A, Kostanjsek N, Stucki G. Developing a Core Set to describe functioning in vocational rehabilitation using the international classification of functioning, disability, and health (ICF). *J Occup Rehabil.* 2010;20(4):502-11 DOI: <http://dx.doi.org/10.1007/s10926-010-9241-9>
 28. Araújo ES. A Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) em fisioterapia: uma revisão bibliográfica [Dissertação]. São Paulo: Universidade de São Paulo, Faculdade de Saúde Pública; 2008.
 29. Madden R, Glozier N, Mpofu E, Llewellyn G. Eligibility, the ICF and the UN Convention: Australian perspectives. *BMC Public Health.* 2011;11 Suppl 4:S6.47