Strengthening Rehabilitation in Health Systems Worldwide by Implementing Information on Functioning in Rehabilitation Practice, Quality Management, and Policy: 2018 Status Report

Francesca Gimigliano, Melissa Selb, Masahiko Mukaino, Cristina Baffone, Jerome Bickenbach, Julia Engkasen Patrick, Christoph Gutenbrunner, Jianan Li, Stefano Negrini, Gerold Stucki, Mauro Zampolini, Jorge Lains

1Department of Mental and Physical Health and Preventive Medicine, University of Campania “Luigi Vanvitelli”, Napoli, Italy; 2Swiss Paraplegic Research, Nottwil, Switzerland; 3ICF Research Branch, a Cooperation Partner Within the WHO Collaborating Centre for the Family of International Classifications in Germany (at DIMDI), Nottwil, Switzerland; 4Department of Rehabilitation Medicine I, School of Medicine, Fujita Health University, Toyoake, Japan; 5Department of Health Sciences and Health Policy, Faculty of Humanities and Social Sciences, University of Lucerne, Lucerne, Switzerland; 6Department of Rehabilitation Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia; 7Department of Rehabilitation Medicine, Hannover Medical School, Hannover, Germany; 8Department of Rehabilitation Medicine, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China; 9Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy; 10Don Gnocchi Foundation, Milan, Italy; 11Department of Rehabilitation, USL Umbria 2, Foligno Hospital, Foligno, Italy; 12Centro de Medicina de Reabilitação da Região Centro, Tocha, Portugal

Abstract

The link between rehabilitation, functioning, and the International Classification of Functioning, Disability and Health (ICF) is nothing new. This is reflected not only in the numerous peer-reviewed papers on applying the ICF in rehabilitation but also in the indispensable role of functioning and the ICF in developing the conceptual descriptions of rehabilitation as a health strategy and of physical and rehabilitation medicine (PRM) as a medical specialty. Since the World Health Organization’s (WHO’s) Rehabilitation 2030 Call for Action in 2017, functioning and the ICF have gained an even more prominent role in rehabilitation. This paper provides an overview of the current efforts toward strengthening rehabilitation in health systems throughout the world by applying information on functioning in rehabilitation practice, Clinical Quality Management for Rehabilitation (CQM-R), and policy, using the ICF as a reference framework. These initiatives are led by rehabilitation and rehabilitation-related societies and academic institutions in various countries and regions of the world. This paper briefly describes them and puts them into the context of WHO’s call for strengthening rehabilitation. It concludes by highlighting lessons learned from these initiatives, introducing Cochrane Rehabilitation as a conduit for promoting the use of ICF in evidence gathering and calling for collaboration from new partners who have not yet been active in promoting ICF implementation. This call for collaboration from the International Society of PRM strives to diversify the representation of contributors and experiences in implementing the ICF in rehabilitation practice, CQM-R, and policy.

Keywords: Disability and Health, International classification of functioning, policy, quality management, rehabilitation practice

The International Society of Physical and Rehabilitation Medicine (ISPRM) has been instrumental in the implementation of the International Classification of Functioning, Disability and Health (ICF) in PRM, rehabilitation, and health care at large. The ISPRM has endorsed the ICF Core Sets project (in 2009). The leadership of ISPRM with its President’s Cabinet (President W. Frontera, President Elect L. Li, Vice President F. Gimigliano, Past President J. Lains, Treasurer S. Wu, and Secretary P. Lim) is supporting the implementation of the ICF in PRM, rehabilitation, and health care at large in the context of World Health Organization’s (WHO) call for action “Rehabilitation 2030: A call for action.” The collaboration with WHO is led by the president, coordinated by the secretary and the ISPRM-WHO liaison committee (Chair C. Kiekens) – Subcommittee ICF Implementation in Health Systems (Chair M. Mukaino).

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Address for correspondence: Dr. Francesca Gimigliano, Department of Mental and Physical Health and Preventive Medicine, University of Campania “Luigi Vanvitelli”, Napoli, Italy.

E-mail: francescagimigliano@gmail.com

**INTRODUCTION**

From February 6, 2017, to February 7, 2017, WHO launched the initiative “Rehabilitation 2030: A Call for Action” at an important meeting in which various stakeholders participated, including government officials, representatives of the World Health Organization (WHO) and other United Nations (UN) agencies, international professional organizations, organizations of rehabilitation service users as well as rehabilitation providers, research institutions, and funding bodies among others. A major aim for bringing together these stakeholders was to inspire them to actively participate in a global effort toward strengthening rehabilitation in health systems. WHO’s call for action not only underscores the increasing need for rehabilitation, but also brings awareness to the role rehabilitation can play in achieving UN’s Sustainable Development Goals, specifically in ensuring that all people all over the world are able to experience good health and well-being.\(^8\,^9\)

Rehabilitation as a health strategy aims to optimize a person’s functioning.\(^10\) Accordingly, physical and rehabilitation medicine (PRM) can be considered the “medicine of functioning.”\(^11,^12\) Functioning comprises both biological health (i.e., physical and psychological functions and accompanying anatomical structures that enable a person to perform all human activities) and lived health (i.e., the performance of these activities in light of factors within the person’s physical, attitudinal, and social environment).\(^13\) Viewing a person’s experience of health in terms of functioning reflects a paradigm change,\(^14\) one that WHO had recognized in the launch of its International Classification of Functioning, Disability and Health (ICF).\(^15\) The ICF also served as the framework for developing the conceptual descriptions of rehabilitation as a health strategy and of PRM as a medical specialty.\(^16\)

The use of functioning information, specifically the implementation of the ICF in clinical practice and in the development of appropriate clinical tools, has been endorsed by the international rehabilitation community.\(^16\) In addition to employing functioning information at the micro level (i.e., clinical practice), information on functioning can play an essential role at the other levels of the health system, i.e., at the macro and meso levels.\(^17\) While functioning information at the meso level can be useful in guiding service provision, employing functioning information at the macro level can lead to evidence-informed policy and programming that respond to the needs of the evolving patient population and optimize healthcare payment structures, e.g., those using case mix.\(^18,^19\)

Cutting across the three levels of the healthcare system and increasingly being recognized as a relevant model for continuous improvement in rehabilitation is the “learning health system” (LHS) mode.\(^20\) The LHS is a continuously repeating cycle of learning and improvement. In rehabilitation, clinical decision-making is based on scientific evidence; the subsequent experiences of clinicians then influence research, and the research results again guide clinical decision-making. It is expected that improvement in service provision and healthcare outcomes accompanies every new learning cycle.\(^21\) The importance of this bi-directional exchange of knowledge and information between science and rehabilitation practice is also reflected in the establishment of Cochrane Rehabilitation.\(^22\) Since rehabilitation is the “medicine of functioning,” functioning is logically also fundamental for the LHS and the continuous improvement of rehabilitation’s response to people’s needs.\(^17\)

Specifically, the utility of functioning information in rehabilitation is currently most prominent in routine clinical practice (i.e., professional–patient interactions and interprofessional collaborations),\(^23,^26\) in clinical quality management (CQM), and in policy.\(^15,^27,^28\)

Key to successful implementation of functioning information in these application areas and in rehabilitation at large is its integration into national health information systems. This is highlighted by the Rehabilitation 2030 initiative in which WHO calls for “stakeholders to enhance health information systems by including system level rehabilitation data and information on functioning, utilizing the ICF.”\(^13,^29,^30\)

Furthermore, indispensable to the implementation of functioning information in clinical practice, CQM and policy, and in rehabilitation at large is the development and use of ICF-based data collection and standardized reporting tools, such as the ICF Core Sets, the ICF generic sets, and the ICF Clinical Tool.\(^5,^31,^33\) Furthermore, ICF-based tools support the interaction between practice, science, and governance (in this case the interaction between PRM organizations and governmental bodies).\(^27\)

The system-wide implementation of the ICF, including the development and implementation of ICF-based tools, is also included in the 2015–2017 collaboration plan of the International Society of Physical and Rehabilitation Medicine (ISPRM) and WHO.\(^34\) In the context of the ISPRM-WHO collaboration plan, several initiatives toward system-wide implementation of functioning information at the regional and country levels have started. This paper aims to provide an overview of the current state of applying functioning information system-wide in rehabilitation practice, CQM, and policy.

### Current initiatives for the system-wide implementation of functioning in physical and rehabilitation medicine

In this section, all the ongoing initiatives for the system-wide implementation of functioning in PRM are described. Figure 1 shows when these initiatives were developed across countries worldwide. Table 1 provides an overview of the initiatives, their leaders and cooperation partners, the contact person(s), and the country of reference.

### Development and system-wide implementation of the ICF Clinical Tool in rehabilitation and health care at large

#### China

**Leadership**

The Chinese Association of Rehabilitation Medicine and the Chinese Society of Physical Medicine and Rehabilitation
Table 1: Overview of the current initiatives for the system-wide implementation of functioning in physical and rehabilitation medicine, their leadership and cooperation partners, contact person(s), and country of reference

<table>
<thead>
<tr>
<th>International initiatives</th>
<th>Leadership and cooperation partners</th>
<th>Contact person(s)</th>
<th>Country</th>
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<td>Development and system-wide implementation of the ICF Clinical Tool in rehabilitation and health care at large</td>
<td>CARM, CSPMR, SIMFER, ISPRM</td>
<td>Jianan Li</td>
<td>China</td>
</tr>
<tr>
<td>Implementation of the ICF Clinical Tool in the curriculum of PRM specialists in training</td>
<td>SIMFER</td>
<td>Paolo Boldrini, Francesca Gimigliano</td>
<td>Italy</td>
</tr>
<tr>
<td>Development and system-wide implementation of Clinical Quality Management for Rehabilitation</td>
<td>JARM, ISPRM, UM and UMMC, MoH, SOCSO, MARP, ISPRM</td>
<td>Masahiko Mukaino, Julia Engkasan</td>
<td>Japan, Malaysia</td>
</tr>
<tr>
<td>Enhancing continuous quality improvement and supported clinical decision-making by standardized reporting of functioning</td>
<td>SNSF – NRP74, ANQ, partner clinics, SPZ</td>
<td>Gerold Stucki</td>
<td>Switzerland</td>
</tr>
<tr>
<td>European effort for the system-wide implementation of the ICF in PRM, rehabilitation, and the healthcare system at large (includes 1, 2, and 3)</td>
<td>UEMS-PRM, ISPRM</td>
<td>Mauro Zampolini, Maria Gabriella Ceravolo</td>
<td>European countries</td>
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<tr>
<td>1. Development and implementation of Clinical Quality Management for Rehabilitation in European countries</td>
<td>UEMS-PRM</td>
<td>Gerold Stucki and Team</td>
<td>European countries</td>
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<td>2. Implementation of the Individual Rehabilitation Plan in European countries</td>
<td>UEMS-PRM</td>
<td>Mauro Zampolini</td>
<td>European countries</td>
</tr>
<tr>
<td>3. Country implementation of the ICF Clinical Tool in rehabilitation and health care at large</td>
<td>UEMS-PRM</td>
<td>Aydan Oral</td>
<td>Poland, Belgium/The Netherlands, Croatia, Turkey</td>
</tr>
<tr>
<td>Learning Health System for SCI</td>
<td>ISPRM and ISCSoS collaborating with national societies for PRM and SCI</td>
<td>Jerome Bickenbach</td>
<td>&gt;20 countries across 6 WHO regions</td>
</tr>
</tbody>
</table>

in collaboration with the International Classification of Functioning, Disability and Health (ICF) Research Branch and under the umbrella of the International Society of Physical and Rehabilitation Medicine (ISPRM).

Goals
(1) To evaluate the feasibility of using the ICF Generic-7 Set in routine clinical practice and create a functioning score based on it. (2) To develop simple intuitive descriptions of the ICF Generic-30 Set categories in Chinese. (3) To examine psychometric properties of the ICF Generic-6 Set when used in routine clinical practice to assess functioning.

Methodology
(1) A prospective cohort study involving 21 Chinese Hospitals was conducted to test the ICF Generic-7 Set using the generic ICF qualifiers for scoring individual items. (2) A consensus process involving 21 clinical leaders of rehabilitation facilities in China (19 medical doctors and 2 therapists), took place during the 1st ISPRM Developing Countries Summit in Suzhou (Mainland China) in August 2014. (3) A prospective multicenter study, involving 50 hospitals from 20 provinces of Mainland China, each contributing data from 5 different departments was conducted from November 2014 to February 2015 to validate the assessment of functioning with the ICF Generic-6 Set (excluded d850 remunerative employment from the ICF Generic-7 Set as a result of a Rasch analysis following the prospective cohort study) combining simple intuitive descriptions of ICF categories and an 11-point numeric rating scale (0: no problem to 10: complete problem).

Results
(1) The ICF Generic-6 Set was found feasible for broader implementation, and a metric score that was sensitive to change could be developed based on Rasch modeling. The ICF Generic-6 Set for system-wide assessment of functioning is recommend for further testing. (2) Simple, intuitive descriptions of the ICF categories listed in the ICF Generic-30 Set were developed in Chinese and a decision was made to employ an 11-point numeric rating scale for clinical measurement instead of the generic ICF qualifiers. (3) The ICF Generic-6 Set applied with an 11-point numeric rating scale was fit to the Partial Credit Model, and a metric score of functioning was established. Inter-rater reliability was from good to excellent for the different items and the total score at the time of admission and discharge, convergent validity with SF-12 was established, the baseline score was a major predictor of length of inpatient stay and treatment costs (predictive validity), and the discharge score differentiated significantly between discharge destinations as hypothesized (known-group validity).

Future actions
Validate ICF Generic-30 Set in different rehabilitation related settings; implement and ICF-based CQM-R; evaluate CQM-R against usual management of rehabilitation service provision.

References

Footnote
Conference Co-chairs – Jianan Li (Project leader, ISPRM), Gerold Stucki (ICF Research Branch, ISPRM).
Presenters – Birgit Prodinger (ICF Research Branch), Jan Reinhardt (ICF Research Branch, ISPRM, Chair DRC), Gerold Stucki (ICF Research Branch, ISPRM).

Observers – Francesca Gimigliano (ISPRM), Germano Pestelli (ISPRM).

The initiative is aligned with the rehabilitation quality control initiative of the People’s Republic of China, one of the main research priorities launched by the National Health and Family Planning Commission.

Italy
Leadership
The Italian Society of Physical and Rehabilitation Medicine (SIMFER) in collaboration with the ICF Research Branch and under the umbrella of ISPRM.

Goal
To develop simple intuitive descriptions of the ICF Generic-30 Set categories in Italian, serving as a reference for other European languages.

Methodology
A consensus process, involving health rehabilitation professionals (i.e., 12 rehabilitation physicians, 2 social workers, a nurse, a neuropsychologist, a physical therapist, an occupational therapist, and a speech therapist), was held in June 2015 in Abano Terme (Padua), Italy.

Results
An Italian modification of simple intuitive descriptions of the ICF Generic-30 Set categories was produced, and it was translated into English to serve as a reference for other country versions.

Future actions
To collect functioning data using the ICF Generic-30 Set categories of patients with different neurological conditions.
Selb-based transformation tables.

- Set in the collection of functioning

- 30 Set is now available. (2) The ICF

- - based clinical tool.

- - based metrics has been conducted.

- - based computer application.

- 30 Set categories.

- three residents from 13 different Schools of

- based computer application is ongoing.

1) To validate the scoring reference guide.

- 8.

- based computer application to collect data on

- demonstration project to compare the 0–4 versus 0–10 scales.

- in Italy using the ICF Generic-30 Set.

- patients receiving outpatient services of general practitioners

- services were collected and is expected to serve as reference

- outpatient rehabilitation using the ICF Generic-30 Set. Each school was

- randomized to use either the original descriptions or the simple intuitive ones.

- (1) To implement the use of the ICF in clinical practice and research among Italian Residents in PRM. (2) To compare the use of the simple, intuitive descriptions with the original descriptions of the ICF Generic-30 Set. (3) To collect functioning data of patients having access to outpatient rehabilitation services to serve as reference for the development of an ICF-based clinical data collection tool.

- Ninety-three residents from 13 different Schools of Specialization in PRM were asked to collect data on functioning of patients using outpatient rehabilitation services, using the ICF Generic-30 Set. Each school was randomized to use either the original descriptions or the simple intuitive ones.

- The residents involved in the project became more familiar with the use of ICF in clinical practice. (2) Simple, intuitive descriptions were perceived as a facilitator for the use of ICF Generic-30 Set in the collection of functioning data. (3) Functioning data of 864 patients using rehabilitation services were collected and is expected to serve as reference for the development of an ICF-based clinical tool.

- (1) To collect functioning data in inpatient rehabilitation using the ICF Generic-30 Set. (2) To collect functioning data of patients receiving outpatient services of general practitioners in Italy using the ICF Generic-30 Set. (3) To conduct a demonstration project to compare the 0–4 versus 0–10 scales.

- Reference


- Conference Co-chairs – Paolo Boldrini (SIMFER), Maurizio Iocco (SIMFER), Gerold Stucki (ICF Research Branch, ISPRM).

- Presenters – Francesca Gimigliano (ISPRM), Germano Pestelli (ISPRM), Melissa Selb (ICF Research Branch), Gerold Stucki (ICF Research Branch, ISPRM).

- Implementation of the ICF Clinical Tool in the curriculum of physical and rehabilitation medicine specialists in training

- SIMFER in collaboration with the ICF Research Branch and under the umbrella of ISPRM.

- Goals

1. To develop the Japanese modification of the simple intuitive descriptions of the ICF Generic-30 Set based on the Italian modification. (2) Development of an ICF-based computer application. (3) To conduct a demonstration project on stroke rehabilitation.

- References


- Project Advisors – Francesca Gimigliano (ISPRM), Paolo Boldrini (SIMFER), Melissa Selb (ICF Research Branch), Birgit Prodinger (ICF Research Branch).

- Residents’ coordinator and data manager – Alessandro de Sire. Participants – 93 residents from 13 Schools of Specialization in PRM.

- Development and system-wide implementation of Clinical Quality Management System for Rehabilitation

- Japan

- Leadership

The Japanese Association of Rehabilitation Medicine in collaboration with the ICF Research Branch.

- Goals

1. To develop the Japanese modification of the simple intuitive descriptions of the ICF Generic-30 Set categories. (2) To develop a health information system integrating the ICF Clinical Tool. (3) To conduct a demonstration project on stroke rehabilitation.

- Methodology

(1) Consensus process to develop the Japanese modification of the simple intuitive descriptions of the ICF Generic-30 Set based on the Italian modification. (2) Development of an ICF-based computer application. (3a) Pilot study using the ICF-based computer application to collect data on the functioning of stroke patients using a 0–4 scale with specifications of each score. (3b) Pilot study on data collection using existing clinical scales and their linking to ICF.

- Results

(1) The Japanese modification of the simple intuitive descriptions of the ICF Generic-30 Set is now available. (2) The ICF-based computer application is now available. (3a) The reliability study using ICF-based computer application is ongoing. (3b) A preliminary trial to develop Rasch-based transformation tables of existing scales into ICF-based metrics has been conducted.

- Future actions

(1) To validate the scoring reference guide. (2) To add environmental categories to the rating. (3) To start a multicenter study to develop Rasch-based transformation tables.

- Footnote

Project leader – Eiichi Saitoh (Department of Rehabilitation Medicine I, Fujita Health University).
Project coordinator – Masahiko Mukaino (Department of Rehabilitation Medicine I, Fujita Health University).

Participants – Shin Yamada (Department of Rehabilitation Medicine, Kyorin University), Shigeru Sonoda (Department of Rehabilitation Medicine II, Fujita Health University), Masazumi Mizuma (Medical corporation Kisei-kai), Shinichi Izumi (Department of Rehabilitation Medicine, Tohoku University).

Malaysia

Leadership

The Department of Rehabilitation Medicine at the University of Malaya (UM) and University Malaya Medical Centre (UMMC), the Cheras Rehabilitation Hospital of the Ministry of Health (MoH), the Social Security Organisation (SOCSO) Rehabilitation Centre in Malacca, the Malaysian Association of Rehabilitation Physicians (MARP), and ISPRM.

Goal

To develop and implement CQM-R in Malaysia.

Methodology


Results

(1) A governance structure for the CQM-R Malaysia was established. (2) A framework for the description of rehabilitation services was identified. (3) Simple intuitive descriptions of the ICF Generic-30 Set were developed. (4) Research opportunities arising from the implementation of CQM-R Malaysia were identified. (5) An initial implementation action plan for 2017–2020 was developed. (6) Cross-cultural translation of WORQ in Malay, Mandarin, and Tamil was done.

Future actions

(1) To specify a clinical assessment schedule (CLAS) for each service defined in the rehabilitation services framework. (2) Integration of ICF-based tools in the health information systems at UMMC, MoH, and SOCSO.

Reference


Footnote

Project leaders – Julia Patrick Engkasan (Scientific Committee Chair), Gerold Stucki (UM-visiting professor and advisor to ISPRM’s liaison committee to WHO), Yusniza Mohd Yusof (National Head of Rehabilitation services), Hafez Hussain (Executive Director of SOCSO at Malacca), Lydia Abdul Latif (Head of the Department of Rehabilitation Medicine at UM and UMMC).

Project coordinator – Lydia Abdul Latif (Head of the Department of Rehabilitation Medicine at UM and UMMC).

Participants – Zalila Omar (President of MARP), Melissa Selb (Advisor from the ICF Research Branch).

The CQM-R Malaysia is currently being aligned with the Ministry of Health’s effort toward improving quality in health care in Malaysia.

Enhancing continuous quality improvement and supported clinical decision-making by standardized reporting of functioning

Leadership

Swiss National Science Foundation (SNSF), National Association for the Development of Quality in Hospital and Clinics (ANQ), Swiss Spinal Cord Injury Cohort Study (SwiSCI), ICF Research Branch, Swiss Paraplegic Research (SPF), Swiss Paraplegic Center (SPZ), and partner clinics (Partner clinics – aarReha Schinznach, Bern Klinik Montana, Berner Reha Zentrum Heiligenschwendi, Clinica Hildebrand, Clinique Genevoise Crans-Montana, Clinique la Lignière, Clinique romande de Rédadaptation, Clinica di Riabilitazione di Novaggio, Ospedale Regionale Bellinzona e Valli– Faido, Felix Platter Spital, Klinik Schönberg Gunten, Hôpital du Jura, Hôpital du Valais, Kantonsospital Baselland, Klinik Schloss Mammern, Kliniken Valens, kneipp-hof Dussnang, Luzerner Höhenklinik Montana, Reha Rheinfelden, Rehaklinik Hasliberg, Spitäler Schaffhausen, Universitätsklinik Balgrist, Zürcher RehaZentren Wald, Cereneo Vitznau, Institution de Lavigny, Rehab Basel, Rehaklinik Zihlschlach, Hôpital neuchâtelois).

Goal

To develop a standardized reporting system of functioning information and strategies for implementing it for rehabilitation patients in Switzerland for (1) national quality management and (2) clinical decision-making for the years 2016–2020.

Methodology

For national quality management: (1) Adoption of retrospective data from Swiss rehabilitation clinics collected for the ANQ. (2) Linking of the assessment tools used in ANQ quality monitoring (FIM®, Extended Barthel Index, and/or Health Assessment Questionnaire) to the ICF and analysis of the assessment tool scaling according to the Rasch Measurement Theory. (3) Observation and analysis of changes in functioning status based on interval metrics. (4) Identification of variables that influence functioning among patient groups. (5) Conduct of stakeholder dialog to set up an action plan for optimizing national quality monitoring and improvement (based on standardized reporting of functioning information).
For clinical decision-making: (1) Adoption of retrospective data collected by the SwiSCI inception cohort study. (2) Examination of the associations between the spinal cord injury (SCI) and functioning in persons attending first rehabilitation by the use of structural equation modeling. (3) Development and analysis of functioning trajectories and their determinants in the patient group based on growth mixture modeling. (4) Conduct of focus-group interviews of potential end-users to set the requirements for a computerized decision support tool to be used in the first rehabilitation of persons with SCI. (5) Development of a prototype of a computerized decision support tool to assist clinical decision-making in the first rehabilitation of persons with SCI.

Results

Ongoing.

Future actions

For national quality management: (1) Collection of functioning information and variables that influence functioning. (2) Standardization of reporting of functioning information by developing transformation tables of the assessment tools. (3) Setup of an action plan for optimizing national quality monitoring and improvement.

For clinical decision-making: (1) Investigation of the associations between the health condition and functioning. (2) Identification of functioning trajectories and their determinants as well as possible changes in determinants over time. (3) Formulation of requirements for a computerized decision support tool. (4) Setup of a computerized decision support tool prototype.

Reference


Footnote

Project leaders – Gerold Stucki (Project Applicant), Birgit Prodinger (Co-Applicant).

Project team – Cristina Ehrmann (Postdoctoral Researcher), Roxanne Maritz and Isabel Hodel (PhD Candidates).

European effort for the system-wide implementation of the International Classification of Functioning, Disability and Health in physical and rehabilitation medicine, rehabilitation and health care at large

A workshop was held on January 22–23, 2016, in Nottwil, Switzerland, and hosted by the Swiss Society of PRM and the Swiss Paraplegic Foundation with the aim to describe rehabilitation services using a narrative approach and by applying the International Classification of Service Organization in Health-related Rehabilitation (ICSO-R) and to identify general principles for CLAS in different groups of patients.

Considering the results of the workshop, the implementation action plan of the UEMS-PRM was revised during its Section and Board Meeting from February 25-27, 2016 in Athens, Greece. The action plan has, in turn, resulted in several initiatives.

In this section, we outline the initiatives of the UEMS-PRM that have been established until today toward the system-wide implementation of the ICF in PRM, rehabilitation, and health care at large.

Reference


Footnote

Mauro Zampolini and Nicolas Christodoulou (President and Past-President respectively), UEMS-PRM Section, Gabriella Ceravolo (President UEMSUEMS-PRM Board), Clinical Affairs and Professional Practice Committees of UEMS-PRM, and Gerold Stucki (ICF Expert UEMS-PRM).

Development and implementation of Clinical Quality Management for Rehabilitation in European countries

Leadership

UEMS PRM Section and Board in collaboration with the ICF Research Branch.
Goal

To develop and implement a European-wide CQM-R framework.

Methodology

(1) Use of the Delphi technique to develop a framework of rehabilitation service types for Europe in three feedback rounds. (2) Conduct of a three-round consensus process to develop an ICF-based clinical assessment schedule (CLAS) for each type of rehabilitation service identified in this framework. Developing a CLAS involves selecting the ICF categories to document, decide for whom to document and when to document, and to select the battery of assessment tools to collect the relevant functioning information corresponding to the selected categories. The latter will be facilitated by linking the commonly used instruments to the ICF using established ICF linking rules. (3) Conduct case studies by applying the CLAS in the exemplary service providers (good examples) indicated for each type of rehabilitation service in the respective countries.

Results

On September 7–9, 2017, the UEMS-PRM met in Bratislava and launched a call to its member countries to participate in the initiative. Twenty European countries responded, and in May 2018, the development of the European framework of rehabilitation services and respective ICF-based CLASs began.

Footnote

Project coordinators – Gerold Stucki (ICF Expert, UEMS-PRM), Melissa Selb (ICF Expert, ICF Research Branch), Swiss Paraplegic Research Team (Operations).

Implementation of the Individual Rehabilitation Plan in European countries

Leadership

UEMS PRM Section and Board.

Goal

(1) To harmonize the Individual Rehabilitation Plan (IRP) methodology across European countries. (2) To promote the implementation of the IRP in daily rehabilitation practice.

Methodology

Development of a document aimed to harmonize IRP methodology using the Rehab-Cycle, ICF Assessment Sheet (also from patient’s perspective), ICF Category Profile (including shared goal setting), ICF Intervention Table, and ICF Evaluation Display. This document is meant to highlight patient outcome-centeredness and is expected to be approved by the UEMS-PRM.

Results

In progress. The results are expected to inform the demonstration project for using the IRP in a single patient in different European countries.

Footnote

Project Coordinator: Mauro Zampolini (President UEMS-PRM Section).

Country implementation of the International Classification of Functioning, Disability and Health clinical tool in rehabilitation and health care at large

Leadership

UEMS PRM Section and Board in collaboration with the ICF Research Branch.

Goal

To develop country modifications of the simple, intuitive descriptions of the ICF Generic 30 Set.

Methodology

Country consensus processes to develop the simple, intuitive descriptions of the ICF Generic-30 Set based on the Italian modification.

Results

Eighteen countries expressed their interest in the development of country modifications of the simple, intuitive descriptions of the ICF Generic-30 Set. While the Spanish and Turkish version are still in progress, the Flemish-Dutch, Croatian and Polish modifications of the simple intuitive descriptions of the ICF Generic-30 Set categories are now available.

Footnote

Project coordinator – Aydan Oral (UEMS-PRM), Melissa Selb (Advisor, ICF Research Branch).

National country contributors – Carlotte Kiekens (Belgium), Dominique van de Velde (Belgium), Jolanta Kujawa (Poland), Piotr Tederko (Poland), Sasa Moslavac (Croatia), Sara Laxe (Spain), Enrique Varela (Spain), Ayşe Adile Küçükdeveci (Turkey), Aydan Oral (Turkey).

The International Spinal Cord Injury Community Survey and the Learning Health System for Spinal Cord Injury

Leadership


Goal

The Learning Health System for Spinal Cord Injury (LHS-SCI) initiative was launched in February 2015 to identify the factors that explain functioning, health, and well-being of people living with SCI within and across over 20 participating countries from all six WHO regions. The initiative is part of the efforts to implement WHO’s International Perspectives on Spinal Cord Injury report recommendations.
Table 2: Guiding principles for the implementation of International Classification of Functioning, Disability and Health across current initiatives

<table>
<thead>
<tr>
<th>Guiding principle</th>
<th>Description of guiding principle</th>
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<tbody>
<tr>
<td>Principle 1: Negotiate a mandate</td>
<td>ICF implementation in rehabilitation should be conducted under the auspices of the respective national/regional PRM society. Having an official mandate from the national/regional PRM society lends the national effort legitimacy and is likely to foster the involvement of experts and institutions. Acquiring the endorsement from the country ministry(ies) responsible for rehabilitation as well as from the country or regional WHO office is advisable.</td>
</tr>
<tr>
<td>Principle 2: Establish a governance model</td>
<td>Related to principle 1, establishing a governance model, i.e., role and general responsibilities of the organizations involved, would provide structure and clarity about individual mandates. This would help avoid redundancy and gaps in implementation activities.</td>
</tr>
<tr>
<td>Principle 3: Analyze the country/regional situation</td>
<td>Conducting an analysis of rehabilitation service provision in a country/region, through expert consultations and site visits at the institutions of exemplary providers, can facilitate a shared understanding of service provision along the continuum of care from the perspective of the service providers as well as provide the opportunity to identify and actively engage potential stakeholders in the ICF implementation process.</td>
</tr>
<tr>
<td>Principle 4: Involve various stakeholders</td>
<td>Involving key opinion leaders, organizations of service providers, payers and governmental agencies, relevant content experts, and potential adopters and users of the ICF, would help to drive the implementation process and make it reality. Which stakeholders to involve can vary depending on the results of mandate negotiation (principle 1) and the situation analysis (principle 3).</td>
</tr>
<tr>
<td>Principle 5: Operationalize the ICF classification</td>
<td>Since the ICF itself is a classification and not a tool, implementing the ICF in rehabilitation practice would require the operationalization of relevant ICF sets. This means transforming the selected categories into terms that can be measured, observed, and/or manipulated, and this operationalization of categories can serve as the basis for the development of ICF-based tools and measures.</td>
</tr>
</tbody>
</table>

ICF: International Classification of Functioning, Disability and Health, PRM: Physical and Rehabilitation Medicine, WHO: World Health Organization

Methods

(1) Development of the International SCI (InSCI) community survey questionnaire (2) Assessment of countries’ healthcare systems and the societal response to SCI through standardized country reports. (3) Conduct of the InSCI community survey among participating countries. (4) Data analysis and publication. (5) Conduct of national stakeholder dialogs based on the survey results. (6) Implementation of recommendations resulting from stakeholders dialogs. (7) Building of SCI-relevant policy and research capacity through a LHS approach.

Results

Publication of the InSCI community survey methodology in a special issue of the American Journal of Physical Medicine and Rehabilitation including (1) Data model and study protocol of the InSCI Community Survey and (2) individual country reports profiling the existing health systems in the respective country and the societal response to SCI.

Future actions

Data collection (expected to be completed in summer 2018) and publication of preliminary results (in 2018).

Reference


Footnote

Project coordinators – Mirjam Brach (Representative Coordinating Institute, Switzerland), Christine Thyrian (Representative Study Center, Switzerland).

InSCI Steering Committee Members – Gerold Stucki (Scientific Committee Chair), Jianan Li (Scientific Committee Co-chair), Christoph Gutenbrunner (ISPRM Representative), Doug Brown and James Middleton (ISCoS Representatives), Jerome Bickenbach (Contact Person, Guest Editor “The International Spinal Cord Injury Survey and the Learning Health System for SCI” 2017 and Scientific Advisor), Marcel W. M. Post (Scientific Advisor).

National Country Leaders – James Middleton (Australia), Marcelo Riberto (Brazil), Jianan Li (China), Brigitte Perrouin-Verbe (France), Christoph Gutenbrunner (Germany), Christina-Anastasia Rapidi (Greece), Luh Karunia Wahyuni (Indonesia), Iuly Treger (Israel), Mauro Zampolini (Italy), Eiichi Saitoh (Japan), Anda Nulle (Latvia), Alvydas Juocevicius (Lithuania), Nazirah Binti Hasan (Malaysia), Juan Manuel Guzmán González (Mexico), Abderrazak Hajioui (Morocco), Marcel Post (The Netherlands), Xiang-Hu (Shan) Xiong (New Zealand), Johan K. Stanghelle (Norway), Piotr Tederko (Poland), Jorge Lains (Portugal), Romania, Conran Joseph (South Africa), Zee-A Han (South Korea), Mercé Avellanet (Spain), Per Ertzgaard (Sweden), Michael Baumberger (Switzerland), Apichana Kovindha (Thailand), Reuben Escorpizo (USA).

Discussion

In this paper, we have provided an overview of the current initiatives that apply functioning information (as ICF categories) system-wide in rehabilitation practice, CQM, and policy.

Principles guiding the implementation across the current initiatives

In implementing the ICF in the regional and country initiatives highlighted in this paper, we have considered...
some guiding principles; these guiding principles are shown in Table 2.\textsuperscript{[5,27,28,35]}

Although the current initiatives have applied these principles to varying degrees and they have been conducted with diverse focuses in mind, they all have something in common — they have all answered WHO’s call for strengthening rehabilitation. Specifically they target functioning as a key part of the response to the challenges faced by health systems caused by an aging population and increasing burden of chronic disease/injury.\textsuperscript{[30]}

**Lessons learned from the initiatives**

Not only can future ICF implementation projects profit from lessons learned from the current initiatives, but also the current initiatives themselves can be further improved by learning from their own as well as shared experiences. For example, the Chinese initiative learned from its own experience in pilot testing the ICF Generic-7 Set in routine practice in 21 Chinese hospitals. To enhance the consistent understanding of what the categories of an expanded generic set, the ICF Generic-30 Set, mean across disciplines and raters, China developed simple, intuitive descriptions for these categories as the basis for the ICF Clinical Tool for China.\textsuperscript{[33,36,37]} China’s experience in developing these descriptions and the ICF Clinical Tool laid the foundation for the development of the tool for Italy,\textsuperscript{[38]} as well as its implementation in the curriculum of PRM specialists in training.\textsuperscript{[39]} In turn, the Italian efforts kicked off the implementation of the ICF Clinical Tool in rehabilitation and health care at large in individual countries throughout Europe. The Italian version of simple, intuitive descriptions has also served as the starting point for the ICF implementation efforts toward CQM in Japan and Malaysia.\textsuperscript{[27,28]} See Table 1 and the descriptions of the country initiatives.

**Continuous improvement in consideration of the lessons learned**

Taking advantage of this unique opportunity for continuous improvement within and across the ICF implementation initiatives is in line with the concept of the “LHS.” In rehabilitation, the LHS can be described as the continuous improvement of rehabilitation service provision by which research, clinical practice, policy-making, and programming learn from each other’s experience and implement changes to improve individual interventions and services as a whole. This “learning process” can be supported through the standardized documentation and reporting of functioning information using the ICF.\textsuperscript{[17,40,41]}

**Standardized documentation and reporting of functioning information**

The standardized documentation and reporting of functioning information using the ICF follow a four-step approach. This approach involves deciding on:\textsuperscript{[5,41]}

1. The ICF categories to document (e.g., ICF Core Sets, ICF Generic-7 Set, and ICF Generic-30/Rehabilitation Set)
2. Whether the documentation and reporting reflect a patient’s capacity (i.e., status of body functions and structures that enable or hinder the person from performing activities and participating in life situations) or performance (i.e., actual performance of activities and participation considering the dynamic interaction between a person’s capacity and environmental factors)
3. The data collection tool(s) to employ in assessing patient functioning
4. The scale to use for reporting (with preference for statistically sound scales that also satisfy measurement standards).

The concept of standardized documentation and reporting of functioning information and the four-step approach is increasingly being incorporated as a basic element of current and emerging ICF implementation activities. Examples from this paper include the initiatives to develop and implement a system-wide CQM-R in Malaysia, Japan, and in various European countries. These initiatives rely on the development of simple, intuitive descriptions and the ICF Clinical Tool, such as those developed in Belgium/The Netherlands, Poland, Turkey, and Croatia [Table 1].

**Other International Classification of Functioning, Disability and Health implementation approaches**

There are other ICF implementation approaches that are complementary to the standardized documentation and reporting of functioning and the four-step approach. An example of another approach is illustrated by the initiative to implement the Individual Rehabilitation Plan methodology, whose focus is at the individual patient level and in clinical decision-making.

Another example that also addresses clinical decision-making is the Swiss project; this project aims to develop functioning trajectories and a computerized decision support tool [Table 1].

**International Classification of Functioning, Disability and Health and Cochrane Rehabilitation**

In May 2017, ISPRM signed a Memorandum of Understanding with Cochrane Rehabilitation.\textsuperscript{[42]} Since its launch in December 2016, Cochrane Rehabilitation Executive Committee members have been working to accomplish its mission and vision of promoting evidence-based rehabilitation practice, i.e., that rehabilitation professionals employ the best available scientific evidence together with their own clinical expertise and the values of patients to improve rehabilitation service provision.\textsuperscript{[43]}

Randomized controlled trials are considered as the least biased experimental studies to assess the efficacy of any medical intervention. However, they usually assess the effectiveness of interventions in ideal settings and focus on specific interventions rather than the whole clinical pathway, which is essential in rehabilitation. Therefore, there is a need for studies in real life scenarios in medicine in general as well as in rehabilitation that examines the whole clinical pathway.\textsuperscript{[44]} Such studies require innovations in the standard
Cochrane methodology. The mission of the Cochrane Rehabilitation Methodology Committee is to improve the quality of research in rehabilitation: “bridging between the need of evidence of rehabilitation stakeholders and the necessary high methodological precision of Cochrane, trying to solve those methodological issues for systematic reviews on rehabilitation.”[45] The committee is working to produce new strategies to strengthen the methodology of rehabilitation research and to allow Cochrane to answer clinically meaningful questions.[46]

To further strengthen rehabilitation research methodology, Cochrane Rehabilitation turns to the ICF as a valuable reference system that can inform research design and shape the reporting of rehabilitation studies.

CONCLUSION

This paper has provided an overview of the current efforts toward strengthening rehabilitation in health systems all over the world through the application of information on functioning, specifically through the ICF as a reference framework, in rehabilitation practice, CQM-R, and policy. These international efforts are aligned with the work of ISPRM’s WHO Liaison Committee and the activities of ISPRM’s subcommittee on ICF implementation. Since ISPRM is dedicated to the principles driving the effort toward ICF implementation, the ICF implementation subcommittee intends to continue its support for these initiatives in the coming years. To facilitate this endeavor, the authors are calling not only for continued collaboration from participating countries but also for countries that have not yet been active in promoting ICF implementation, to come on board. This call for contribution strives to diversify the representation of contributors and experiences in implementing the ICF in rehabilitation practice, CQM-R, and policy.

If you are interested in contributing to these international efforts, please contact Francesca Gimigliano, Vice President of ISPRM; see corresponding author information. She can also provide guidance on ensuring that proposed ICF implementation projects follow the guidance principles outlined in Table 2 and are also aligned with the mission and vision of the overarching international society dedicated to the principles of PRM.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

22. Negrini S, Kiekens C, Levack W, Grubisic F, Gimigliano F, Ilieva E, et al. Cochrane physical and rehabilitation medicine: A new field to bridge between best evidence and the specific needs of our field of...
Gimigliano, et al.: Implementing information on functioning in rehabilitation


