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<td>C101</td>
<td>Report from the Council</td>
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Report from the Council

Lars Berg (Co-Chair, Nordic Collaborating Centre), Jenny Hargreaves (Co-chair, Australian Collaborating Centre)

Abstract
During the 2007 annual meeting of the Network, a WHO-FIC Council was established to accommodate the need for broader participation in the core decision-making processes of the WHO-FIC Network and, in 2013, the role of the Advisory Council was confirmed in the Network’s ‘Conduct of the WHO Family of International Classifications Network’ paper.

The functions of the Council are 1) to develop a Strategic Work Plan for the Network, which is presented at the annual WHO-FIC Network meeting, 2) to monitor and follow up progress of the Strategic Work Plan, 3) to establish and revise, as needed, procedures for the conduct of annual meetings of the Network, 4) to participate in planning the annual meetings, and 5) to review action items from each meeting and address new action items that arise. This poster summarizes the work of the Council and its Small Executive Group during 2014-15.

Introduction
During 2007, the Network WHO-FIC Advisory Council was established. It has two co-chairs, who are WHO-FIC Collaborating Centers Heads, elected at the Network annual meetings in odd-numbered years. Members of the Council include heads of Collaborating Centers (designated and under designation) and co-chairs of Network Committees and Reference Groups. The Chairs of the ICD Revision Steering Group (RSG) and the International Classification of Health Interventions (ICHI) Management Committee also participate, and Academic Research Centres and NGOs are invited to participate as non-voting members.

During 2008, the Council established a Small Executive Group (SEG) to prepare recommendations for discussion by the Council and identify other issues for Council discussion and decision. The SEG includes the co-chairs of the Council, two additional committee or reference group co-chairs (Andrea Martinuzzi and Lyn Hanmer), a network member nominated by the WHO (Patricia Wood) and WHO Headquarters staff.

Meetings during the last year
The Council convened twice during the annual WHO FIC Network meeting in Barcelona in October 2014.

During the period October 2014 to July 2015 the Council conducted two telephone conferences, in February and May, and will conduct a third in September 2015.

The Small Executive Group (SEG) met at the annual meeting in Barcelona, in 7 telephone conferences during the year, and also face-to-face at WHO in Geneva in May 2015.

The principal focuses of these SEG and Council meetings were to follow up action items from the Barcelona meeting, maintain a watching brief over the Strategic Work Plans of the Network’s Committees and Reference Groups, and facilitate communication between the Network and the WHO.

Conduct of the Network Paper
The Council and SEG continue to work towards improving the paper Conduct of the WHO Family of International Classifications. The paper is a compilation of existing and approved papers about the Network, available at http://www.who.int/classifications/Conduct_of_WHO-FIC_Network-version1.pdf?ua=1

This year, issues discussed were:
• Rules for membership of Committees and Reference Groups by people not associated with the Network
• Guidelines for communication about WHO-FIC Network activities outside the Network
• how the Network will interact with the WHO project to develop ICHI.

It is expected that, following these discussions, changes to the Conduct paper relating to these issues will be agreed at the Manchester annual Network meeting.

Annual meeting preparation
During the year, the Council and SEG discussed WHO proposals for formalising the publication of posters for the annual Network meetings, electronic evaluation of the meetings, and joint meetings with the WHO Network of Collaborating Centers on Disability and Rehabilitation (DAR).

It was agreed that publication of posters should become more formalised for 2015, and potentially become a formal WHO publication in the future. An earlier deadline for posters for this year will allow quality improvement with editorial work such as indexes, and review processes.

The Council supported the WHO’s proposal to have electronic evaluation of the meeting, with separate evaluations for each group of sessions.

The Council also supported DAR attendance and joint sessions at the annual meeting in Manchester.

ICD revision
Both Council Co-Chairs are members of the Revision Steering Group (RSG) of the ICD Revision towards ICD-11. Monthly telephone Conferences of the RSG were attended by both co-chairs. One Co-chair (Lars Berg) joined the weekly telephone conferences of the RSG-SEG.

The WHO provided regular reports to the Council SEG and Council about the ICD revision process, including on work related to a primary care linearization.

The Council SEG provided advice to the WHO about engagement of the Network in the revision processes and on WHO work on the revision and plans to evaluate country transition requirements.

Reports from WHO
The Council and SEG received reports through the year from the WHO about work planned or in progress towards development of an ontology for ICF, and further development of ICHI.

The WHO also provided regular reports on designation and redesignation of Collaborating Centers and plans for the Annual meetings in Manchester in 2015 and Japan in 2016.

Acknowledgments
The authors would like to thank all the Council and SEG members for their valuable contributions to the work of the Council this year. We also acknowledge the secretariat support provided by the WHO.

Author affiliations
Lars Berg is with the Nordic Collaborating Centre (at the Norwegian Directorate of Health).
Jenny Hargreaves is with the Australian Collaborating Centre (at the Australian Institute of Health and Welfare).
Abstract

The Family Development Committee (FDC) aims to develop the World Health Organization’s Family of International Classification (WHO-FIC) as an integrated and comprehensive suite of classifications. It also aims to ensure that the WHO-FIC has a logical structure so that the classifications needed for each component and setting within the health system can be identified. This poster presents a summary of the activities of the FDC from October 2014 to October 2015.

Introduction

The Family Development Committee (FDC) was established in 1999 to ensure the WHO-FIC has a logical structure so that health classifications needed for each health parameter and setting within the health system can be identified. The Committee assesses potential new member classifications that could fill a gap in the WHO-FIC.

During the year, the FDC met twice; in October 2014 at the Network Annual Meeting in Barcelona, Spain, and via two teleconferences held as the mid-year meeting in June and July 2015.

The FDC co-chairs are Jenny Hargreaves (Head, Australian Collaborating Centre) and Lyn Hamner (Head, South African Collaborating Centre). Lyn Hamner was elected at the Barcelona meeting after Huib ten Napel completed his second term as co-chair. Brooke Macpherson has been the Secretary of FDC since mid-2014.

The Strategic Work Plan for the FDC is outlined below with the progress against the specific activities summarised.

Task 1: International Classification of Health Interventions (ICHI)

The FDC acts as the focal point for the WHO-FIC Network for the ongoing ICHI development work.

At the Barcelona meeting, the FDC held a dedicated session for the ICHI development work, to facilitate reporting and sharing of information about work undertaken on the ICHI project since the joint mid-year meeting between the FDC and ICHI development group in Chicago in June 2014.

During the FDC mid-year teleconferences, the Committee discussed a draft document that, once finalised and approved by the Network Council, will guide FDC work to provide a communication channel between the Network and the WHO for ICHI work. This document contains information on the role of the FDC, assumptions about the future ICHI project, and mechanisms for interaction, including liaison with other Network Committees and Reference Groups who will contribute to the ICHI development.

Task 2: Integration of the Family

The FDC have been re-drafting the 2007 WHO Family paper, which describes the Family, principles of classification and the processes of adding, updating and maintaining classifications in the Family.

Informed by the discussion of the FDC at the 2014 mid-year meeting in Chicago, a revised schematic representation was prepared and presented to the Committee at the Barcelona meeting, indicating future directions for the WHO-FIC. This schematic outlined potential relationships between the reference classifications and classifications and linearizations that could be members of the Family in the future.

At the 2015 mid-year teleconferences, a series of questions were posed to the Committee to continue discussions on a number of issues identified at the previous mid-year and annual meetings. There were mixed views about some of the issues, so they have been summarised in a separate poster to inform further discussion by the FDC at the Manchester meeting.

Task 3: Applications of the WHO-FIC

Principles for an international casemix system

The FDC have developed a ‘draft principles for an international casemix classification system’ document. It contains considerations for a framework for an international group, that could be used to produce more comparable international statistics.

Further work will be undertaken soon to clarify the principles for and purpose of an international casemix classification system. However, it has been agreed that work to actually develop any system would only occur after ICD-11 has been finalised.

Joint uses of classifications

At the mid-year teleconferences, the FDC discussed approaches to supporting joint use of classifications. It was suggested that there needed to be approaches focussed on the concepts to be classified, as well on practical considerations, and use of existing and future WHO-FIC classifications.

Task 4: WHO-FIC support for Universal Health Coverage (UHC)

The FDC have been investigating the extent to which the WHO-FIC can support measurement of certain indicators for the WHO’s UHC initiative.

After initial work assessing ICD-10, ICF and ICHI alpha2 2013, the Committee endorsed further work to repeat the assessment using the ICHI alpha2 update 2014 and a frozen version of ICD-11 (May 31, 2015).

Volunteers were recruited from within the FDC during the mid-year meetings to assist with this coding exercise, resulting in multiple assessments of each classification.

Results showed that in general, for many of the indicators, both ICD-11 and ICHI codes of potential relevance could be identified. The exercise has illustrated that the WHO-FIC can potentially be used to support measurement of progress towards UHC. Also, this ‘use case’ demonstrated the potential value of using ICD and ICHI together.

Task 5: Assess the need for additional members of the Family; and Task 6: Alignment of members of the Family

During discussions about the non-use of tobacco’ UHC indicator at the Barcelona meeting, the lack of a formal risk/personal factor classification within the WHO-FIC was noted. The FDC agreed to explore the need for a risk factor classification in the Family. This work will progress in collaboration with the Functioning and Disability Reference Group.

The FDC maintains a watching brief on alignment activities with other classifications as required, for example the International Classification for Primary Care (ICPC).

Acknowledgements

The FDC Co-chairs would like to thank Huib ten Napel for his contributions to the Committee as co-chair for the past four years.

The Co-chairs would also like to thank all the FDC members for their valuable contributions to the FDC work-plan activities during the year.
**Abstract**

This poster presents the annual report of the Informatics and Terminology Committee (ITC), highlighting activities of since the Barcelona meeting in October 2014.

**Introduction**

The Informatics and Terminology Committee (ITC) was established in 2010, combining the Electronic Tools Committee and the Terminology Reference Group into one WHO-FIC committee.

In the last five years, ITC continued to manage and support the design and development of software tools used inside WHO-FIC, and work related to the linkage between WHO classifications and other terminologies.

**Administration**

At the Barcelona meeting in 2014, elections were held and Karen Carvell from the North American Collaborating Centre and Dr. Vincenzo Della Mea from the Italian Collaborating Centre were re-elected as co-chairs. In the last year, three ad-hoc meetings of the co-chairs together with the WHO liaison Can Celik were held, to better focus on ITC activities. A mid-year teleconference was held 24 April, 2015, with 13 participants representing 7 Collaborating Centers. The web site for poster submission has been maintained for the 2015 WHO-FIC meeting. The ITC web site includes minutes from all meetings.

**Classifications and Revision Platforms**

WHO headquarters and collaborating centres work to enable standardized maintenance, update and revision of WHO classifications. Work has continued on the classification update platforms and on the ICD Revision Platform including three major developments:

- **A Coding tool** allows for searching codes in the Joint Linearization for Mortality and Morbidity Statistics (JLMMS) using natural language expressions. This will be the modern equivalent of a traditional index.
- **Training videos** for the ICD-11 platform usage have been released. These tutorials will aid in navigating and searching the ICD-11 browser.
- **Mappings from ICD-10 to ICD-11** have been introduced in the browser with computation of their logical features

The training videos and coding tool are available to anyone. Mappings can be accessed by registered users of the platform.

**Standards**

Technical standards are developed to enable the electronic exchange of WHO classifications.

Two main standards are available for the WHO-FIC:

- **URI (Uniform Resource Identifiers)** identifiers for ICD entities, with a corresponding Application Program Interface (API) platform for software to access information about the classifications. These have been consolidated in the last year with no modifications.

**CliaML (Classifications Markup Language)** an ISO standard (ISO 13120:2013) is being considered for review. For this, an ISO New Work Item Proposal ballot has been started (N1745, update of ISO 13120:2013 - Health informatics, Syntax to represent content healthcare classification - CliaML). Deadline is the end of August on the national level and September on the international level. CliaML is widely used inside the Classifications Toolkit (CTK) tool. The review process is lead by Norbert Sigmond of the German Collaborating Center.

**Formal knowledge representation**

One objective of the ITC is to enhance formal knowledge representation of WHO classifications and their linkages to related terminologies. This is a multilateral item requiring coordination with other committees, reference groups, and external participants.

**WHO-IHTSDO harmonization** continues to be the main activity. A number of ITC members are also members of the WHO-IHTSDO Joint Advisory Group (JAG) which meets several times a year. Preliminary work towards a Common Ontology continued in the past year by refining the architecture for harmonization and the mapping of equivalences between ICD-10 and SNOMED-CT in the Circulatory System chapter and a number of other chapters. Work in past year highlights the complexity of this task. A pilot study is providing fruitful insights to guide the harmonization process moving forward.

**Acknowledgements**

ITC wishes to acknowledge the work of the WHO HQ and collaborating centres for their contributions over the past year.
The EIC Resources for the WHO-FIC Network

Huib Ten Napel, Yukiko Yokobori and the Education and Implementation Committee members

Abstract
The EIC aims to improve the quality of health data and the use of the WHO Family of International Classifications. Activities related to these objectives, and listed in the EIC strategic work plan, are reported according to their level of development. Four main streams of our strategic work are presented in this poster: 1 WHO-FIC Implementation database/s, 2 ICD-11, 3 Education in general (Database of ICD and ICF education experts for training), 4 Routine activities (ICD Training tool).

Introduction
The Education and Implementation Committee was created in 1999, and since then has been developing resources, tools and programs, aiming at improving the level of classification use and the quality of coded health data. In this past year, the EIC held a teleconference in February, and a face-to-face meeting in June in Helsinki, Finland. At the same time in Helsinki, the EIC and the FDRG held the first joint meeting on ICF education. This is the summary of the EIC activities since the 2014 WHO-FIC meeting in Barcelona.

WHO-FIC Implementation Database
The EIC supports the development and completion of data in the WHO-FIC Implementation Database.

Up to 2014, the Implementation Database for ICD and ICF was finalized, and the main thrust of EIC activities after the WHO-FIC Network meeting in Helsinki has been to identify the focal points who would enter and update the data, and on the other hand, to develop support material for the database.

The EIC sent letters to WHO Regional Offices requesting their assistance in populating and maintaining the database and inviting them to identify additional countries to start providing data to the database. There have been positive responses from ROs, and the database is proceeding to the next stage. Meanwhile, the WHO-FIC Implementation Database User Guide has been drafted and has been sent out for comments.

The current version of the database is available at: http://beta.who-fic.nl/

ICD-11
Reference Guide
The EIC made a content review. The Reference Guide – former book 2, User guide - has reached a certain level of maturity, in terms of content and structure. Translation and development of Field Trial training materials can now take further shape.

ICD-11 Field Trial Training Material
A standardized training package is essential for executing field trials successfully. The EIC has supported the collection of existing training materials used in the transition from ICD-9 to ICD-10 or its national modifications. The EIC will also review the package as soon as it is ready in concept and provide feedback, based on their expertise and experience in running education and training projects. At the Helsinki Meeting, the EIC discussed the Introductory Training Module for ICD-11. It is in the early stages of development, and now in progress.

Database of ICD and ICF education experts for training
The trainer platform for ICD and ICF has been developed in the Korean Collaborating Centre. It is used essentially to match trainer availability with training needs, specifying the language and type of training that can be provided.

The EIC’s next step is to invite registration, as well as to screen candidate trainers against criteria, in collaboration with WHO. Members of EIC and FDRG are working on the criteria.

ICD and ICF Training tool
The EIC has supported the work on the development of web-based training tools for the ICD and ICF.

The ICD-10 training tool has been updated to solve technical issues, and is available at: http://apps.who.int/classifications/apps/icd/icd10training/

The ICF e-learning tool is in the process of being transferred to another flexible platform. Most of the translation of the Introductory Module’s text is already complete. The current version is available at: http://icf.idea-day.de/

International Training and Assessment Program
IFHIMA took over the International exam for morbidity coders from EIC. Information about the exam has been posted on the IFHIMA website.

Best Practices
Information Sheets (IS)
The following IS are available:
- Training and Certification to Promote High Quality Data
- What You Should know about Clinical Documentation - in Acute Care Hospitals
- Uses of Coded Clinical Data
- Mortality (Cause of Death) Data
- Civil Registration and Vital Statistics
- International Classification of Functioning, Disability and Health –ICF
- International Statistical Classification of Diseases and Related Health Problems,10th Revision (ICD-10)
- International Classification of Diseases (ICD) and Standard Clinical Reference Terminologies: A 21st Century Informatics Solution

The following are being created:
- Automated Systems for Coding Cause-of-Death Data
- New International Death Certificate
- ICHI

Briefing Kit (BK)
A collection of updated documents regarding the WHO-FIC network has been created for new Collaborating Centers.

Where to find EIC Products?
http://www.cdc.gov/nchs/icd/nacc_education_committee.htm
The purpose of the Update and Revision Committee (URC) is to support WHO and WHO-FIC Network in keeping the WHO Family of International Classifications "Reference Classifications" up to date in line with current knowledge. The functions of the URC include the development of update policies, update coordination & decision making and the participation in the revision work in order to ensure synchronization from one revision to the other and consistency within the members of Family of International Classifications.

**Methods & Materials**

The URC work is mainly conducted through the update and revision platforms for ICD-10 and ICF, which are workflow engines designed to facilitate communication within expert workgroups and ensure transparency of the processes. Work and communications are also carried out via e-mail, conference calls and meetings, including an annual meeting during the WHO-FIC Annual Meeting. Key deliverable of the URC work include the lists of updates for WHO/FIC member classifications.

**Results**

In 2014, 63 updates to ICD-10 and 7 updates to ICF were approved by the URC and endorsed by the WHO-FIC Council at the annual meeting held in Barcelona, Spain 11-17 October, 2014. In 2015, in terms of annual updates to ICD, 59 proposals have been moderated and put to vote by members. In terms of updating ICF, 31 proposals have been reviewed by the FDRG and put to vote by URC members. Four recommendations have been endorsed by the URC via the Council to WHO (1) ICD-10: Removing all ICD-O references from volumes 1-3 of ICD-10 (2) ICD-10: Updates to ICD-10 will continue to 2019 with final major updates to be approved in 2016 (3) ICD-10: Updating ICD-10 submission platform and webbrowser on WHO website with the most recent version. (4) ICF: Updating ICF submission platform and webbrowser on WHO website with all updates approved so far. Functions, activities and completeness of deliverables are represented in the latest version of the Strategic Work Plan submitted to the WHO-FIC Council.

**Conclusions**

The achievements of the Committee are made possible by the generous efforts of members and relative institutions. The increasing number of ICD proposals being processed, the synchronization from one ICD revision to the other, and the realization of a foundation ICF with the implementation of the classification items coming from the ICF-CY, require an increasing engagement of the Collaborating Centres in the Committee’s work.

**Acknowledgements**

Members of the Committee:

**References**

1. Terms of Reference for WHO FIC Update and Revision Committee (URC) version Dec 2012
2. URC SWP, May 12, 2015
3. The WHO Updating & Revision Committee http://www.who.int/classifications/committees/URC.pdf
5. The ICF update platform https://extranet.who.int/icdrevision/IICF/loginICF.aspx

**Table 1 – The URC relevant part of the WHO-FIC SWP (May 12, 2015 v, simplified):**

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<td>#4</td>
<td>2015</td>
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**Figure 1 – Screen shot from the ICD annual updates approved in 2014**

**Figure 2 – Screen shot from the ICF annual updates approved in 2014**
Abstract: This poster describes the activities of the Functioning and Disability Reference Group in the 12 months from October 2014 to October 2015. Four main streams of work are reported; 1. ICF updates, 2. ICF education, 3. ICF Ontology development, 4. Harmonisation.

Background

The items on the FDRG component of the WHO-FIC strategic plan are reported below. The co-chairs met bi-monthly by teleconference. FDRG members and collaborators were informed of progress on the projects during the year and met by teleconference in March and September. A mid-year meeting was held on 6 June 2015 at National Institute of Health and Welfare (THL), Helsinki, Finland, attended by 30 members and collaborators from 16 countries.

In conjunction with the FDRG meeting were meetings spent making progress on the mICF; the First International Symposium: ICF Education hosted by Helsinki, Finland, attended by 30 members and collaborators from 16 countries.

In reporting on its meetings the FDRG secretariat has introduced links to presentations podcasts and posters in the minutes as a way of extending the information available to members and collaborators unable to attend in person. This strategy has been commended by the CTS team at WHO Headquarters.

The co-chairs would like to commend by the CTS team at WHO Headquarters.

Acknowledgements

The Co-chairs would like to acknowledge the contributions of Stefanus Snyman and the FDRG members and collaborators who have provided input to the tasks on the WHO-FIC strategic plan.

For further information contact Catherine Sykes csyskes@wcpt.org or Andrea Martinuzzi andrea.martinuzzi@cn.infn.it

1. FDRG members and collaborators continue to work with the FDC on the development of the International Classification of Health Interventions. A review of the functioning component has resulted in:
   - A new definition of an intervention
   - 220 new interventions
   - Revised definitions and inclusion and exclusions to enhance clarity of some interventions

2. FDRG continues to be represented on the functioning Technical Advisory Group informing the ICD 11 development.

2 ICF education

With the ICF Practical Manual and ICF e-Learning introductory module awaiting finalisation through WHO processes the FDRG and EIC discussed new options and opportunities for ICF education. Of note:

- The THL’s First International Symposium: ICF Education raised issues of importance to users of ICF in education, health and social welfare sectors.
- An independent consortium has developed a prototype portal for collection and dissemination of examples of ICF education. The portal will be demonstrated during the FDRG meeting in October.
- A longer term vision of developing an ICF massive open online course (MOOC) was discussed.
- Also under discussion was a proposed set of criteria for defining ICF experts and educators for inclusion on a database. The database is intended to facilitate the matching of ICF expertise with requests for assistance.

3 Informing ICF Ontology

Three pieces of work are underway to inform the development of an ICF ontology.

1. A survey seeking use cases of ICF has been designed and circulated to FDRG members and collaborators. Results of the survey will be collated and reported at the meeting in October 2015.

2. FDRG has discussed activity theory as a basis for the development of an information model starting from a consideration of the categories from the Life Areas (activities and participation) component of ICF presenting problems during the updating process. This work is preliminary and will be explored further at the meeting in October 2015 and a plan for further work developed.

3. The update proposals that have been rejected based on inconsistency with the current ICF were reviewed to identify ontological issues. The main issues were:
   - Overlap and multiple parenting
   - The relationship between simple and complex tasks
   - Granularity
   - Temporal issues/development

4 Harmonisation

1. FDRG members and collaborators continue to work with the FDC on the development of the International Classification of Health Interventions. A review of the functioning component has resulted in:
   - A new definition of an intervention
   - 220 new interventions
   - Revised definitions and inclusion and exclusions to enhance clarity of some interventions

2. FDRG continues to be represented on the functioning Technical Advisory Group informing the ICD 11 development.
Abstract

The MRG is a component of the International Classification of Diseases (ICD) updating process. Comprised of members from Collaborating Centres and regional offices, the MRG reviews problems faced in the application of ICD to mortality. In its 17th year, the MRG deliberated about 100 issues related to both updates to ICD-10 and development of the ICD-11 revision and made recommendations to the Update and Revision Committee for further action.

Introduction

This is the 17th annual report of the Mortality Reference Group (MRG), established at the 1997 meeting of the Centre Heads as part of an updating mechanism for ICD-10.

The MRG has dealt with hundreds of issues related to updating and clarifying ICD-10 as it applies to mortality classification and coding. The MRG has settled about 575 issues selected largely from the Mortality Forum (an international mortality classification discussion network) and submitted 366 recommendations to the Update and Revision Committee (URC) for consideration.

This report describes the background of the MRG and the issues decided in the 17th year.

Basis for the MRG

Provisions for the MRG are described in two documents: the WHO long-term strategy document (WHO/HST/ICD/C/97.39) and the Centre Heads’ Report for 1997 (WHO/HST/ICD/C/97.65). Briefly, for updating ICD-10, WHO - working with the Centre Heads - established two separate bodies: the MRG and URC. The MRG discusses issues raised in the Mortality Forum or those referred from other sources including the Centre Heads and WHO. The MRG can make decisions regarding the application and interpretation of ICD to mortality and submit a subset of recommendations to the URC for a vote on ICD updates and changes. The decisions requiring no change in the ICD are forwarded for the URC’s information and for documentation.

Decisions during the full 17 years

In the 17 years (1998-2015), the MRG reached about 575 decisions. The left panel of the graph shows the subset of the decisions that were sent on to the URC for information as well as for voting. The MRG forwarded 366 decisions to the URC: 255 recommendations for changes in the ICD and 111 decisions requiring no change in the ICD. The total number of issues either withdrawn by the MRG, referred back by the URC for additional work, or rejected by the URC during the first 17 years was 19 and is shown in the right panel of the graph.

Summary of MRG decisions by work year

The MRG met in Budapest, Hungary, March 18-20, and in Manchester, UK, October 17 and 21, 2015. A smaller table group also met around then to work through issues concerning the decision tables where MRG decisions left details open.

The MRG referred about 100 issues, and submitted 17 decisions during the 17th year (all 17 minor) to the URC (see Table).

Table. Decisions made in 2014-2015

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<td>2015: Index inconsistency for suicide by car</td>
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<td>2014-2015: Pesticides and insecticides coding issue</td>
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<td>2014-2015: Ductus arteriosus coding guidance</td>
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<td>2014-2015: Sensility and respiratory conditions</td>
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<td>2014-2015: Insufficient intake of food and water</td>
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<td>2014-2015: Default code for transitional (cell) carcinoma, unspecified site</td>
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<td>2014-2015: Pulsed electrical activity</td>
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<td>2013-2014: Index entry for neuroendocrine tumour</td>
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<td>2014-2015: Code for metabolic syndrome</td>
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Conclusions

In the 17th year, the MRG met in March and in October, communicated by e-mail, posted proposals and comments on the ICD-10+ Platform, did considerable work on a number of issues outside the committee meetings, circulated documentation for issues under consideration; and comprehensively documented all activities. During the seventeenth year, a total of about 100 issues were reviewed by the MRG and about 90 issues were reviewed by the MRG’s Table Group. Closure was reached for many of these and 17 decisions were submitted to the URC in 2015. All of these were recommendations for minor change.
Work Plan Update – Functioning Topic Advisory Group (fTAG)

Selb M^1,2, Stucki G^1,2,3, Kennedy C^4

on behalf of the fTAG: Solveig Bang, Francesco Gongolo, Cillee Kennedy (Co-chair), Haejung Lee, John Melvin, Jane Millar, Marcelo Riberto, Hande Sart, Melissa Selb (Managing Editor), Gerold Stucki (Co-chair) and Catherine Sykes

1 ICF Research Branch, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications in Germany (at DIFMHI), Nottwil, Switzerland; 2 Swiss Paraplegic Research, Nottwil, Switzerland; 3 Department of Health Sciences & Health Policy, University of Lucerne, Lucerne & Nottwil, Switzerland; 4 Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services, Washington DC, USA

Abstract

This poster reports on the ongoing work of the functioning Topic Advisory Group or fTAG. The main areas of fTAG work are developing coding instructions for using functioning properties, identifying and reconciling mirror coding between ICF and ICD, providing a paper arguing for ICD-ICF joint use that includes use cases, and suggesting possible revisions to the chapter on the factors influencing health status and contact with health services. This poster provides an overview of fTAG’s 2014-2015 activities.

Introduction

The functioning Topic Advisory Group (fTAG) was formed by WHO in 2010 and is made up of 11 members, including a new member who started in Spring 2015.

At the fTAG meeting held during the 2014 WHO-FIC meeting in Barcelona, a large room full of enthusiastic participants addressed the work plan tasks on mirror-coding and factors influencing health status and contact with health services.

In addition, regular executive group and periodic fTAG teleconferences were held. fTAG has been represented at regular Revision Steering Group (RSG) teleconferences throughout the year.

Task 1: Populating Functioning Properties

One task of the fTAG is to “populate” or identify functioning properties (FPs). FPs are categories in the ICF component of activities & participation that are considered the most relevant for describing the impact of a health condition on a person’s functioning. This does not preclude that a person may also experience problems in other aspects of functioning.

Since March 2014 FPs have been available on the ICD-11 beta-browser for 100 health conditions and the corresponding disease entities. fTAG is continuing to coordinate with WHO to optimize the visualization of the FPs in the beta-browser. A paper on the FPs work was published in the *Eur J Phys Rehabil Med*.

Including FPs in the ICD-11 clearly underscores the important role functioning can play in daily clinical decision-making, thus promoting the joint use of ICD and ICF. The next step toward the joint use of ICD and ICF is knowing how to use FPs, for example in coding disease entities. For this purpose coding instructions have been drafted, and reviewed and refined several times by fTAG members, non-fTAG ICF experts and WHO.

In short, the current coding instructions for FPs offers two coding rules:

**Rule 1: Binary rule for coding**
- no limitations add .0 to FP (e.g. d455.0)
- has limitations add .8 to FP (e.g. d455.8)

**Rule 2: ICF qualifier rule for coding**
- Directed outside of the ICD-11 and to the ICF

FP coding will be documented separately from the diagnostic coding.

For details, see separate poster on the coding instructions for FPs.

**Task 2: Mirror Coding**

A separate poster is also available on fTAG’s task to identify possible mirror coding – conceptual and terminological overlaps between disease entities in the ICD-11 beta-version with the ICF. Specifically examined were the ICD-11 entities that correspond to the ICD-10 entities blindness, deafness, mental retardation, learning disability, and paraplegia.

**Question: Does mirror coding exist?**

At the 2014 fTAG meeting in Barcelona participants were divided into four working groups and asked to evaluate and comment on the mirror coding decisions made by two fTAG members who reviewed possible mirror coding between the aforementioned health conditions and related ICF categories.

These comments were taken into account in a subsequent round of reviews, in which additional criteria e.g. mirror coding reflect each other bi-directionally was also considered. The results will be presented at the fTAG meeting in Manchester.

**Task 3: Paper “Case for ICD-ICF Joint Use”**

The paper “Case for ICD-ICF joint use” is targeted for reviewers in the field trials to explain the importance of considering FPs in using the ICD. The paper is currently being refined for the start of the field trials and for possible publication in a peer reviewed journal.

**Task 4: Evaluation of “Factors influencing health status and contact with health services”**

The current structure of the chapter on factors influencing health status and contact with health services (z-codes in ICD-10) has been in place since summer 2014. A request from the Pediatric TAG to review proposals made to this chapter was received November 2014. Proposals to this chapter are now being handled online using the proposal mechanism of the ICD-11 beta-browser.

## Introduction

The Quality and Patient Safety TAG is charged with reviewing ICD-10, ICD-10CM and progressive drafts of ICD-11 to inform the development of the ICD-11, focusing on identifying practical modifications for ICD 11 drafts that would enable better measurement of quality and safety. Ultimately, an enhanced classification system will permit expanded use of coded health data for large-scale quality and safety surveillance in health care systems internationally.

## Tasks

- Horizontally crossing all ICD-11 chapters to advise on optimizing the entire classification’s content, structure and coding rules for enhanced application in both existing.
- Developing an inventory of existing quality of care and patient safety indicators and potentially novel quality and safety indicators.
- Assessing potential uses of ICD-11 for health services, quality and patient-centered outcomes research.
- Reviewing and critiquing the ICD-11 beta draft from the perspective of the quality and safety use case.
- Reviewing and critiquing Volume II work from the perspective of quality and safety use case.
- Designing field trials for the beta version of ICD-11.

## Activities

We have held meetings in New York, NY, US:
- Reviewed the status of discussions around coding rules (main condition, diagnosis timing, coding field).
- Reviewed chapter 19&20 content and associated clustering mechanisms and presented these concepts in emails to WHO.
- Prepared to undertake a granular review of the content in chapters 1-20 and will devise a committee work plan to do this.

## Progressing Field Trials

**Code-recode testing**

**Objectives**
- To assess, from a healthcare leader’s perspective, the utility of patient safety information encoded using the following classification systems: AHRQ Common Format, WHO-ICD 10-CA, and WHO-ICD11 (Beta)
- To evaluate the inter-rater reliability of raters classifying patient safety events
- To determine the face validity of event classification
- To assess the coding practice for classifying patient safety events

## Published Manuscripts

**Overview TAG**
- Main Condition
- Number of diagnoses fields
- Timing of Diagnosis (POA)

**Progressing Manuscripts**

- The editorial team of the International Journal for Quality in Health Care is welcoming a series submission (i.e. intermittent submission of papers as they are completed).
- Framework of 19&20/concepts (Revise & resubmit)
- Survey of stakeholder needs (Revise & resubmit)

## Completed Field Trials

**Survey**

With the overriding goal for the TAG (& thus the WHO) to collect info on user needs from ICD-11 in advance of the next TAG meeting (in September) to inform ICD-11 refinements. We developed and executed a survey for the field trial. A manuscript or the results has been drafted and circulated for TAG member comments.

**Mapping of existing patient safety indicator**

We have begun a mapping exercise, whereby we have attempted to map the Calgary PSI list, the International ICD-10 AHRQ PSI list as well as Patient Safety concepts in ICD-11-Beta.

## Acknowledgements or Notes

Q&S TAG was funded by the Agency for Healthcare Research and Quality (AHRQ), Canadian Institute of Health Canadian Patient Safety Institute (CPSI), and Canadian Institute for Health Information (CIHI).

## Conclusion

The Q&S TAG has had productive meetings that have led to field trial development and several publications.

## Meeting Attendees

- **Australia**: James Harrison, Vijaya Sundararajan
- **US**: John Finnell, Chris Chute, Ginger Cox, Donna Pickett, Harold Pincus,, Patrick Romano, Brigitta Spaeth-Rublee,
- **Canada**: Susan Brien, Alan Forster, William Ghali, Yana Gurevich, Lori Moskal, Hude Quan, Danielle Southern Switzerland: Bernard Burnand, Jean-Marie Januel
- **France**: Cyrille Colin
- **Germany**: Saskia Droepler
- **WHO**: Nenad Kostanjsek, Bedirhan Ustun.
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<td>Ruiz; Giusti</td>
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Abstract

The Argentine WHO-FIC Collaborating Centre (CACE) was effectively designated in March 2015. In recent years, CACE has continuously and actively promoted the use of the International Classification of Diseases (ICD) in Argentina and broadly in Latin American Region, with the support and coordination of PAHO/WHO. The outcome of these efforts and activities has proven to be very important to the authorities and staff that perform functions at Bureaus of Health Statistics throughout the region. This poster briefly describes the work performed by CACE and its main results.

Introduction

CACE consistently promotes the use of Family of International Classifications of Diseases in Latin America, in coordination with PAHO/WHO in a wide range of projects, such as design and elaboration of educational materials, implementation of training programs for coders and adequate filling out of death certificates by physicians.

Activities and Results

CACE and CEMECE (from Mexico) developed an online e-course for Spanish-speaking countries of the American Region, in the second half of 2014, especially directed to ICD-10 coders. This e-course successfully reached 200 people, and was held between September 15th and December 20th 2014.

Both CACE and CEMECE concluded the revision of the contents of this regional e-course during the first semester of 2015. As a result, new courses for mortality and morbidity coding are available now for the Region.

Along with CEMECE (Mexico) an e-course on ICD 10 updates was designed for Spanish-speaking tutors and team leaders from the region. This e-course will be held during the second semester of 2015.

From 26th to 29th May 2015, a classroom-based course for mortality coders was held in Buenos Aires City. This course provided a full update on ICD-10 and constituted a starting point for a full implementation in 2016. This 40-hours classroom course successfully trained 31 key leaders in mortality coding from provincial statistical offices.

In July 2015, CACE offered the course “The application of ICD-10 for morbidity reporting” in Santiago de Chile. The course had a mixed structure with two weeks of lectures, and a second set of online e-lectures over two further months. The course was attended by 35 officers of a wide number of Chilean Health Care Centers.

CACE also offered, in the second half of 2014, a virtual course for morbidity coders for six different Argentine provinces. This e-course was performed over 3 months, reaching and training 70 coders. Following the success of this e-course, during the first half of 2015 CACE offered a second 3 months e-course for another 7 Argentine provinces, reaching 63 coders.

CACE is also working collaboratively with others Spanish-speaking centers on a formal translation of the latest ICD-11 version into Spanish, meant to be used in the first field trials.

CACE is directly involved in the design and later execution of a project aimed to improve registration and statistics of deaths related to maternal mortality in Argentina. CACE also collaborates in researches on “Mortality due to congenital cardiopathies in Argentina” and “Registration of deaths due to hepatitis, hepatocellular carcinoma and others non-alcoholic liver diseases”. All these investigations aim to improve the quality of current statistical information on mortality.

Between several important meetings and conferences, it should be specifically noted CACE's participation in the WHO-FIC Network Annual Meeting, held in Barcelona, Spain (October 2014), the Latin American and Caribbean Health Information Systems Network (RELACSIS) Annual Meeting, held in Bogotá, Colombia (November 2014), and the Latin American Network of Collaborating Centers on WHO-FIC Annual Meeting, held in Santiago, Chile (April 2015), under the endorsement of RELACSIS and PAHO.

Acknowledgements

In 2015, CACE celebrates its 30 years of existence and uninterrupted work, and is happy to express its gratitude to PAHO, PAHO-ARG and WHO for the proposal and designation as Collaborating Centre. As every year CACE keeps working in topics related with WHO-FIC, in the areas of training, application and research. Intra-regional collaboration and support are part of the main objectives of the Centre.

More information: ww.deis.msal.gov.ar
Introduction

The Australian Institute of Health and Welfare (AIHW) in Canberra, Australia, has hosted the Australian Collaborating Centre (ACC) since April 1991 and was re-designated for a further four years in 2014.

The ACC is a collaboration of Australian and New Zealand experts and organisations with an interest in classifications. It meets about twice a year by teleconference, enabling dissemination of information about the WHO-FIC and other health-related classifications to its members.

The ACC is part of the Western Pacific Regional Office (WPRO) of the WHO and the Head of the Centre is Jenny Hargreaves, Senior Executive of the Hospitals, Resourcing and Classifications Group at the AIHW.

This is the annual report of the ACC to the Network and summarises activities which occurred during the period October 2014 to August 2015.

This report incorporates information relevant to the ACC Terms of Reference, and information on specific activities of the ACC and its member organisations according to the ACC work plan, as agreed with the WHO.

Contributions to WHO and Network committees

The Head of the ACC served as Co-chair of the WHO-FIC Network’s Advisory Council and of the Council’s Small Executive Group (SEG), as Co-chair of the Family Development Committee (FDC) and a member of the Revision Steering Group (RSG). She also participated in the WHO’s informal International Classification of Health Interventions (ICHI) development advisory group.

Members of the ACC continue to be actively involved in many of the Network committees and reference groups, in all capacities including chairing and secretariat.

Members attended the annual Network meeting in Barcelona in October 2015, and mid-year teleconferences and meetings of the Family Development Committee, Functioning and Disability Reference Group, Mortality Reference Group and Education and Implementation Committee.

ICD

The AIHW hosted a seminar given by Dr T. Bedirhan Üstün whilst he visited Australia in February. Dr Üstün’s presentation summarised the WHO’s classification development work, particularly on ICD-11. The seminar video is available to view at https://www.youtube.com/watch?v=hd8GkwRYjU.

ICF

An ICF updates workshop was hosted by the University of Sydney, in collaboration with the ACC, in Sydney during May. Seven participants attended the workshop.

Ros Madden facilitated the workshop, which provided an opportunity for people familiar with the ICF and interested in contributing to its updating and ongoing quality, to discuss the proposed updates and to contribute to the ICF updates process.

The four proposals allocated to Australia were reviewed and comments were provided via the update platform.

As its first official activity, the recently formed Australian ICF Network held a video webinar in June on ‘ICF Education in Australia’. Hosted by the University of Sydney, more than 20 people logged in from around Australia to hear (and see!) speakers present on this topic. Due to its success, tentative plans are underway for a second webinar to be hosted later in 2015, with the potential topic of ‘ICF use in Australia’.

ICHI

The Australian Consortium for Classification Development released the ninth edition of the Australian Modification of ICD-10 (ICD-10-AM), for implementation in Australian hospitals for admitted patient activity from 1 July 2015. ICD-10-AM is also used in many countries worldwide, including New Zealand, Ireland and Saudi Arabia.

ACC members continued to collaborate to provide a unified Australian point of view for the Update and Revision Committee’s ICD update process.

ACC members also contributed to the WHO’s ICD revision work, including through participation in the Revision Steering Group (and its Small Executive Group), the mortality and morbidity Topic Advisory Groups, and in the working group reviewing the Joint Linearization for Mortality and Morbidity Statistics.

Acknowledgements

Thank you to all of the ACC members and organisations for their valuable contributions to the ACC work plan activities during 2014-2015. Many of the activities occur through in-kind support from these individuals and organisations.
Introduction

The Collaborating Centre for the WHO Family of International Classifications (WHO-FIC) for Portuguese countries (or Brazilian Collaborating Center) was established in 1976 in a triple agreement among PAHO/WHO, the Ministry of Health and the University of Sao Paulo, where the Center is located. It was re-designated as WHO CC in March 2012 for four years, till March 2016. It has been financially supported by the Ministry of Health and the University is responsible for the physical space and the staff. Since its creation the Center head was Dr. Ruy Laureti who was the person responsible for the establishment of the mortality information system in Brazil. Since August 2014 the Center is being headed by a council of Professors from the Department of Epidemiology at the School of Public Health where the Center is located.

Contributions to WHO and to the Network Committees

The Brazilian Center has representatives on the WHOFIC Network Committees and Reference Groups and has been trying to be actively involved in some of them. The Brazilian Center co-chaired the Education and Implementation Committee till October 2014. Members and co-workers participated in the following 2015 mid-year meetings:

- MRG in Budapest, Hungary
- Table Groups in Budapest, Hungary
- mTAG in Budapest, Hungary
- EIC in Helsinki, Finland
- FDRG in Helsinki, Finland

The Center also participates in the RELACSIS (Latin-American and Caribbean Network for Strengthening Health Information Systems) meeting in Santiago, Chile in April 2015.

ICD Related Activities

During this period the Centre continued to support the Ministry of Health. It has supported coders, published training materials and translated the ICD-10 cumulative updates. It is preparing the new version of ICD-10 to be published in 2016.

ICF Related Activities

The Center disseminates and facilitates the implementation and use of ICF. The Centre has held a number of conferences on ICF and disseminating its use in Seminars, Congress and in Universities. ICF is being used in a research on Stroke rehabilitation, which is coordinated by the Centre. ICF Practical Manual was translated and it is available for download. ICF e-Learning tool was translated to Portuguese. The Centre translated the ICF cumulative updates and prepared the ICF 2015 version which was published in the 2nd semester.

IRIS Related Activities

The Center has been working on adapting the Iris for use in Brazil since 2010. In this period the dictionary of medical terms and their ICD-10 codes is being tested using a sample of death certificates originated from the five regions of Brazil. At the end of the study it is expected to get a complete dictionary with terms used in all areas of Brazil. One paper on Iris was published in order to make it known in the country.

Conclusion

This was a very difficult time for the Brazilian Centre facing the disease of its Director and changes at the Ministry of Health. The activities were very much hampered by the lack of staff. As part of the Department of Epidemiology at the School of Public Health, which aggregates researches on many subjects that fit the aim of WHO-FIC as fetal deaths, maternal mortality, and some others, there is a new plan for the next period. The Center should aggregate researches and staff from the department of Epidemiology as much as from others institutes inside the University and also out of it. This years was very difficult but it should be seen as a turning point for the next four years.

Publications

During this period the Centre’s collaborators published articles on congenital malformations, teenager pregnancy, syphilis in women living with aids, the construction of a Brazilian dictionary to be used on Iris.
The Ministry of Health has been undertaking efforts to improve the National Health Information System (HIS) with particular interest in vital statistics. To achieve sustainable and continuous improvement of data quality and coverage, the strategic plan for strengthening HIS is based on a national assessment that provided key elements to specifically address birth and death data. Following the recommendation from PAHO/WHO in 2011, the country is engaging in the process of creating a National Center for the Family of International Classifications (NC-FIC). The poster presents the main activities carried out to establish the National Center and the challenges it faces.

### Abstract

The Ministry of Health has been undertaking efforts to improve the National Health Information System (HIS) with particular interest in vital statistics. To achieve sustainable and continuous improvement of data quality and coverage, the strategic plan for strengthening HIS is based on a national assessment that provided key elements to specifically address birth and death data. Following the recommendation from PAHO/WHO in 2011, the country is engaging in the process of creating a National Center for the Family of International Classifications (NC-FIC). The poster presents the main activities carried out to establish the National Center and the challenges it faces.

### Background

As part of the activities of the Latin American Network for Strengthening Health Information Systems (RELACSIS), Bolivia has participated in the international course for train the trainers in medical information coding in Ecuador, in 2011, conducted by the Mexican Collaborating Center (CEMECE) with support from PAHO/WHO and USAID/MEASURE Evaluation.

Four representatives from Bolivia were trained as instructors and consequently carried out successfully the following activities:

- Assessment of FIC implementation status in the country as baseline for training work plan.
- Development of the terms of reference for the Bolivian Collaborating Center (NC-FIC, CEBOFACI, for its Spanish acronyms).
- Presentation of the proposed training agenda to the Minister of Health and PAHO/WHO authorities. The national health authorities welcomed this project.

### Training and implementation activities

- The national instructors trained in Ecuador conducted the first Icd-10 training course in 2011 with the support of PAHO/WHO and the CEMECE. (Humberto Rocha)

First National ICD-10 training course conducted by national instructors and the CEMECE, 2011

- Statisticians and physicians of the National Institute of Social Security were trained on:
  - How to fill out the death certificate,
  - Mortality coding and
  - Quality of mortality information.

- Analysis and contribution in the National Post census Maternal Mortality Study in 2011. Each case was analyzed and coded according to the ICD-10.

### Challenges

- Due to administrative changes of the national authorities in the last 3 years, the CEBOFACI functioning was delayed but the new administration has recognized the key role of the National Center and is supporting the launching and establishment of the CEBOFACI.

Another big challenge is to integrate the national mortality database, working with the goal to increase its coverage and improve the quality. For this, a joint effort of all institutions responsible of mortality information is required.

### Conclusions

- The SNIS-VE is working very hard with the goal to integrate the national mortality database (2016).

- The role of the CEBOFACI is key to the development of training materials and activities, consultancies, research and strengthening the inter-institutional coordination with clear strategies to achieve better data quality and increased coverage of mortality data. The MOH is also interested of implementing the ICF and generate functioning and disability information.

- The CEBOFACI counts on the support of PAHO/WHO and the FIC Regional Network of the Americas to face the challenges in FIC implementation and to establish a sustainable process in the improvement of health information in Bolivia.

### Acknowledgements

The national team wish to acknowledge the CEMECE, PAHO/WHO, PAHO/PWR and RELACSIS for their technical support to face the challenges in FIC implementation.
WHO - FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK ANNUAL MEETING 2015

17-23 October 2015
Manchester, United Kingdom

2014-2015 activity report
CC for the WHO-FIC in French

Lamarche-Vadel A.1, Cuenot M.2, Rodrigues J.-M.3, Melin M.4, Guye O.4
1 CépiDc-Inserm, France
2 EHESP (National school of public health), France
3 University Jean Monnet of Saint-Etienne and INSERM LIMICS U1142, France
4 ATIH (French hospitalization data process agency), France

Abstract
This poster presents the highlights of the annual report of the Collaborating Center Inserm-EHESP for the French WHO-FIC in relation with the different classifications of the WHO-FIC and the project to develop it in French language.

ICD-10 related activities mainly focused on editing two new versions of ICD-10 Volume 1: Version 2015–French, and Version 2014–French Modifications. Besides, the Center has organized a one month training to mortality coding in France, in order to provide expertise to people who will be in charge of coding training in Morocco. ICD-11 related activities consisted in working on the harmonization ICD11-SNOMED CT through a Common Ontology supporting both ICD 11 and SNOMED CT by the links of queries and on the mapping between ICD 11 primary care linearization and ICPC 2. Concerning Patient safety, a new 10 item Minimum Information Model for Patient Safety and Incident Types taxonomy for European Union countries proposed by partner 3 was approved by an international consultation in Warsaw Poland 12 and 13th may 2015. ICF related activities mainly focused on counselling its implementation in French, training and updating.

Introduction
Two main organizations, based in France, fulfill the missions of the French CC: the Inserm-CépiDc (French National Institute on Health and Medical Research, since 1967) working on the ICD and the EHESP-MSSH (French National School of Public Health, since 1989) working on the ICF.

The CC has two co-heads: Agathe Lamarche-Vadel for ICD and Marie Cuenot for ICF related activities. Collaborations with the ATIH (French hospitalization data process agency) and the University of Saint-Etienne also allow important contributions to the work done on morbidity and ontology.

During 2014-2015, all the members have contributed to a consultation about the implementation of classifications and terminologies in health and social domains at a national level, organized by ASIP Santé. Here are the highlights of 2014-2015 activities.

ICD-10 related activities
The French Collaborating Center include ATIH for morbidity coding. Work on ICD-10 divided up as follow:

Promotion of the ICD-10 in France:
The first edition of the 2014 ICD-10 with French modifications (CIM-10 FR à usage PMSI) was edited on the ATIH website at the end of 2014.

On April 2015, an updated 2015 French ICD-10 was sent to WHO organization for review.

For details, see poster Implementation and publication of an updated French version of ICD-10.

Promotion of the ICD-10 in French speaking countries:
The Center has organized a one month training for mortality coding in France, in order to provide expertise to medical doctor and statistician who will be in charge of coding training in Morocco.

WHO-FIC related activities:
National experts were consulted to get more information about proposal for the Update and Revision Committee (URC). We suggested 3 proposals for the 2015 vote.

Participation at the WHO meeting enabled discussion with the Update and Revision Committee and with morbidity TAG (mBTAG).

ICD-11 related activities
The French CC participated to ongoing ICD11works
- Harmonization ICD11-SNOMED CT through a Common Ontology and queries
- Mapping between ICD 11 primary care and ICPC2.
- French translation
- Case mix use case with ICHI

ICF related activities
Promotion of the ICF in French:
- Reference center for professionals and students seeking information on the ICF in French (France, Belgium, Canada)
- Courses on the ICF, on biopsychosocial model of disability, on social participation of people with disabilities (initial and continuing education, work on e-learning)
- Participation in the national commission for the monitoring of the implementation of the UN Convention on the rights of people with disabilities - Bibliographic watch.

WHO-FIC related activities:
Participation in work and meetings of:
- FDRG: “mobile ICF” project, ICF updates
- EIC: toward the translation of the ICF e-learning tool in French and the improvement of the identification of ICF applications in France and some French speaking countries
- URC: review of ICF updates and translation of 2011-2014 implemented updates

Publications - weblinks
- Website about the ICF in French: http://mssh.ehesp.fr/international/centre-collaborateur-oms/
Abstract
The German Collaborating Centre is a designated WHO-FIC Collaborating Centre since 2003. The Centre is hosted by the German Institute of Medical Documentation and Information (DIMDI). It is supported by the ICF Research Branch. This poster reports on the activities that took place since the last WHO-FIC-Meeting in 2014.

Introduction
After its initial designation in 2003 the German Collaborating Centre was again re-designated in 2012. The German Collaborating Centre is located at DIMDI. The ICF Research Branch has joined forces with DIMDI to facilitate the ICF work. Twice a year DIMDI and the ICF Research Branch meet to discuss the ongoing and planned work. DIMDI has been collaborating with the University of Freiburg on developing the new procedure classification ICHI.

ICD-10: In 2015 DIMDI worked on the adaptation and translation of the 2016 updates from WHO and their implementation into ICD-10-GM 2016 together with requirements from the national annual submission process. Release of ICD-10-GM 2016 is scheduled for the end of September. Its implementation into health care systems is expected by January 1st 2016. As usual, results from the discussions with national experts were fed back to the URC as well as into the revision process. Translation of Updates for the ICD-10-WHO Version in German are ongoing and will be published in early fall.

For WHO DIMDI implemented the updates to ICD-10 into the ClaML database to enable WHO to generate a 2016 version in English.

ICD-10 Alphabetic Index: The annual work on the quality of the index terms for the German Modification (ICD-10-GM) has resulted in proposals for improvements eventually impacting the international version. DIMDI prepared the English Alphabetic Index for WHO for Version 2016.

ICD-10 Volume 2: Together with colleagues from the Nordic and the North American collaborating centre DIMDI prepared the English Volume 2 for WHO for Version 2016. All updates were included and intensified quality control measures applied. As the changes to ICD-10 Volume 2 for 2016 are substantial this work helps to guarantee timely and standardised implementation in all countries.

Mortality Coding: DIMDI will train all German mortality coders in fall on the use of ICD-10 with a focus on the updates for 2016.

ICHI: The University of Freiburg is supporting the developmental work on ICHI by contributing especially on the structure and content of the classification axes, and the maintenance of an annually published database.

ICF: DIMDI continued in 2015 with national consultations on the planned updates for ICF. The ICF working group was consulted to discuss the updates for ICF. Results were presented in the Update workshop of FDRG in London right after.

Committee work: Ulrich Vogel has been serving as URC Co-Chair since the Brasilia meeting. In this capacity he manages the update process of ICD-10 for the Committee. DIMDI has actively participated in person or via phone in meetings of the Mortality Reference Group, Family Development Committee, URC for ICF purposes and other WHO-FIC groups.

ICD-11: DIMDI assisted in the ICD Revision, specifically in the Revision Steering Group, the Morbidity TAG and the Neoplasms TAG.

In 2014 a workshop of the National Board for Classification in Health Care was designated to the topic ICD-11. The process of the Revision and specific topics taken from the Beta draft have been discussed. The results and recommendations were handed to WHO to stimulate further improvements to the ICD-11 draft.

Work of the ICF Research Branch
ICD-11 Revision/FTAG: Since the 2014 WHO-FIC meeting, a draft of the coding instructions for using functioning properties (FPs) has been submitted to WHO, steps toward addressing the ICD-11 chapter on factors influencing health status and contact with health service have been taken, and support on reviewing possible mirror coding was provided. Other activities include leading regular teleconferences and participating in the monthly RSG teleconferences, providing input where appropriate. A paper on the FPs work was published in the Eur J Phys Rehabil Med.

ICF eLearning Tool: After some training on Articulate Storyline, the new software for developing an interactive and revised version of the ICF eLearning tool, a template for integrating the remaining content of the tool was prepared in coordination with WHO.

Other Training Activities: The ICF Research Branch (or Branch) has conducted ICF trainings in Switzerland, in clinical institutions in Germany, and for various groups within the German worker’s compensation system. An online course for ICF instructors in Latin America/Caribbean was also held, and material for train-the-trainer workshops in inclusive education has been developed.

ICF Updates within FDRG: Input on update proposals was given.

ICF-based Measurement Activities: The Branch has initiated ICF-INFO, an international collaborative project that will develop an architecture for standardized reporting of functioning information that will enable practitioners and researchers to continue using existing instruments for data collection while being able to report based on WHO’s standards for health information. See separate poster.

ICF Core Set Work: ICF Core Sets for schizophrenia are now available. There is ongoing work to develop ICF Core Sets for autism spectrum disorder and attention deficit hyperactivity disorder. The Lighthouse Hand project, a demonstration project to implement the ICF Core Sets for hand conditions, is ongoing. See separate poster.

ICF in Education: Support continues to be provided on implementing an ICF-based evaluation tool in the Swiss education system for negotiating the educational plan and eligibility for special services.

ICF Implementation: Collaborating on the development of a manual for system-wide implementation of the ICF in routine clinical practice in China.

Conclusions
Since the last Network meeting the work of the German Collaborating Centre continues to be multifaceted. The existing collaboration of DIMDI, the ICF Research Branch and the University of Freiburg proves to be well suited for the successful fulfilment of the work plan as agreed with WHO.
Central Bureau of Health Intelligence (CBHI), New Delhi under Directorate General of Health Services; Ministry of Health & Family Welfare, Government of India, has been functioning as WHO CC on FIC in India from September, 2008 onwards. It has been actively involved in Capacity Building for effective Implementation of WHO – FIC (ICD – 10 & ICF) in India since then.

This Descriptive Study of the Human Resource Development for FIC, Performed by CBHI, was done using the documents available at the CBHI headquarters and Field Survey Units as well as Training Centres.

Training reports and reports of the various Trainings / Workshops conducted from 2004 to June, 2015 by CBHI work studied retrospectively, using Checklists designed for the purpose.

| Total No. of Long Term Trainings conducted and Manpower Trained from 2004 to June, 2015 |
|----------------------------------|------------------|
| **Long Term Training Courses**   | **Participants** |
| Training Centres                 | SJ Hospital, New Delhi | 120 | 853 |
|                                 | JIPMER, Puducherry   | 108 | 524 |
| **Total**                        | **228**            | **1377** |

| Total No. of Short Term Trainings conducted and Manpower Trained from 2004 to June, 2015 |
|----------------------------------|------------------|
| **Short Term Training Courses (Five days duration)** |
| Training Centres                 | ICD – 10 Trainings | Sensitization Workshops on ICD – 10 & ICF | Training of Trainers (Master Trainers) | Medical Record Information Management |
|                                 | Total Number of Trainings | Participants | Workshops | Participants | Participants | Participants | Participants |
| Bengaluru                       | 20 | 310 | 24 | 2,732 | 0 | 0 | 6 | 90 |
| Bhopal                          | 20 | 320 | 19 | 1,864 | 1 | 12 | 6 | 90 |
| Bhubaneswar                     | 20 | 325 | 18 | 1,743 | 1 | 8 | 5 | 98 |
| Jaipur                          | 20 | 298 | 23 | 1,873 | 1 | 12 | 6 | 117 |
| Lucknow                         | 20 | 280 | 21 | 1,592 | 0 | 0 | 5 | 95 |
| Patna                           | 20 | 285 | 22 | 1,819 | 1 | 7 | 6 | 115 |
| RHSTC, Mohali                   | 25 | 550 | 4 | 350 | 23 | 251 | 9 | 180 |
| **Total**                       | **145** | **2368** | **131** | **11,973** | **27** | **290** | **43** | **785** |

Through its sustained efforts, CBHI has been able to create a pool of Master Trainers, Medical Officers & Paramedics trained in FIC to initiate and effectively implement the activities towards use of FIC by developing human resources in India. CBHI has also been providing collaborating and support to its neighbouring countries of South East Asia and WHO – SEARO. CBHI is committed towards its mandate for the use of WHO FIC. It hopes to continue these activities in the period of re-designation with renewed vigour.

**Results**

- Head of the WHO Collaborating Centre on FIC in India attended the WHO – FIC Network Annual Meeting at Barcelona, Spain from 11th – 17th October, 2014
- Officials from CBHI attended the 7th Asia Pacific Network WHO FIC Meeting at Siem Reap, Cambodia from 29th – 30th June, 2015
- From September, 2014 to June, 2015 CBHI has conducted 9 Batches of Trainings on ICD – 10 & ICF in these trainings 158 persons where trained
- Till now India has created a Pool of 290 Master Trainers on ICD 10. In addition to it, Total of 228 Long Term Training Courses of 6 and 12 months duration have been conducted in India and in these courses 1,377 persons have been trained.
- In 145 batches of Short Term ICD – 10 Trainings 2,368 persons have been trained so far.
- From 2011 to June, 2015, 43 batches of Medical Record Information Management Training have been conducted and 785 persons have been trained.
- So far, 131 Batches of Sensitization Workshops have been Conducted to promote the use of ICD – 10 in Tertiary Care Hospitals & Medical Colleges (both in Government & Private Sector) and in these Workshops, 11,973 persons sensitized about ICD – 10.
- India has prepared a Simplified Coding Manual in the National language (Hindi) of India for Short Term Training Courses on ICD – 10.

**Conclusion**

Through its sustained efforts, CBHI has been able to create a pool of Master Trainers, Medical Officers & Paramedics trained in FIC to initiate and effectively implement the activities towards use of FIC by developing human resources in India. CBHI has also been providing collaborating and support to its neighbouring countries of South East Asia and WHO – SEARO. CBHI is committed towards its mandate for the use of WHO FIC. It hopes to continue these activities in the period of re-designation with renewed vigour.
Updates on the performance monitoring plan of the Italian WHO-FIC Collaborating Centre

Frattura L., on behalf of the Italian WHO-FIC CC Research Network
Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC

Abstract
The aim of this work is to present the fourth-year results of the performance monitoring plan of the Italian WHO-FIC Collaborating Centre (CC).

Introduction
The aim of this work is to present the fourth-year results of the performance monitoring plan of the Italian WHO-FIC Collaborating Centre (CC).

Methods & Materials
Moving from the 2011-2015 terms of reference (TORS) of the Italian WHO-FIC CC, a performance monitoring plan was defined to yearly assess the CC’s performance. Five main criteria were used: (i) adherence to the relevant lines of work of the WHO-FIC Strategic Work Plan (SWP); (ii) outcomes of the activities; (iii) new partnerships; (iv) communication power; and (v) resource consumption.

Results
In the fourth year (21 July 2014-21 July 2015), the Italian WHO-FIC CC was active on five lines of work at international, national and regional level: (i) revision of the International Classification of Diseases; (ii) IT and ontological development for WHO-FIC; (iii) coordination and management of the ICD-10 and ICF update process; (iv) national work on WHO-FIC; and (v) awareness building and implementation support of WHO-FIC in WHO regions. Some results are presented in an interactive map (QR accessible) that allows browsing through all the posters presented by the CC at the 2015 WHO-FIC annual meeting (Figure 1).

Updates at WHO Euro Region level: support to implement ICD 10 in Albania

Updates at regional level: the adoption of VimlaFABER system in the Friuli Venezia Giulia Region and a fourth field test was started in the Liguria Region.

The communication power was evaluated considering presentations, seminar and meeting organization, and active users of the Italian Portal of Health Classifications.

Conclusions
The activities of the Italian CC are linked to the relevant lines of work of the WHO-FIC SWP according to the CC’s TORS. All activities of the Centre were made possible thanks to regional and national funding.

Acknowledgements

References
1. Italian WHO-FIC annual report, Udine, August 2015
2. www.reteclassificazioni.it
The Japanese Collaborating Centre bases on close collaboration of five organizations: the International Classification and Information Management Office of the Ministry of Health, Labour and Welfare (Japan ICD Office); the National Institute of Public Health; the National Cancer Center; the Japan Hospital Association/Japan Society of Health Information Management, and the Japan Society for Oriental Medicine (The Japan Liaison of Oriental Medicine). This poster summarizes their activity taken since the 2014 WHO-FIC meeting in Barcelona.

**ICD-10**

- Updated version introduced in Japan

While the latest version of ICD-10 applied domestically is prescribed by law in Japan, the former 2003 ver. has been replaced with the 2013 ver. in February 2015. Dissemination activities of the new version are ongoing.

- Discussion on ICD updates

The internal ICD expert committee discussed on ICD updates and provided appropriate technical advice to the CC.

**APN**

The 7th meeting of the WHO-FIC Asia-Pacific Network (APN), established in 2006 to promote ICD implementation throughout the region, was held in June 2015 Siem Reap, Cambodia.

For details please refer to the 2015 WHO-FIC poster “Activities of the WHO-FIC Asia-Pacific Network”, Hiroyoshi E. et al.

**ICD-O**

With the Cancer Registration Promotion Act coming into effect in January 2016, usage of ICD-O-3 (ver. 2012) has been publicized widely.

**ICD-11**

- Translation

Japanese translation has started.

- Internal Medicine TAG

The Japanese Collaborating Centre provides technical and financial support for the activities of Internal Medicine TAG, which plays a central role in the ICD Revision process. In December 2014 a meeting of members of the 8 working groups of IM-TAG, 2 representatives of WHO Headquarters and the RSG Chair that was held in Japan, represented an important development in the revision process. Chaired by Naoko Tajima, the new IM-TAG Chair, the meeting became a practical session for solving problems and gave an impulse to the revision process. In September 2015 a meeting of the IM-TAG is planned in Tokyo to build upon the JLMMS outcome.

- Traditional Medicine

Traditional Medicine group has nominated 75 reviewers to WHO. For the international field test, TM chapter in ICD-11 beta is translated to Japanese and ready to be brushed up on the ICD-11 beta browser. Coding guide has been made and is being finalized by the international TM group.

**Outcomes and Prospects**

**ICF Symposium**

The 4th ICF Symposium was held as part of the promotion of ICF as a ‘common language’. The Japanese Association of Rehabilitation Medicine has co-sponsored the event, and Prof. Gerold Stucki of the German Collaborating Centre, editor of the ICF Core Sets, took part in the symposium and shared his insights.

**Entering the second term**

2014-15 was the final sum-up year of the 1st term for the Japanese Collaborating Centre with major activities described above. Key events in the 1st term and the next strengthened organizational structure is shown below.

- Structure strengthened for the 2nd term
  - Japan ICD Office, National Institute of Public Health, National Cancer Center, Japan Hospital Association/Japan Society of Health Information Management and Japan Liaison of Oriental Medicine have been joined by National Rehabilitation Center for Persons with Disabilities, National Center for Global Health and Medicine, and National Center for Child Health and Development to vigorously pursue Collaborating Centre activities.
The Korean WHO-FIC Collaborating Centre, designated in Social Security Information Service in 2012 has played a bridging role in improving the interoperability of health information both at a local and international level. Actively participating in the WHO-FIC network through cooperation with WHO and other collaborating centres, the Korean Centre has been pursuing a research project of Health Information Standardization to implement WHO-FIC classifications in Korea. This poster provides a brief overview of the progress the research has made from 2012 to 2015.

Introduction

Since its first designation in 2012, the Korean Centre has conducted a number of projects related to WHO-FIC reference classifications, of which assignments include: 1) developing ICD-11 Multilingual Platform and its Korean version; 2) publishing a revised Korean translation of ICF and applying it on clinical settings; 3) developing International Classification of Traditional Medicine (ICTM) and initiating its pilot field trial.

Methods & Materials

◆ Development of ICD-11 Multilingual Platform and its Korean Version

Korea is one of the countries that make the best use of ICD; i.e., all clinical institutions use ICD codes in insurance claiming.

In order to support the 11th revision process of ICD in which multilingual support is one of the main features, Korea's advanced IT workforce helped develop the terminology & predicate logic-based Multilingual Platform and followed by applying it on the Korean translation of ICD-11 frozen version.

◆ Web-based Multilingual Platform

The concept based multilingual schema and style sheets for English and Korean were built to transform concepts into each language with proper terms and word orders.

Chart 1: Principle of Multilingual Platform

◆ ICD-11 Korean Alpha Version

The Multilingual Platform was used for translating ICD-11 Korean alpha version, which involves the following series of steps:
1) Selecting titles
2) Parsing titles into relations and noun phrases
3) XML coding
4) Mapping with KOSTOM
5) Data validation

The Korean Alpha version, consisting of 44,896 entries of ICD-11 frozen version adopted KOSTOM (Korean Standard Terminology of Medicine)

◆ Development of revised Korean translation of ICF and its application on clinical settings

Following the 1st Korean Edition of ICF officially published by the Korean Ministry of Health and Welfare in 2004 and the WHO's continuing updates and revisions on ICF, the Korean Centre initiated the revision project in order to provide a more accurate translation and to reintroduce its applicability for the future implementation in Korea.

The translation project was officially approved by the WHO, as clearly stated in the Agreement for Granting Translation and Publication Rights, and it was conducted under the guideline of the WHO translation package. To improve the translation's quality, the Korean Centre invited a research team to carry out a field trial with 151 health professionals of 19 medical institutions.

◆ Field trial for concept comparison between ICF items and clinical measures

To suggest clinical applications of ICF, concept mapping was performed between ICF codes and clinical measures. In order to achieve this, experts in the field of medicine, physiotherapy and occupational therapy and other related researchers were invited. A field trial was initiated with these mapping results. Data collected in the field trial was used to analyse the mapping relationships between ICF codes and the clinical measures.

Chart 2: Health professional-centred translation validation process

◆ Development of ICTM and its pilot field trial

◆ ICTM Beta Version

In collaboration with China and Japan, Korea has been leading the development of ICTM, a part of the ICD-11 chapters. This led to a multidimensional cooperation with a number of institutes and professionals as the Korean Centre established a partnership with the Korea Institute of Oriental Medicine, a national research centre, which is currently working on the standardization of Korean traditional medicine. It also formed an advisory committee with the Association of Korean Medicine and the Society of Korean Medicine to receive feedback on this project.

◆ Pilot Field Trial

To examine the applicability of ICD-11 field trial's process and tool, the pilot field trial was conducted in accordance with the WHO Field Trial Handbook draft version. Nine clinical professionals have been involved in this trial, producing live video cases.

Results

◆ ICD-11 Korean Alpha Version containing 44,896 entries was developed, which confirms the possibility of translating into Chinese and Japanese languages. Also ICD-10 PCU was translated into Khmer language (Cambodia) via the Multilingual Platform.

◆ The Korean translation of ICF containing 1,424 codes was officially developed and published in print and digital formats for its possible application in Korea.

◆ ICTM Beta Version containing 471 codes was developed, and the video clips were submitted to the WHO to assist with research and drafting protocols for field trials.

Conclusion and Acknowledgement

We have created the ICD-11 Multilingual Platform hoping that it will be of assistance by sharing technical approaches in multilingual translations, especially for developing countries which have a difficulty translating it into their own languages.

To foster the development and use of the WHO-FIC classifications, the Korean Centre will strive to participate in relevant activities and provide support by laying the groundwork for its global implementations. Thank you to all our participants and researchers!
Introduction

The aim of the center is to support WHO in provision, use, and implementation of meaningful health information standards. To provide high-quality and timely information for health planning and monitoring, regarding: mortality, morbidity, function and disability, primary care, patient safety and, traditional medicine.

Activities

- The center kept on providing the necessary ICD training courses for both trainers and coders in Kuwait. The Center is aiming to conduct training courses over the GCC and the EMR Countries in the near future.
- The center provided training for local health practitioners regarding the correct way of filling the death certificate according to the latest WHO recommendation.
- The center has developed a step by step pocket manual for filling death certificate in line with ICD 10. This manual was issued in both Arabic and English languages and aimed to serve as a quick reference guide for health care professionals.
- The center is still working on updating the Arabic version of ICD10.
- The center hosted Dr. Qasem Taha (an expert in updating the ICD Arabic translation) who’s recommended by the regional officer from 28th of August to the 3rd of September.
- The center is working on ICD-11 Field Trial Test during 2015.

ICD Training Workshops and Courses Provided by the Center:

<table>
<thead>
<tr>
<th>Workshop/Course</th>
<th>Period</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of trainers and coders within the center on ICD-10 and assessment of causes of death</td>
<td>April 12th, 26th</td>
<td>Dr. Ali Al Sayed (public health consultant and ICD trainer) Dr. Mijbil Al Najar (Public health consultant, ICD Trainer)</td>
</tr>
<tr>
<td>Training of the primary health-care providers on ICD</td>
<td>April 23rd</td>
<td>Dr. Ali Sayed (public health specialist and ICD trainer) Dr. Mijbil Al Najar (Public health consultant, ICD Trainer)</td>
</tr>
</tbody>
</table>

Arabic Version of ICD-10-AR and related materials

The centre is still in the process of updating the Arabic version of ICD-10 and translating the ICD-11 version when it will be officially released. The centre is planning to conduct trainings for trainers and coders for the Arabic version in the near future. In addition, the centre is translating the ICD-11 field trial test manual and also working on translating the Arabic version of WHO-FIC newsletter.

Challenges

- The center renovation took longer than expected.
- Since the center is newly developed, no interaction or collaboration with other collaborating centers has yet been established.
- The center lacks technical and advisory support which should be provided by the RO focal point.
- The center is still in the process of recruiting the qualified human resources to carry out center duties.
- The center lacks the necessary funding resources.

Future Goals

- Preparing the county and the region on the implementation of the ICF on the national and regional level with cooperation with the function and disability department and the related work groups.
- The center is seeking WHO support to provide the necessary tools and training course on “IRIS” and “SCB” in the near future.
- The center is still in the process of developing a kit, which incorporates all materials used in training (PowerPoint presentations, manual for trainers, and exercises).
- Arrange visits to at least two centers who managed to translate the ICD from English to their native language.

Abstract

The Kuwait WHO-FIC center was renovated by the end of February 2015 in order to meet the center demands toward the current and future short and long term goals to achieve the required TORs. The Center has done various activities some were achieved, some are still in progress and some are in the center future plans. This poster discuss the center activities, challenges and future plans between October 2014-2015.
Abstract  The Mexican Collaborating Center of the WHO-FIC (CEMECE) was designated in January 2008 and nowadays is in the second period of designation. At the same time in 2015 CEMECE celebrates 30 anniversary since their creation. During this time, all activities have been related with the WHO-FIC and health information. This summarizes their activity taken since 2014 WHO-FIC Annual Meeting in Barcelona.

Introduction
CEMECE was established in 1985 and was designated as Collaborating Centre for the WHO-FIC For Mexico in 2008. In coordination with PAHO/WHO has participated in projects to support the Latin American Region for strengthening health information systems. The most relevant activities in last year were:

Activities
CEMECE has translated into the Spanish the updates of the volumes 1, 2 and 3 of the ICD-10 to apply them in 2014 in Mexico. The updates were incorporated (edited) by each volume by center staff. This job was sent to the PAHO for a revision. Once the material been authorized, will be available to the Spanish speaking countries according to the guidelines established by the PAHO. The updates were disseminated through the website of CEMECE.

The Center has given training and advice to the instructors and coders in ICD-10 and also has given tracking of these updates in the whole country. So, organized a national course for the updating of ICD-10 instructors for 50 participants of different entities and institutions. Whereupon it gives tracking to the updates implementation in Mexico.

CEMECE has performed the Spanish translation of the documents sent by the WHO for field test of the ICD-11. These documents were shared to other countries of the region. As well, is involved in the working program that was organized inside this Network of Collaborating Centers in Latin America for the translation of the project site of CIE-11 and the ICD-fit and this way we have a draft of this site in Spanish.

Nowadays, CEMECE is choosing the Field Trial Centres for the field tests of ICD-11 in Mexico with the participation of health institutions.

In June 2015, Minister of Health, Mercedes Juan, led the Second Meeting of the Network of Collaborating Centers of WHO in Mexico where She acknowledged that one of the pillars that has the health system in Mexico is the CEMECE who turned 30 years of creation and form part of the centers that collaborate with the World Health Organization.

RELACSIS network was created by PAHO for strengthening health information systems in Latin America and the Caribbean, and CEMECE leads most of the projects. Some of them are:

- Automated Coding with the Mortality Medical Data System (MMDS)
- Intentional Search and Reclassification of maternal deaths. CEMECE organized the first international course in this topic in July 2015 in Mexico City where participated Argentina, Cuba, Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Republica Dominicana, Panama, Paraguay, Peru, Uruguay and a WHO’s representatives.

As every year, continues carrying out the Intentional Search and Reclassification of Maternal Deaths in coordination with health institutions nationwide. This activity contributes to the rescue of more than 30 percent of the misclassified deaths.

On the other hand, The CEMECE is part of the director committee of the Public Health Virtual Campus of the PAHO in this website is the e-learning ICD-10 and the virtual course on the correct filling of death certificate.

Acknowledgements
All these activities have been carried out with support of PAHO/WHO Washington DC and PAHO/WHO Mexico with the purpose of improve health information in Latin America.

The Dutch National Institute for Public Health and the Environment has hosted the WHO-FIC Collaborating Centre in the Netherlands since 1998. This poster highlights the activities of the WHO Collaborating Centre for the Family of International Classifications in the Netherlands (Dutch WHO-FIC CC) that took place from October 2014 to September 2015 in relation to its Strategic Workplan.

**Abstract**
The Dutch WHO-FIC Collaborating Centre for the Family of International Classifications in the Netherlands, National Institute for Public Health and the Environment, Bilthoven, The Netherlands

**Background**
As early as 1989, WHO appointed a predecessor of the current Dutch WHO-FIC collaborating centre (CC) as a CC for the ICIDH. Since then the Dutch WHO-FIC CC has been re-designated multiple times as a CC for the Family of International Classifications. The last re-designation was late 2013, for the period 2013 - 2017.

**Strategic Workplan**
With its re-designation a new Strategic Workplan was implemented.

This poster highlights the activities of the Dutch WHO-FIC CC that took place from October 2014 to September 2015 along the six key activities in the Strategic Workplan 2013 - 2017:


1. Support Revision of ICD
One of the centre heads (HtN) serves on the Revision Steering Group, and participated in (teleconference) meetings.

ICD-11 advocacy was started in the domains of government, statistics and health care.

2. Support ICF
The Dutch WHO-FIC CC takes responsibility in the ICF update process by commenting on and voting for ICF update proposals. Also, one of the centre heads (CVG) joined the Initial Review Group (IRG).

Within the Netherlands, work is being done on what Personal Factors to use in ICF and how. Also alternative presentations of the ICF framework are under discussion. This need for using personal factors and re-arrangement of the ICF framework arose from clinical practice. For more information: see poster by Heerkens, de Weerdt, Huber et al. on the ICF Scheme.

The Dutch WHO-FIC CC participated in FDRG (teleconference) meetings. Also, the CC participates - together with Statistics Netherlands - in the Washington Group on Disability Statistics, reporting uniform disability prevalence figures to both the UN and WHO.

2. Support ICF (Cont’d)

3. Support WHO-FIC Education & Implementation (cont’d)

3. Support WHO-FIC Education & Implementation

Over the reporting year, the Dutch WHO-FIC CC published the international WHO-FIC Newsletter (June 2015). Several ICF training courses and workshops were held in the Netherlands, Belgium and in Poland.

One of the centre heads (HtN) serves as EIC co-chair and participated in EIC (teleconference) meetings.

Finally, together with WHO HQ, the Dutch WHO-FIC CC maintains the WHO-FIC Implementation Database, developed by the Dutch CC.

4. Support WHO-FIC Informatics & Terminology
The Dutch WHO-FIC CC participated in Informatics and Terminology Committee meetings.

5. Support Development of Other WHO-FIC Classifications

Both centre heads participated in FDC (teleconference) meetings. One of the centre heads (HTN) takes part in the further development of the WHO-Family paper.

The centre heads participated / volunteered in work supporting ICHI development, and HtN serves on the ICHI management board.

The Dutch WHO-FIC CC is involved in WICC/WONCA’s development of the content-model of ICPC-3, which is planned to include personal factors.

6. National WHO-FIC Activities

In August 2015, ICD-10 2014 was published in book format in Dutch.

In the Netherlands, work is ongoing on implementation of ICD-10 in Electronic Health Records. The centre has developed an extended version of ICD-10, based on all relevant qualifiers, only using sensible extra positions. This work is done on request of Dutch Hospital Data (DHD).

The Dutch CC also helps validating a Dutch Diagnosis Thesaurus (DT), linking clinical terms used in daily practice to both SNOMED-CT terms and ICD-10 classes. The DT facilitates EHR data entry using recognizable terms and is used for producing ICD-10 codes required for reimbursement and reporting purposes.
The North American Collaborating Centre (NACC) continues to contribute to the work on the development, dissemination, maintenance and use of the International Classification of Diseases (ICD) and the International Classification of Functioning, Disability and Health (ICF) to support national and international health information systems, statistics and evidence. Education, outreach and collaboration are major foci.

**Abstract**

The North American Collaborating Centre (NACC) continues to contribute to the work on the development, dissemination, maintenance and use of the International Classification of Diseases (ICD) and the International Classification of Functioning, Disability and Health (ICF) to support national and international health information systems, statistics and evidence. Education, outreach and collaboration are major foci.

**Introduction**

The Collaborating Centre for the WHO Family of International Classifications (WHO-FIC) for North America was established in 1976 and was most recently re-designated for four years on March 21, 2012. The North American Collaborating Centre (NACC) is located at the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, in the U.S. Department of Health and Human Services and together with the Canadian Institute for Health Information (CIHI) and Statistics Canada comprise the NACC.

http://www.cdc.gov/nchs/icd/nacc.htm

**Morbidity Data**

The U.S. and Canada both have developed and maintain clinical modifications of ICD-10 for morbidity applications in their respective countries.

- The U.S. continues to use ICD-9-CM but plans to implement ICD-10-CM and ICD-10-PCS effective October 1, 2015. General Equivalence Maps have been created and are updated annually.
- Canada’s V2015 of the ICD-10-CA and CCI classifications and National Coding Standards are available in pdf at www.cihi.ca in English and French.
- CIHI’s eQuery Coding Service launched in 2001 supports data quality and enhancement of the classifications. In 2012/2013 CIHI conducted a data quality study to determine the impact on coding in-patient charts following a Ministry of Health’s adoption of activity-based funding (ABF) models.
- NCHS and CIHI participate in mapping activities between WHO-FIC and IHTSDO.

**Mortality Data**

NCHS and Statistics Canada promote the development and use of ICD-10 for mortality statistics in the U.S. and Canada through production of national data files and publication of reports.

- Statistics Canada plans to release 2012 deaths data, including detailed cause, summary list and leading causes of death, in November 2015.
- Work on Electronic Death Registration Systems (EDRS) in the U.S. continues to progress. When implemented, EDRS will require inputs from two sources – the funeral director and the physician.

**IDC 11**

NACC members serve on the Revision Steering Group and its Small Executive Group, co-chair and serve on the Mortality and Morbidity Topical Advisory Groups (TAGs) and serve on the Patient Quality and Safety TAG for the ICD-11 revision process. NACC members also serve on the newly-established Joint Linearization for Morbidity and Mortality Statistics (JLMMS) Task Force.

**Disability and Functioning**

NACC facilitates the implementation and use of ICF in both the U.S. and Canada. NACC has held 15 conferences on ICF since 1995 and has distributed a periodic ICF Newsletter, which is posted on the NACC website.

- NCHS has participated actively in an ICF Study Group convened by the Social Security Administration (SSA) to consider applications of ICF in the SSA disability evaluation environment.
- CIHI communicates Canadian activities related to ICF through Canadian Network meetings and national presentations on ICF application.
- ICF is the accepted framework for disability statistics in the U.S. and Canada.

**Education, Technical Assistance and Collaboration**

NCHS provided higher level learning opportunities for experienced mortality coding staff in the form of Targeted Training modules.

**WHO-FIC Network**

NACC has representatives on all WHO-FIC network Committees and Reference Groups.

- The Head of the NACC and an additional NACC member serve on the WHO-FIC Network Council and one member serves on the Council Small Executive Group.
- NACC members serve on the Education Committee.
- NACC members serve on the Mortality Reference Group (MRG), including as Secretariat, and on the ancillary MRG Table Group.
- NACC members serve on the Update and Revision Committee (URC) and continued to serve as Secretariat from 2005 until March 2015.
- NACC co-chairs the Informatics and Terminology Committee (ITC)
Annual Report from the Nordic WHO-FIC Collaborating Centre

Lars Berg
Centre Head, Nordic WHO-FIC Collaborating Centre

Abstract
The Nordic Collaborating Centre for the Family of International Classifications in Norway (Nordclass) participates in the WHO-FIC Network with members in all Committees and Reference Groups and serve as co-chairs in the Advisory Council and in MRG. The designation by WHO and the agreements between the five Nordic Countries to finance and run the Centre are to be renewed by the end of 2016. The planning for this process have started.

The Centre is funded by the Health Authorities in the five Nordic Countries: Denmark, Finland, Iceland, Norway, Sweden.
- Established 1987 in Uppsala, Sweden
- Moved 2009 to Oslo, Norway to the Norwegian Directorate of Health

Organization chart Nordic Centre

Cooperation
- Cooperation within the WHO-FIC Network according to the agreed work plan with WHO and activities.
- Cooperation with the Nordic and Baltic countries:
  1) The Nordic National Classification Units/ Departments within the Health Authorities in each of the five Nordic Countries.
  2) The Nordic Casemix Centre: The NordDRG system is based on ICD-10 and NCSP+ (The NOMESCO and national procedure classifications). Web site: www.nordcase.org
  3) NOMESCO (Nordic Medico-Statistical Committee) and NOSOSCO (Nordic Social Statistical Committee) Responsibilities:
    • Nordic health statistics
    • Ownership of the NOMESCO Classifications
    Website: http://nowbase.org/

Work since the period last year
The Centre has during the period been active in the WHO-FIC Network:
- Participation in all the WHO-FIC Committees and Reference Groups
- Participated in mid-year meetings:
  • MRG, Table Group, ICE and mTAG in Budapest 15-24 March (Lars Age Johansson)
  • WHO-FIC mid-year meeting in Geneva 11-12 May (Lars Berg)
  • mICF meeting in Helsinki 2-4 June (Nordic participants: Heidi Anttila, Thomas Maribo, Jaana Paltamaa)
  • EIC Helsinki 6 June (Nordic participants: Lars Berg, Sarianna Savolainen)
  • FDRG Helsinki 6 June (Nordic participants: Ann-Helene Almborg, Heidi Anttila, Thomas Maribo, Tor Dahi, Jaana Paltamaa, Arna Harbardottir, Heli Valkeinen and Matti Ojala)
  • EIC/FDRG Helsinki 7 June Lars Berg, Ann-Helene Almborg, Heidi Anttila, Thomas Maribo, Arna Harbardottir, Päivi Nurmi-Koikkalainen, Jaana Paltamaa, Heli Valkeinen, Sarianna Savolainen)

Conclusions
The Centre has a very active participation in the WHO-FIC Network – in Council, Committees and Reference Groups and WHO-FIC Annual meetings.

Web site
Website of the Nordic WHO-FIC Collaborating Centre: www.nordclass.org
ACTIVITIES OF RUSSIAN WHO-FIC COLLABORATING CENTRE

Sergey Cherkasov 1,2, Alexander Shoshmin1,3, David Vaisman1,2, Dmitry Meshkov1,2, Yanina Besstrashnova1,3, Evgeniya Berseneva1,2, Ludmila Bezmelnitsyna1,2

1 Russian WHO FIC CC, 2 National Research Public Health Institute after Semashko, 3 St. Petersburg Scientific and Practical Center of Medical-Social Expertise, Prosthetics and Rehabilitation of the Disabled named after G.A. Albrecht, Russia

Abstract Parts of the Russian WHO-FIC CC are National Research Public Health Institute after Semashko in Moscow, and St. Petersburg Scientific and Practical Center of Medical-Social Expertise, Prosthetics and Rehabilitation of the Disabled named after G.A. Albrecht. This poster reports on the activities that took place since the last WHO-FIC-Meeting in 2014.

Introduction

After its initial designation in 1995 the Russian WHO-FIC CC was again re-designated in 2014. Since 2014 Russian WHO-FIC CC has consisted of National Research Public Health Institute after Semashko (Chat 1), and St. Petersburg Scientific and Practical Center of Medical-Social Expertise, Prosthetics and Rehabilitation of the Disabled named after G.A. Albrecht, under the Ministry of Labour and Social Protection of the Russian Federation (Chat 2). This report highlights the activities along with the workplan from October 2014 to September 2015.

Support ICF

1. A webpage related to the ICF issues was developed at the Albrecht Center website: http://center-albreht.ru/homepage/sotrudnichayutshchitytseentr-voz (Chat 3).
2. Experts participated in FDRG activities, teleconferences and the mid-year meeting in Helsinki.
3. Dr. Alexander Shoshmin took part at the ICF Scoping Mission in Turkmenistan, managed by the WHO (See the poster by M. Leonardi et al. ‘ICF IMPLEMENTATION AND UNCRPD MONITORING IN TURKMENISTAN’).
4. Russian WHO-FIC CC is responsible for discussions and comments of ICF update proposals.
5. ICF Updates for 2011-2015 were translated in Russian.

Support WHO-FIC Education & Implementation

1. 15 regions of Russia were inspected regarding the quality if ICD-10 coding. Findings were used for adjustment of the training programs.
2. The trainer seminar for ICD-10 specialists was performed and 12 trainers were prepared.
3. 8 training seminars have been performed for ICD specialists in 8 Russian regions and a seminar in Kazakhstan in late 2014-2015. 200+ specialists were trained.
4. Training program for healthcare managers was created and implemented into postgraduate education at National Research Public Health Institute. The program covers aspects of ICD coding that are important for healthcare managers.
5. Experts participated in EIC activities and meetings.
6. Within the project for update of the ICF e-learning module two experts were trained to work with Articulate Storyline. The introduction module content was translated in Russian.
7. Checklist for Implementation of WHO-FIC Members at Country Level and WHO–FIC Information Sheet – ICF were translated in Russian.

Using of electronic tools

1. Computer program for automatic death coding according to ICD-10 was installed in 10 regions.
2. Software product for definition types of assistance to persons with disabilities depending on dysfunctions.

National WHO-FIC activities

1. Russian WHO-FIC CC participated in holding 8 conferences covered ICF-based disability assessment and control of rehabilitation outcomes.
2. Researches on implementing the ICF in rehabilitation have been carried out.

Contacts

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**Abstract**

Colleagues associated with the WHO-FIC collaborating centre in South Africa (WHO-FIC SA) are active in the development and maintenance of the WHO-FIC internationally; in WHO-FIC network structures; and in the development, implementation and use of ICD and ICF in South and Southern Africa. Formal and informal networks of stakeholders remain the most important mechanism for participation in WHO-FIC activities.

**Introduction**

The base of activities of the WHO-FIC collaborating centre in South Africa (WHO-FIC SA) remains the Burden of Disease Research Unit of the South African Medical Research Council (SAMRC BoDRU). Contact is maintained with colleagues in other institutions and structures involved in the development, implementation and use of the WHO-FIC, mainly in South Africa but also in other countries in the WHO/AFRO region, and with the relevant structures in WHO.

The range of activities of colleagues associated with WHO-FIC SA relates to most components of the WHO-FIC: ICD-10 and ICF development, implementation and use; and the development of ICD-11 and ICHI. Current participation in WHO-FIC structures is strongest in the FDRG (secretariat and active membership), the FDC (co-chair), the URC (co-chair), the MRG and in the WHO-FIC Council and Council SEG.

WHO-FIC SA benefits from the ongoing contributions of colleagues in a wide range of organisations and roles, who are committed to the effective use of the WHO-FIC in support of excellent health care. Due to resource limitations, there have been only limited activities convened by the collaborating centre during 2015.

**ICD-10**

ICD-10 is the national standard for diagnosis coding for South Africa, for morbidity and mortality. However, the extent of implementation remains variable across components of the health care system.

WHO-FIC SA has been represented on the National ICD-10 Task Team, an advisory committee to the National Department of Health, and provides regular reports on WHO-FIC activities. Membership of other national committees related to health information in both public and private sector, provides the opportunity to report on the WHO-FIC and gain an understanding of the challenges and progress in the implementation of ICD-10 as a national standard, especially for morbidity coding.

Statistics South Africa, the national statistics authority, continues with efforts to improve the quality of Cause of Death coding from routine death registration, including the use of automated coding tools. Research studies related to the implementation of ICD-10 mortality coding at both national level, and in the Western Cape, one of the nine provinces in South Africa, provide the platform for promoting the effective implementation of ICD-10 for mortality coding, and in sophisticated analysis and modelling of the available data on mortality in South Africa. Researchers from the Burden of Disease Research Unit have been invited to participate in WHO consultations related to the strengthening of Civil Registration and Vital Statistics (CRVS).

Potential new links with research initiatives on clinical governance are being investigated.

**Conclusions**

WHO-FIC SA remains dependent on co-ordination among and liaison with networks of stakeholders in order to support the development and implementation of the WHO-FIC in South Africa and elsewhere in the African region. The establishment and maintenance of links both within and beyond South Africa remains a challenge.

Further opportunities for expanding the network of WHO-FIC participants and activities in South and Southern Africa and through the international WHO-FIC network continue to be sought.

**Acknowledgements**

Financial support for core WHO-FIC SA activities is provided by the South African Medical Research Council.
Barcelona Collaborating Centre (Spain) for WHO-FIC: Annual Report 2015

Authors: Estrada MD1,2,0, Espallargues M1,2,1, Canela-Soler J2, Argimon JM1 on behalf of CC-BCN staff*
Agency for Health Quality and Assessment of Catalonia (AQuAS), Spain

Abstract
The initiative to work in the area of the WHO Family International Classifications (WHO-FIC Network) was promoted by the Health Department of the Catalan Government (2010). Currently, the Barcelona Collaborating Centre (CC-BCN) is under designation and is led by the Agency for Health Quality and Assessment of Catalonia (AQuAS), a public governmental institution whose mission is to generate relevant knowledge to contribute to the improvement of quality, safety and sustainability of the health system in Catalonia. The members of the CC-BCN include experts and organizations from all the Spanish Health System that have an interest in and experience in working of FIC. This poster summarizes the activities of the CC-BCN since its beginning.

Organization of the 2014 WHO-FIC Annual Network in Barcelona (Spain)
The special theme was “Driving improvement in healthcare: from data to eHealth tools”.

- Over 250 international participants attended the Network, with representatives from 22 WHO-FIC CC and 4 CC under designation as well as representatives from Ministries of Health and National Statistical Bureaus from 5 other WHO Member States.

- 161 posters (17.4% from Spanish teams) on various WHO-FIC topics were presented and printed as a booklet, 30 were presented in special sessions and all were displayed throughout the meeting.

- A special plenary session was held on ICHI (International Classification of Health Interventions).

- The Annual Meeting discussed the ICD Revision Process in detail (the current state of the ICD-11 Joint Linearization for Mortality and Morbidity Statistics and the two Primary Care Linearizations).

For more details, see the 2014 final meeting report available on PAHO/WHO-FIC Network website

Activity 1

Participation with PAHO/WHO-FIC Network**
**It included the wider network called The Latin American and Caribbean Network for Strengthening Health Information Systems or RELACSIS its acronym in Spanish.

CC-BCN has specially worked on:

- in the context of testing the Spanish ICD-11, a translation from the English version is being made on a voluntary basis (for more details, see poster nº 165).

- sharing knowledge (educational activities) about mortality coding with the automatic system using ICD-10 (IRIS).

- creating a discussion forum called “Dr. Roberto Becker” to promote the correct use of ICD and to reach a consensus on critical points.

- participating in II-IV annual meetings of PAHO/WHO-FIC.

Activity 3

Collaboration with the Spanish Ministry of health in the transition process from the ICD-9-CM/PCS to the ICD 10-CM/PCS in the morbidity area.

For more details, see http://goo.gl/qSIUtg

Activity 4

Strengthening CC-BCN as a group and promoting our work

- defining our terms of reference.

- actively communicating among members of our staff.

- release of the CC-BCN website (Figure 1).

For more details, see http://goo.gl/06MzwD

![Figure 1](http://www.who-fic.org)

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Abstract
This report documents the activities of the Thailand Collaborating Center (Thai-CC) for the WHO Family of International Classifications (WHO-FIC) documented against the Thai-CC terms of reference for the period of October 2014-September 2015.

ICD Activities
The major mission of the THAI WHO-FIC CC is to give support to WHO in developing ICD system in Thailand. The center also functions as the center of knowledge, information, experts for further references, for developing coder’s training courses, learning materials, supporting for the coding of ICD as well as continuously maintaining, improving and updating codes. Five main activities in 2015 are;

1. ICD-10 Training for Thai Coders

In 2015, the center conducted two basic ICD-10 coding courses and four advance ICD-10 coding courses which 1,000 clinical coders attended. The basic ICD-10 training courses focused on how to use ICD-10 for morbidity and mortality coding, while the advance ICD-10 training courses focused on the use of the standard coding guideline (ICD-10-TM volume 5) to solve complex problems in clinical coding.

2. International ICD-10 Training

The center conducted one advance ICD10 analysis and coding for Sri-Lankan clinical coders, and one ICD-10 training for trainer courses for Myanmar ICD officer from the Ministry of Health. All training were in Bangkok using English as the training language.

3. ICD-10-TM Update and Maintenance

The center helped the Ministry of Health to implement the ICD-10-TM Standard Coding Guidelines -Version 2014, which covers issues concerning problems in coding and new knowledge in the form of a manual to be functionally used in both public and private hospitals throughout the country. The center also set up help desk and questions & answers website to help the clinical coder solve the problems of clinical coding.

4. Setting up of Simplified Version of APN ICD-10

The center continued the work on developing the WHO-FIC Asia Pacific Network (APN) simplified version of ICD-10. This year the beta-2 version of the APN simplified version was released and introduced to the Cambodia Ministry of Health to be evaluated as a tool for primary care coding in primary care center in Cambodia.

5. Planning and Preparing for the Trial Use of ICD-11 in Hospitals

The center has conducted meetings to prepare for the readiness in using ICD-11 in hospitals with the translation of the ICD-11 Beta Phase into Thai language. It has also been in the process of accepting applications from voluntary hospitals for joining the ICD-11 Beta Phase.

Latest Activity in 2015
1. Training courses of ICD-ICF linkage were performed around the country.
2. Introduction to ICF lecture was set in Sirindhorn National Medical Rehabilitation Center on 8 June 2015. Participants were from Thailand, Myanmar, Vietnam, Lao and Brunei.
3. WHO DAS II was used in Survey of Quality of Life in people with Disability.
4. WHO DAS II mobile application has been developing.
UK WHO-FIC Collaborating Centre, Annual Report

Authors: Lynn Bracewell, Myer Glickman
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Abstract
The UK WHO-FIC Collaborating Centre is hosted by the Health and Social care Information Centre (HSCIC). We have outlined our progress against the 2014-18 work plan, including hosting of the 2015 UK-FIC Annual Network meeting.

Background
The first WHO-FIC Collaborating Centre for the English Language was established in London in 1951 under the Office of Population Censuses and Surveys until 2005. The HSCIC was designated a UK WHO-FIC Collaborating Centre in July 2014 and working closely with our partners at the Office for National Statistics (ONS) we ensure there is appropriate UK contribution and representation on WHO-FIC Network committees.

HSCIC website can be found at: http://www.hscic.gov.uk/home
ONS website can be found at: http://www.ons.gov.uk/ons

Strategic Work Plan
This poster outlines progress for 2014-15 against the four year (2014-2018) work plan as follows:

1. Support ICD implementation and updates in the UK (morbidity)
We are preparing to support the National Health Service (NHS) implementation of ICD-10 5th Edition on 1 April 2016. We release a number of products:
- Codes and Titles and Metadata file
- Table of Coding Equivalences
- Classifications maps from SNOMED CT to ICD-10 5th Edition
- Technical specifications.

We also publish implementation guidance for the coding community, which includes:
- National Clinical Coding Standards Reference book
- Summary of Changes
- Coding Clinic
- Training documentation for approved clinical coding trainers
- eLearning modules

These products are made available via our Technology Reference data Update Distribution Service: https://isd.hscic.gov.uk/trud3/user/guest/group/0/home

The HSCIC is a member of the Education and Implementation Committee (EIC) and participated in the committee’s teleconference calls and mid-year meeting in Helsinki.

2. Contribute to the development and maintenance of ICD-10 (morbidity)
We coordinate UK submissions to the Update and Revision Committee (URC) and actively participate in the update mechanism. We have supported the WHO team by providing QA of ICD-10 5th Edition proofs against updates for Volume 1, 2, 3.

3. Contribute to the revision of ICD-10 (morbidity)
The HSCIC secured approval from the Standardisation Committee for Care Information to establish a UK ICD-11 Field Trial Centre. We are now engaged with the WHO Geneva team to align our work plan to latest WHO timelines before seeking volunteers to become Field Trial Units.

We also join the monthly MtTAG meetings and provide feedback on a number of ICD-11 chapters.

4. Contribute national expertise for ICD-10 maintenance (mortality)
As members, ONS staff attended the annual and mid-year meetings of the MRG. They were active contributors to ICD-10 improvements (codes and rules) providing lists of cause of death validations used in England and Wales, and of 'connecting' and 'due to' terms used in the ONS IRIS implementation. Technical issues based on national coding experience and IRIS implementation have been raised with the MRG and/or IRIS Consortium as appropriate.

5. Develop and maintain international English coding dictionary for IRIS coding system (mortality)
The ICD-10 English Dictionary developed by ONS was supplied to colleagues in Australia, Canada, Caribbean Public Health Agency, Cyprus, Fiji, Irish Republic, Japan, New Zealand, Portugal, South Africa and the USA. It has also been provided to Geneva to help identify ICD-11 omissions and issues. The current version is 4.2.3 (released end of 2013).

Since implementation around 370 new entries (causes of death) have been added and 450 code amendments. Current use of IRIS with the English Dictionary in England and Wales enables the automated coding of 82% of underlying cause for routine adult deaths.

6. Contribute to the development of international classifications and other WHO products
ONS has been active in discussions around the development of ICD-11 for mortality statistics, through the MRG, mTAG and European Statistical System meetings.

A review of the compatibility of the current ICD-11 draft with selected UK and European mortality tabulations is in progress.

The HSCIC is a member of the WHO / IHTSDO Joint Advisory Group with specific interest in the linkage between SNOMED CT and ICD.

7. Provision of national coding support mechanism and advisory service
The HSCIC provides a national clinical coding query helpdesk to support classifications customers, consumers and stakeholders. During the period July 2014 to June 2015 over 5,200 queries were logged and resolved in relation to ICD-10 and OPCS-4 (UK procedure classification) queries.

We deliver a Clinical Coding Trainer Programme to the NHS to ensure that classifications training is delivered to a consistently high standard. In addition we have established and accredited a Clinical Coding Academy network to provide a cost effective way of supplying NHS training.

The Academies offer a range of courses and support demand from NHS organisations for bespoke training. The members of the network collaborate on the development of new training materials which are endorsed by HSCIC. We also quality assure the National Clinical Coding Qualification NCCQ (UK) examination papers produced by the Institute of Health Records and Information Management (IHRIM).

8. Contribute national expertise to WHO electronic tools development
The HSCIC have developed an eVersion of ICD-10 to support NHS users and are liaising with WHO to ensure licencing arrangements are in place for the release. This product has been provided to WHO Geneva.

Next steps
The collaboration between the HSCIC and ONS organisations has enabled the successful fulfilment of the UK WHO-FIC Collaborating Centre work plan for it’s first year of operation, including participation in the 2014 Annual Network Meeting.

During it’s second year of operation the UK WHO-FIC Collaborating Centre is funding and hosting the 2015 Annual Network meeting in Manchester, England.

Over the next year we will be strengthening the UK centre and increasing participation from national administrations and experts in specialist fields to further contribute to the WHO Strategic Work Plan.
Throughout this period the Venezuelan Center for Classification of Diseases, CEVECE, further strengthened the continuing education of the coding units of the country in terms of the FCI, likewise we have actively participated, virtual route, in meetings of the network iberoamerica collaborating centers and form part of the consultative group on codification in RELACSIS platform. We also work on joint translation of ICD-11 in Spanish.

### Introduction

Promote the proper use of FCI-WHO main task of is collaborating centers in Venezuela, the task is in charge of CEVECE collaborating center recently completed 60 years of experience in the use, promotion, dissemination and training of students of the FCI-WHO what do the Collaborating Centre oldest activity the world. Over the years we back our written history, so from our space continue our efforts to guide and custodians of the FCI-WHO, now making inroads in promoting systems of quality information as well as training of personnel in these areas. In this our move during the period 2014-2015

### Method

1. **Revision of the International Classification of Diseases (ICD 11)**
   - Currently the CEVECE is actively participating in the joint Spanish language translation of ICD-11 with other collaborating centers, as well as validation.
   - Depending promote and raise awareness among users of the FCI in the country have made keynote speeches from informative reference to ICD-11

2. **Promote the implementation of the WHO-FIC in the region of PAHO**
   - Two brochures concerning proper medical certification, which are used in the workshops to be taught in medical schools and hospitals in the country were designed.
   - Information regarding instrument was provided for Epidemiological Surveillance of Maternal and Child Mortality (SIVIGILA), which allows the monitoring and study of maternal and infant mortality in Venezuela, CELADE consultant Maria Villarroel.

3. **Encourage the creation of national centers for the WHO-FIC in Latin America.**
   - Technical cooperation to the reference center of Cuba (CECUCE), for the revision of Assisted Coding System offered.

4. **Coordination and management of national activities of the WHO-FIC**
   - The publication of the yearbook mortality 2012, conducted in late 2014, for the first two pictures of the global burden of mortality are published, as a way to improve the lists based on ICD-10 of the leading causes of mortality country.

### Lessons learned

- Four introductory workshops were held concerning: CIF, ICD-O-MM CIE and CIE-APS for 2014, with 82 participants and in 2015 a workshop full ICD-O, all virtual, involving 19 participants, belonging 24 coding units to the country.
- Updates socialized ICD-10 until 2013, with 24 coding units in the country.

### 5. Strengthening WHO-FIC Network

Venezuelan and contribution to WHO FIC Network activities.

- As part of the network of Latin American centers we participate in the creation of "FORUM BECKER" as a way to give Spanish-speaking countries a window in which to clarify questions concerning the FCI.

### 6. Participation in the annual meetings of the network of WHO-FIC.

- Due to logistical difficulties have not been involved, both in person at the annual meetings of the network OMS.FCI yet sent to Barcelona meeting and a poster of the Bogota meeting RELACSIS two poster were sent to virtual assistance to the latter and support staff of the National Institute of Statistics of the country (INE)

### Acknowledgements or Notes

Author responsible for correspondence about the original Dra. Cordero, C., Masters in Epidemiology (UDO) and Demographer. (UCAB).
The World Health Organization Calgary Collaborating Centre was officially opened May 14th, 2015. Several ongoing and future projects have been determined and training and collaboration is well on its way.

**Official Opening**

**Thursday May 14th, 2015 in Calgary, Alberta, Canada**

The World Health Organization Calgary Collaborating Centre was officially opened May 14th, 2015.

Dr. Bedirhan Ustun from the WHO attended and presented Dr. Hude Quan with a ceremonial flag and plaque.

Following this, members from the University presented their ICD work to highlight experts at the University of Calgary.

**Ongoing/Future Projects**

- ICD-11 Field Trial – Bridge coding and data quality
- Coding Rules –main condition, number of dx field, type 2, clustering
- Case summaries for ICD-11 coding – ICD definition
- Checking internal consistency for accurate coding
- Standardizing ICD morbidity case definitions
- Strategies of improving ICD data quality (Documentation and coders)
- ICD data and patient centred care
- Adjustment methods in chronic disease surveillance
- Coding ICD-11 related quality and safety
- ICD Quality and Safety Topic Advisory Group
- Strengthen the research work-collaboration

**Publications**

- Sundararajan V, Romano PS, Quan H, Burnand B, Drösler SE, Brien S, Pincus HA, Ghali WA. Capturing diagnosis-timing in ICD-coded hospital data: recommendations from the WHO ICD-11 topic advisory group on quality and safety. IJQHC 2015.

**Collaboration**

- Training (education programmes, training courses, & other related educational activities)
- Develop relevant terminologies and ontologies (collaboration with Alberta Health Services)
- Collaborative work with Canadian Institutes for Health Information on field trials
Activities of the Stanford University WHO Collaborating Center

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Abstract

The Stanford University WHO Collaborating Center (CC) collaborates with WHO and other organizations to create an informatics infrastructure for developing and maintaining international classifications. In the past year, we worked on all three reference WHO-FIC classifications: We enhanced iCAT authoring to better integrate with the ICD-11 Beta Browser; we investigated the suitability of the newly proposed content model for health interventions to encode ICHI procedures; and we investigated methods to collect structured data based on ICF to encode clinical functional assessments performed as part of disability evaluation for US military personnel and veterans.

Introduction

The Stanford University WHO CC has the mission to provide support for the development, maintenance, and implementation of infrastructure to author and manage WHO Classifications and their associated terminologies. To fulfill this mission our Center is working on developing a common modeling framework and associated software tools for developing and maintaining WHO classifications. The modeling framework consists of a formal content model that defines the properties of entities in a classification and that drives the development of editing software tools, such as the web-based iCAT authoring tool. Our work promises that all WHO-FIC classifications can be modeled and maintained in a consistent framework, where they share common content model parameters and value sets, where they use similar editing tools, and where any classification can use entities from other classifications as a source for value sets.

Improvements to iCAT

To support the use of post-coordination in ICD-11, last year we extended the ICD-11 Content Model with a number of post-coordination axes (such as severity and anatomic location) and enhanced the ICD collaborative authoring tool (iCAT) with new features that allow subject-matter experts to edit post-coordination information. In particular, we added two new tabs to iCAT—the Post-Coordination tab and the Logical Definition tab.

To further support the introduction of post-coordination in ICD-11, we created an application programming interface (API) so that post-coordination features can be manipulated programmatically (e.g., to present post-coordination information in the ICD-11 Beta Browser).

At the request of WHO, we enhanced iCAT so that linearization-specific coding hints can be entered and that the X-Chapter terms can be linearized like other ICD chapters.

Finally, we added to iCAT an import service so that approved change proposals from the Beta Browser can be uploaded programmatically in batch. This will allow a tighter integration between the ICD authoring tool, iCAT, and the ICD-11 reviewing platform.

Work on Health Interventions

Last year we reported on our effort to develop a prototype Content Model for health interventions in conjunction with the WHO and the American Medical Association (AMA). This new Content Model integrates and reformulates the Action–Means–Target axes of the proposed International Classification of Health Interventions (ICHI) and the properties and characteristics of the AMA’s Current Procedural Terminology (CPT) into a coherent information model and ontological structure.

Because the WHO and the AMA have not yet formalized their agreement to develop a common international classification of interventions, in the past year, our Center performed exploratory work to determine the feasibility of importing CPT into the prototype ICHI-based content model. In particular:

• We regularized the mapping of CPT descriptors into hierarchies compatible with ICD-11 and SNOMED CT.
• We developed methods to import CPT content into our prototype ICHI-oriented Content Model

In addition, we have implemented an experimental iCAT-ICHI procedural terminology authoring tool.

Future Work

In the coming years, the Stanford CC plans to generalize the software components developed for maintaining WHO classifications into toolkits for managing other ontologies and terminologies. As part of this effort, we will also update the content model and software to the latest international standards.

ICF Functional Assessment

In a project funded by the U.S. Department of Defense, we modeled as Web Ontology Language (OWL) ontologies descriptions of functional assessments and their value sets and created data models for encoding patient-specific data for functional-assessment forms such as U.S. Department of Veteran Affairs Disability Benefits Questionnaires.

We mapped the functional-assessment descriptors to ICF categories and qualifiers. We developed a mechanism that uses ontology-based Web-forms to insulate the user from the details of ICF coding. The resulting form data are linked to logical descriptions that use terms from ICF and other standard terminologies.

This solution advances possible adoption of ICF in clinical functional assessment by allowing us to query and aggregate the resulting structured data based on standardized descriptions of assessment data elements, to.

We presented a paper and a demo describing this work at the International Conference on Biomedical Ontology, in Lisbon, with the title: “Structured Data Acquisition with Ontology-Based Web Forms”

Acknowledgments

We are grateful for the generous support of Ms. Marilyn Allen and the Council of Colleges of Acupuncture and Oriental Medicine (CCAOAM). The ICF-related work was supported by US DoD Award W81XWH-13-2-0010.
Activities of the WHO-FIC Asia-Pacific Network

17-23 October 2015 Manchester, United Kingdom

C224

Wansa Paoin1, Maliwan Yuenyongsuwan1, Sukil Kim2, Joon Hong3, Yukiko Yokobori4, Hiroyoshi Endo5, Toshio Oi6


Abstract

The WHO-FIC Asia-Pacific Network (APN) was formed in 2006 with the objective of promoting ICD implementation in the Asia-Pacific region. There have been seven network meetings so far, with the most recent one, the 7th WHO-FIC Asia-Pacific Network meeting, held in Siem Reap, Cambodia, in June 2015. The poster reports on the network’s most recent meeting in Cambodia, progress of the APN ICD-10 simplified version development and APN training on ICD-10 implementation in Cambodia and the revised APN strategic plan.

About Asia-Pacific Network

Established in Tunis, Tunisia, in 2006, to promote ICD implementation in the Asia-Pacific, WHO-FIC Asia-Pacific Network (APN) has organized seven conferences and three working meetings so far.

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<td>June 2013</td>
<td>Bangkok (Thailand)</td>
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<tr>
<td>7th</td>
<td>June 2014</td>
<td>Siem Reap (Cambodia)</td>
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</table>

The 7th WHO-FIC APN meeting

On June 29-30, 2015, the 7th Meeting of the Asia Pacific Network (APN) of the WHO Family of International Classifications was held in Siem Reap, Cambodia. The 7th Meeting was organized with the support of the Cambodian Ministry of Health and was attended by people from nine countries (Australia, Cambodia, India, Japan, Laos, Malaysia, South Korea, Thailand, and Vietnam [via Skype]).

In this round of Meeting, we mainly discussed about the ICD-10 APN Simplified Version (beta 2) which APN has designed for developing nations in the Asia-Pacific region to support their implementation of ICD.

The 7th WHO-FIC APN meeting (left) and Cambodia meeting (right). The opinions of the two Cambodian reviewers are shown on the left side, which were resolved later.

APN ICD-10 Simplified Version beta-2

The purposes of APN ICD-10 Simplified version are to:

1. Restructure the index and simplify the ICD-10 coding processes for easier use in ICD-10 coding.
2. Modify the index term for easier search by the computer software.
3. Provide a simplified version of ICD-10 to be used in the primary care unit and developing countries.

The target countries for the APN ICD-10 Simplified version are: Myanmar, Lao, Cambodia, Vietnam, Mongolia, The Philippines, Indonesia, Bhutan, Timor Leste, Nepal, Papua New Guinea etc.

The corresponding Khmer terms to each English term were initially collected from Google translation and Gloste translation followed by manual validation by a professor of a Cambodian Nursing School. The term selection was finalized by a Korean nurse with a Cambodian student majoring Korean language in Korea. An XML Stylesheet for English to Khmer transformation was developed to present syntactic information such as words order. The final validation for Khmer disease list including medical terms and expressions is underway by two Cambodian doctors.

The Korean Collaborating Center has been developing semi-auto translation platform based on XML (Extensible Markup Language) technology for the translation of ICD-11 English version to Korean and further East Asian Languages. Following the decision to implement ICD-10 APN simplified version to Cambodia, the translation to the target language, Khmer, was assigned to Korean CC.

The following curriculum for training the coders of the Simplified Version was proposed at the Cambodia meeting. It is based on the core curriculum for mortality and morbidity coding developed by the WHO-FIC Education and Implementation Committee.

1. Medical terminology: analysis of medical terminologies into prefixes, roots, and suffixes
2. Anatomy and pathology: could be covered in the lecture of medical terminology
3. ICD-10: background, component, structure, and the basic coding instructions
4. Simplified Version: purpose, restructured index and coding instructions
5. Others: confidentiality and privacy principles, healthcare data contents and structure, uses and users of the coded data, "data quality" check for the coded data, etc.
This poster presents practices developed for countries under a horizontal cooperation context. It shows coordinating activities between leading and beneficiaries countries from a regional perspective under the framework of the RELACSIS 2014-15 work plan. Also describes the strategy defined and results from different WG and Forums implemented through the network website.

**Background**

Officially launched in Lima, Peru in April 2010. RELACSIS is now implementing its 4th BWP. Supporting by PAHO, USAID, Leadership, Management and Governance (LMG)/Project of Management Sciences for Health (MSH), ECLAC, FIC-CC and NRCs promote horizontal cooperation between countries of the Americas.

**Working Groups (WG)**

1. **Online courses on ICD-10 coding** (led by Argentina and Mexico).
   - Two courses were given for tutors through PAHO’s virtual campus (150 technical staff members). These tutors replicated a course to 1500 coders form participating countries.
   - Under the 2014-2015 RELACSIS WP ICD-10 updates to 2015 were included in the online course in ICD-10 for 110 tutors from 11 countries (Aug, 2015); the course will be replicated by tutors for more than 330 coders in these countries (Aug-Sep, 2015). 12 participating countries are now implementing also the electronic system to codify mortality developed (MMDS) by Mexico.
   - Participants: Argentina, Ecuador, Guatemala, Mexico, Nicaragua, Paraguay, Dominican Republic, Uruguay, Chile, Costa Rica, El Salvador, Peru, Bolivia, Honduras, Colombia and Panama.

2. **Implementation of an electronic system to codify mortality** (led by Mexico).
   - A road map for disseminating, testing and implementing the MMDS software is now implemented according countries requirements through a RELACSIS Forum.
   - A WG with countries of the region and Spain will develop a pilot for IRIS Spanish version by 2016.
   - Under the 2014-2015 RELACSIS WP Dominican Republic, Cuba, Honduras and Panama were included in this WG.
   - Participants: Argentina, Uruguay, Chile, Paraguay, Ecuador, Guatemala, Colombia, Dominican Republic, Panama and Peru.

3. **Online course for awareness of medical doctors in the adequate registration of the causes of death** (led by Uruguay, Argentina and Mexico).
   - The course is offered through the PAHO’s virtual campus (30000 medical doctors participated on 2014-2015). The data bank of exercises for the online course will be updated by October 2015. It was translated into English and now is being translated to French.
   - Participants: All Spanish and English speaking countries in The Americas.

**Other activities**

Developed four meetings of the AMRO and Spanish Network of the WHO-FIC Collaborating Centers and National Reference Centers for mortality and morbidity.

The purpose of the network is to develop activities that includes training and quality HIS evaluation, promote the collective development of tools to strengthen HIS, foster the creation of NRCs, and establish common criteria among members to participate collectively in the WHO-FIC Network and its different Committees. The 2014-2015 WP includes:

1. A second Forum on Electronic Health Record (EHR) through the RELACSIS portal includes in 2015 six Webinars were selected countries are presenting their experiences in using EHR. The Forum discuss the conflict in the use of FIC in the EHR.

2. A workshop to disseminate a software and training in deliberate search of maternal deaths was developed by Mexico for 10 countries (Jul, 2015).

3. Four new WG were defined in the 2014-2015 WP: Deliberate search of maternal deaths; VS coverage and adjustments at the local level; Harmonization of sources of data and indicators and inequities; English speaking Caribbean Countries.

**Further information**

The overall objective is to contribute to HIS strengthening, dissemination, and use of information by focused on: proposing standards to generate higher-quality, more reliable, and more timely information; developing and sharing practices, lessons learned, and knowledge; promoting the dissemination and use of generated information and knowledge; promoting monitoring and evaluation of the performance of national HIS; strengthening human and financial resources and developing.

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<td>Consultancy Interim Assessment of 11th ICD Revision</td>
<td>Soliz; Roberts; Greenberg; Richardson</td>
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<tr>
<td>C302</td>
<td>Progress of ICD revision alpha phase</td>
<td>Ogawa; Oikawa; et al.</td>
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<tr>
<td>C303</td>
<td>ICD-11 Browser Video Tutorials</td>
<td>Celik; Panagioutou</td>
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<td>ICD-11 Coding Tool</td>
<td>Celik; Jakob; Ustun</td>
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<td>The next step toward the joint use of ICD and ICF: Developing coding instructions for Functioning Properties</td>
<td>Prodinger; Selb; Jakob; Melvin; Robinson Nicol; Stucki; Kennedy; Kennedy; Selb; Stucki; Lee</td>
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<td>Conditions Relating to Sexual Health in ICD-11</td>
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<td>Maternal Mortality: Definition and Issues Related to Measurement</td>
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<td>Enhanced capture of healthcare-related harms and injuries ICD-11</td>
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WHO - FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK ANNUAL MEETING 2015
Report of ICD11 Revision Review
Consultancy Interim Assessment of 11th ICD Revision

Soliz Patricia* on behalf of Roberts Rosemary, Greenberg Marjorie, Richardson Helene
* Pan American Health Organization

Abstract: This project was initiated by the Director of the Department of Health Statistics and Information Systems at the World Health Organization (WHO) in 2014. It was prompted by concerns raised by member states and interested organizations about the ICD-11 Revision Process, especially those relating to mortality classification and statistical use of the classification. A small team of experts was invited to undertake the assessment. The main recommendations based on a survey of stakeholders are included, in this poster. The report and the WHO response are available on http://www.who.int/classifications/icd/externalreview/en/

Background

Revising the International Classification of Diseases is a balancing act between conservatism and innovation. While it is necessary to update the classification content to reflect clinical knowledge and practice, it is also important that there be comparability between data collected in successive revisions and an understanding of how changes in the classification affect data trends.

Particularly for this 11th Revision, the environment in which it is being prepared is completely different from that of the 10th revision in the 1980s. For mortality, multiple cause of death coding software has been updated and expanded and promotes consistent application of underlying cause of death rules. For morbidity, as well as allowing data collection for reporting disease trends and hospital utilization, the codes are being increasingly used for case mix and reimbursement purposes.

The WHO vision for ICD-11 is to have at its base a Foundation Component of clinical terms which can be expressed (linearized) in different ways according to expected use. These linearizations are traditionally known as the Tabular List, which contains the codes assigned for diseases or causes of death.

The dominant linearization for ICD-11 is the Joint Linearization for Mortality and Morbidity Statistics (JLMMS), but others such as those for Primary Care, Quality and Safety and special Clinical groups are proposed or are already in draft form.

The classification can be prepared from the iCAT and Browser together for electronic updates, tracks changes in the classification and justifies reasons for the change.

The contract between WHO and IHTSDO will allow SNOMED-CT to be included in the Foundation Component; other classifications such as other members of the International Family of Health Classifications and specialty classifications such as ICPC-2.

Objectives

- Conduct an interim assessment of the ICD-11
- Analyze the relevance and effectiveness of the planned features of ICD-11 in meeting the needs of the key stakeholders in WHO Member States
- Compile an assessment report summarizing the findings and making recommendations for improvement

Priorities of review

- To determine if the ICD-11 release date of 2017 is feasible (see recommendations below)
- To examine the concerns expressed by stakeholders relating to the classification being ‘fit for purpose’ and sufficiently stable in comparison with ICD-10
- For the Review Team itself, to assist WHO in the development and delivery of the 11th Revision by undertaking this review according to the terms of reference and to reflect accurately the feedback from stakeholders who use ICD

Method and time frame

- Project initiated at the first meeting in Geneva from 7-9 January 2015.
- Required deliverables for the project were an interim report on February 27 and a final report on April 1.
- Work plan, a list of stakeholders and questionnaire were developed.
- Stakeholders came from the WHO FIC Network, groups involved in ICD-11 development as well as NGOs
- 81 stakeholders were interviewed or completed the questionnaire on the web.
- Findings from the survey of stakeholders are detailed in the report. They are obviously perceptions based on personal experiences, and represent a range of positive and negative views. However, they reflect the concerns expressed earlier, but provide hope as well as creative suggestions for ways to solve some of the major issues

Recommendations

A. Timeline for implementation between March 2015 and May 2018

| Limit goals for 2017 to JLMMS | May Release frozen version for review by TAGs | June-July Incorporate changes |
| Planning | Jan-Jun Development of JLMMS Steering Group | Aug Release another frozen version for peer review and limited field trials |
| May-Jun | June-July Incorporate changes | Oct Report to WHO FIC annual Meeting on Status |

Several steps that must be taken now to make possible an ICD-11

B. Communication, marketing, outreach, transparency

- Improve communication internally and with external stakeholders to make processes more visible
- Prepare monthly or bimonthly newsletter to stakeholders for update on progress
- Ensure greater transparency in decision making and use of resources

C. Planning

- Plan future roadmap for other linearizations and completing Foundation Component
- Plan ICD-11 updating process and communicate with stakeholders (WHO/FIC and member states)

D. Project Management

- Implement and oversee timeline for implementation
- Prepare business plan for ICD-11 including license fees or other revenue development and sale of hard copy

E. Governance

- Clarify the responsibility for decision making in the Revision process, including the JLMMS Steering Group
- Clarify roles of CTS, WHO FIC
- Build on goodwill and hard work of stakeholders

E. Education

- during and after Field Trials through WHO FIC and member states

G. Trust: Work on gaining trust of ICD community internally and externally through communication and involvement as well as providing evidence

Acknowledgements

The authors wish to acknowledge the stakeholders, Dr Bedirhan Üstün and the staff of CTS. Dr Norman Sartorius was a team member and his contribution was very helpful. Special thanks are due to Dr Richard Madden, and Vera Dimitropoulos of NCCH, and especially to Imelda Noti at NCCH for her technical and administrative help with the electronic survey and with access to background papers.
Progress of ICD revision alpha phase: An analysis of disparities of the progress among Working Groups of IM-TAG

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1 International University of Health and Welfare, Japan, 2 Ministry of Health, Labour and Welfare, Japan, 3 IM-TAG, Australia, 4 The Jikei University School of Medicine, Japan, 5 Nara Medical University School of Medicine, Japan

Abstract

During the "alpha" phase of the revision process of the International Classification of Diseases (ICD), groups of specialists, Topical Advisory Groups (TAGs) and Working Groups (WGs), were organized to develop the new code structure for ICD-11, including changes to code hierarchy and definitions for entities. Among the 8 WGs in the Internal Medicine TAG, there were large disparities of the revision progress, which was influenced both by process issues and by the scope of the revision project, including selection/approval of WG members and harmonizing overlapping entities.

Introduction

Since the start of the revision process of the World Health Organization (WHO) International Classification of Diseases (ICD) in 2007, structural and content changes have been developed by groups of specialists, namely Topical Advisory Groups (TAGs) and Working Groups (WGs), during the "alpha" phase from 2007 to 2014. The Internal Medicine TAG (IM-TAG), consists of 8 WGs, which were organised to develop/review the code hierarchy, and included the following: Cardiovascular; Endocrinology and Diabetes; Gastroenterology; Haematology; Hepatology and Pancreatobiliary; Nephrology; Respiratory; and Rheumatology. Among these WGs, there were large disparities of the revision progress during the alpha phase.

The purpose of this research is to analyse the alpha phase for each WG of the IM-TAG and to discuss factors related to the disparities of the revision progress between WGs of IM-TAG.

Methods & Materials

We analysed the process, content and outcomes of the alpha phase within the 8 WGs of the IM-TAG using various reports and communications. Also, a comparative analysis was conducted for the progress of the revision process in the alpha phase between WGs.

Results

The revision process began in 2009 for all IM-TAG WGs. The progress of each WG was influenced both by process issues and by the scope of the revision project.

(1) Process of the revision

Process issues included, but were not limited to; duration of WG member approval from WHO, the inclusion of a large number of stakeholders representing major academic societies, existence of core members in WG, and communication within WGs as well as between WHO and WGs (Table 1).

Some WGs faced difficulties in starting the revision process due to issues in organizing WGs or getting approval from WHO. WG F, in particular, spent more than 3 years negotiating with WHO for approval of WG members.

All WGs have continuously worked towards completing structural changes and developing the elements for inclusion in the Content Model, including entering definitions of each disease, all for completion by the end of alpha phase.

6 WGs submitted their structural changes in 2012/13, whereas the remaining 2 WGs submitted in 2014.

WG A, C, E and F had difficulties with harmonizing overlapping entities with other TAGs/WGs. This was mainly due to the lack of clear guidelines for resolution of differences, communication and/or different professional opinions between TAGs/WGs. These WGs worked closely with the IM-TAG Managing Editors to resolve many overlapping issues, although some still remained in the "beta" phase.

IM-TAG, including IM-TAG Managing Editors, had roles not only for harmonizing WGs but also for the project management including negotiating with other TAGs and WHO (Figure 1).

Conclusion

All WGs of IM-TAG, in cooperation with various stakeholders including Japanese government and various academic societies have successfully completed the alpha phase of the ICD revision.

Table 1: Process of ICD revision by WGs

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</table>
Introduction

During its revision, ICD-11 is available online, through the ICD-11 Browser. The platform allows for the browsing of the whole ICD-11, at its current stage of development, as well as for the participation in the collaborative revision process. Users can develop an understanding of the architecture of the new ICD and its key features. The novelties of ICD-11, the online presence and the differences in the architecture compared to ICD-10, introduced the need for additional education material.

A series of video tutorials was designed and developed with the objective of transferring to the ICD-11 Browser users the required skills for navigating the classification and contributing to the development of the new classification.

The design model for the development of the training was based on the main areas of:

- Assess the training needs
- Establish the audience
- Define the Learning Objectives of the training
- Develop the training materials
- Evaluate the training

Camtasia studio was selected as the most appropriate software for recording the videos because of the ability to capture the screen, while an expert is using real time examples that explain the actions required to complete a task.

Having established the topics of the training and after installing the software, the next step was the writing of the narrations. For each topic, written text was preferred as the easier way to review the narration. The videos were recorded based on the narrations.

Results

The produced training is a series of videos published on the webpage that was developed for this purpose and can be easily accessed from the ICD-11 Browser’s Home Page. The URL of the new page is: http://apps.who.int/classifications/icd11/trainingvideos/

The audience of the training is defined as the new and the existing users of the ICD Browser.

Method & Tools

The first step conducted was the training needs assessment. This step included a specification of the extended training requirements due to the newly added ICD-11 Browser’s features and the reported users’ performance gaps.

The learning objectives were based on the basic knowledge that is required for the development of ICD-11 and the results of the needs assessment. In that step the objectives were transformed into actions at which the contents of the training were based on. The organization of the contents was then based on a logical sequence of the topics that are covered in the videos.

In the next step, the software that records the videos was selected, among a variety of similar recording tools.

The main topics include the initial interaction of a new user, contribution to the development of ICD-11 and introduction to the advanced features. Breaking down the topics into smaller actions that describe a task resulted in the videos’ titles. Every video starts with a short introduction to the content of the video and to the intended outcomes.

Animations are used to explain some of the workflows followed in the ICD-11 Browser. These workflows cover different interactions that may occur between the participating actors and roles.

Evaluation

Evaluation of the produced videos is important for measuring the effectiveness of the tutorial on how easy to use and understand it is. At a preliminary evaluation stage, feedback from the Informatics and Terminology Committee (ITC), the Education and Implementation Committee (EIC) and the ICD-11 Browser users is taken into consideration.
Using the Software

ICD-11 Coding Tool is a software to help the users of ICD search and find categories that they are looking for. The tool works with linearizations and it performs searching as the user continues typing. It helps the user by guessing the word that is being typed, suggesting additional keywords and providing a list of likely ICD-11 categories that the user might be looking for. The tool which is configured to use the Joint Linearization for Mortality and Morbidity Statistics (JLMMS) can be found at [http://icd11ct.cloudapp.net/ct](http://icd11ct.cloudapp.net/ct).

**Abstract**

ICD-11 Coding Tool is a software to help the users of ICD search and find categories that they are looking for. The tool works with linearizations and it performs searching as the user continues typing. It helps the user by guessing the word that is being typed, suggesting additional keywords and providing a list of likely ICD-11 categories that the user might be looking for. The tool which is configured to use the Joint Linearization for Mortality and Morbidity Statistics (JLMMS) can be found at [http://icd11ct.cloudapp.net/ct](http://icd11ct.cloudapp.net/ct).

**Using the Software**

The tool works by searching as the user continues typing. It generates (and dynamically updates) three different outputs as the user types:

**Word List**

On the left-most area, it shows a list of words:

- If you are in the middle of a word, the system will try to guess the word that you are typing. *(Figure-2)*

- If you have completed a word, the system will show you related keywords. The relatedness is calculated by using the number of times the words appear together in ICD and whether they appear together in the ICD-10 index. This list is provided both ordered by relatedness and alphabetically *(Figure-1)*

  *(It is possible to click these words or continue typing to add more detail to the search)*

**Destination Entities**

The second output is matched entities. This output is sorted by how good the text entered matches the phrase in ICD. It is also grouped by using the ICD hierarchy so that if the search text matches a parent category and several children, they will appear in a fashion that is easy to identify this relation visually. *(Figure-1)*

The matched words are highlighted in this list. The list shows the title or the best matching term by default but a button will make more matching index entries visible.

**Destination Entities (continued)**

A link to the relevant entity in the ICD-11 Browser is also available

*(It is possible to sort the results by the classification order)*

**Chapter Distribution**

This area gives a summary view of where the results are found.

One could further filter the result list by using the checkboxes or clicking on the chapter names. For example, in the sample in Figure-1, one could click on “Eye and adnexa” to see all matches that come from that chapter

**Other Important Features**

- The tool searches the foundation component for: all titles, synonyms, and narrower terms. Even the entities that are not included in the linearization are included in the search.
- However the resulting entities are the categories of the linearization. *(i.e. The tool is aware of how the excluded foundation entities are aggregated)*
- The tool uses a number of text-searching techniques to achieve better results:
  - The tool takes care of different spellings of the same word. *(i.e. whether you type esophagus or oesophagus it will match all)*
  - It will take care of diacritics in the text. Whether you type ‘Behçet’ or ‘Behcet’, the tool will match both variants.
  - It will match similar words. e.g. ‘tuberculosis’ will also find you text with ‘tubercular’ in it.
  - You may use wildcards (*) in the search text at the end of words. *(e.g. neop* mal* will match malignant neoplasms)*

**Future Work**

The tool will be enhanced with post-coordination features.
Introduction

In order to support the implementation of ICD-11 Field Trial core study protocols, during the last year a web-based system ICD-FIT has been designed and developed with a number of functionalities (Computer Assisted Personal Interviews - CAPIs) for three field trial instruments, user access and policy mechanisms, built-in extensibility to enable further studies).

Since the user base is world wide, the system was designed since the beginning with multilingual extensions possible; in the recent months the development has been focused on this. In fact, for the best usage of the system, it is important that non-English speaking users are able to use their own language.

ICD-FIT is now available in multiple language version. Existing and upcoming language version include: Chinese, French, Italian, Japanese, Korean, Norwegian, Spanish, Swedish, Thai.

Translation of web interface

WHO Coordinator users can easily import and export the interface translations (in excel format). The ICD-FIT system provides a section with all the informations and tools to manage the interface translations. The information includes the status of the language (percentage of the translated items), version of the translations, some informations about the last update, and the buttons to export or import the translation.

A link to add new translation is also available.

Translation of trial instruments

The approach adopted is different: translated forms will be inserted into the system as HTML static templates. Translated forms will be received in Word, OpenOffice or RTF format and it's care of our team to convert them in HTML according to the internal specifications of the system.

What is needed for a translation

In order to have a localized version of the whole used by the Field Trial Centers, the Coordinator should:

1. Provide the translated forms in Word, OpenOffice or RTF format.
2. The translated forms should be received by WHO coordination and will be then transformed in the appropriate web pages.

Translation of case summaries

In order to have a localized version of the whole used by the Field Trial Centers, the Coordinator should provide:

1. Translation of case summaries provided by WHO coordination and the English case summary can be filled with the translated text and the field trial coordinator should be given to WHO coordination.
2. Updates could be adopted also by other centers speaking the same language.
The next step toward the joint use of ICD and ICF: Developing coding instructions for the Functioning Properties (FPs)

Birgit Prodinger1,2,3, Melissa Selb1,2, Robert Jakob4, John Melvin5, Molly Meri Robinson Nicoll4, Gerard Sticku1,2,3, Cille Kennedy6

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Abstract

With the 11th revision of the International Classification of Disease (ICD), WHO has linked International Classification of Functioning, Disability and Health (ICF) components to the Content Model of ICD through functioning properties (FPs). The joint use of ICD and ICF is most promising to more comprehensively describe factors that are related to a person’s health condition and thus assist clinicians in their daily decision-making. In addition, it will also provide information to be used in risk adjustment to determine costs of services, and in determining eligibility for disability, pension and other social welfare benefits. To help gather information on functioning in a systematic way, a first draft of coding instructions has been developed that will be field tested in due time. The draft of the coding instructions is presented in this poster.

Introduction

Recognizing the merits of jointly using the International Classification of Disease (ICD) and the International Classification of Functioning, Disability and Health (ICF), WHO introduced functioning properties in the 11th revision of the ICD.

Functioning properties (FP) are ICF categories in the component of activities and participation (A&P) that are the most relevant for describing the impact of a health condition (HC) on a person’s functioning for a particular health condition.

Specification of FPs

Any tailored set of FPs identified from the ICF is grouped in ICD-11 according to Impact domains. These domains include:

- Understanding Impact
- Communication Impact
- Life Management Activities Impact
- Mobility Impact
- Self-Care Impact
- Household Activities Impact
- Interpersonal Relations Impact
- School Activities Impact
- Work Activities Impact
- Social Participation Impact
- Children and Youth Impact

Option 1: Default for any health condition: FPs are derived from the ICF Generic Set a

Option 2: Specification for rehabilitation-relevant HCs

For 100 selected rehabilitation-relevant HCs WHO and fTAG developed a tailored set of FPs. These FPs were derived predominantly from relevant ICF Core Sets. b

Option 3: Further specification for any HC

A more comprehensive list of FPs derived from the ICF Rehabilitation Set c; a more extensive minimum set of ICF categories than the ICF Generic Set b

This Figure illustrates Option 2 for cerebrovascular diseases (i.e. stroke).

Instructions for coding FPs

Once the specifications are known, the next challenge to be tackled is how to code them. This poster outlines the two coding rules which are proposed by a working group dedicated to this topic.

Rule 1: Binary rule for coding

Each FP is pre-coordinated with 0.0 person experiences no limitations in the given ICF category 0.8 person experiences limitations in the given ICF category

Example of FPs coding for a person with influenza due to influenza virus (J9-11 in ICD-10)

<table>
<thead>
<tr>
<th>Life Management Activities Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying out daily routine d230.8</td>
</tr>
<tr>
<td>Mobility Impact</td>
</tr>
<tr>
<td>Walking                           d450.0</td>
</tr>
<tr>
<td>Moving around                     d455.0</td>
</tr>
<tr>
<td>Work Activities Impact</td>
</tr>
<tr>
<td>Remunerative employment           d850.8</td>
</tr>
</tbody>
</table>

Regardless which option is used, the coding of the FPs will be documented in a data field within ICD-11 separate from the diagnostic coding.

Rule 2: ICF qualifier rule for coding

User/coder is directed outside the ICD-11 and to the ICF and follows the coding instructions outlined in the ICF. This entails a generic coding from 0 No problem to 4 Complete problem

Excerpt from the FPs coding for a person with recurrent depressive disorder (F33 in ICD-10)

<table>
<thead>
<tr>
<th>Understanding Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solving problems     d175.0</td>
</tr>
<tr>
<td>Making decisions     d177.1</td>
</tr>
<tr>
<td>Thinking             d163.0</td>
</tr>
<tr>
<td>Life Management Impact</td>
</tr>
<tr>
<td>Carrying out daily routine d230.2</td>
</tr>
<tr>
<td>Managing daily routine d230.2</td>
</tr>
</tbody>
</table>

Discussion and Implications

The inclusion of FPs in ICD-11 is designed to assist professionals
- to comprehensively describe a person’s health
- to inform decision-making along the continuum of care
- to examine eligibility for disability pension and other social welfare benefits or specific health services and programs

FPs stress the use of the ICF in the context of ICD. It is only in this context that a given health condition triggers the opening up of a preselected set of ICF categories to be coded. The use of the ICF in the context of ICD does not override the conceptual model underpinning the ICF, which recognises the multiple interactions among the domains of functioning.

The instructions outlined here will be tested within the ICD-11 field trials and then revised accordingly.

Any feedback is greatly appreciated!

References


The authors thank Jennifer Jelsma and Ros Madden for their valuable advice in developing these coding instructions.
A Relic from the Classification Past?: Examining mirror coding between ICD-11 disease entities and ICF categories

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Abstract Historically, ICD has used certain disability concepts as common disease or disorder entities, e.g., blindness, deafness, mental retardation, learning disability, and paraplegia. In light of the revision to ICD-11, WHO saw the need to identify possible conceptual and terminological overlaps between ICD and ICF and relayed this task to the functioning Topic Advisory Group (fTAG). The task was to review and disentangle disease and disability and align them to facilitate joint use.

Methods & Materials

Three sets of reviews for mirror coding were conducted:

Review 1: Two fTAG members identified potential pairs of ICD-11 entities using the ICD-11 Beta Browser and ICF categories. The selection of ICD-11 entities was based on the Revision Information Note’s identified ICD-10 entities: Blindness (H54); Deafness (H90); Mental Retardation (F70-79); Learning Disability (F84); and Paraplegia (G82). The fTAG members were generous in pairing ICD-11 entities to ICF categories to prevent overlooking potential mirrors. A total of 118 ICD-ICF pairs were identified.

The two fTAG members then conducted independent reviews to determine whether the ICD-ICF pairs were mirrors, and discussed their decisions in order to seek - but not force - consensus on ICD-ICF mirror code status. The review was conducted under ‘fluid’ circumstances as the revision process evolved; ICD-10 codes became ICD-11 draft codes and definitions appeared and evolved.

Review 2: At the 2014 WHO-FIC meeting in Barcelona, the findings of review 1 were placed into four groupings according to their mirror status:

- Yes
- No
- Conditional/Partial
- Undetermined

The decisions in each grouping were reviewed by four individual groups made up of fTAG members and meeting participants. Rather than affirming or rejecting the decisions, the participants provided valuable insights and additional criteria for further review to enable rendering a decision as to mirror code status.

Review 3: Repeated the method of the review 1 i.e. independent reviews followed by a joint, consensus-building evaluation. This time, in addition to reviewing titles and definitions, the reviewers added two criteria: the ICD-ICF pairs were 'dichotomous' – either mirrors or not, and mirrors reflect each other bi-directionally.

This review was based on the updated Beta Browser, with content that had evolved and presented changes to titles and definitions.

Results

The outcome of review 2 made no changes to the status of the mirror coding decisions.

With the continuing evolution of the Beta Browser entries, 121 ICD-ICF pairs were reviewed. Among them 57 (47%) had no definition. For two subsets, a table was referenced that was not present in the Beta Browser. For one of these instances, the reviewers used the ICD-10 table to review; for the other, the reviewers extrapolated from the existing table to make their determinations. In the end the two fTAG reviewers determined that none of the pairs were mirrors.

Discussion

When ICD entities and ICF categories contained both entity titles and definitions, the difference between disease and disability were delineated. When definitions were missing, mirror code decisions were based solely on the titles.

Titles have advanced to accommodate current thinking. For example, Mental Retardation is now Disorder of Intellectual Development. A great deal of work is evident in the new definitions.

Of particular interest are the different applications of the terms ‘mild,’ ‘moderate’ and ‘severe’ in ICD and ICF. ICD-11 contains levels of specificity that do not translate directly into the ICF qualifiers description of these terms, thus are not mirrors.

The lack of mirror coding supports the added value of jointly using ICD and ICF to comprehensively describe the impact of a health condition on a person’s lived experience.

Additional reviews may be warranted after field trials due to possible updates to ICD-11 entities.

Acknowledgements

The authors are especially grateful to the thoughtful input of the fTAG members to this mirror coding activity.

Abstract
The Australian Health Classifications Advisory Committee (AHCAC) was established in 2014 to provide advice to the Australian Institute of Health and Welfare, as the WHO-FIC Australian Collaborating Centre, in its participation in WHO-FIC development activities. The AHCAC is made up of senior representatives from major health and statistical agencies - the Commonwealth Department of Health, the Australian Bureau of Statistics and the Independent Hospitals Pricing Authority - as well as health classification experts nominated by the Australian Health Ministers’ Advisory Council.

Introduction
The Australian Institute of Health and Welfare (AIHW) is the Australian Collaborating Centre (ACC) for the World Health Organization (WHO)’s Family of International Classifications (FIC). As the ACC, the AIHW participates in the WHO’s work to develop the International Classifications of Diseases, 11th Revision (ICD-11) and other international health classifications, maximising the extent to which the WHO’s work will suit Australian interests.

With the support of the Australian Health Ministers’ Advisory Council (AHMAC), the AIHW has established the Australian Health Classifications Advisory Committee (AHCAC) to assist and advise the AIHW (as the ACC) in this work, including consideration of strategic issues for Australia, particularly in relation to Australia’s participation in the development of and potential adoption of ICD-11.

The AHCAC is chaired by the acting Director of the AIHW, Kerry Flanagan PSM, with secretariat support provided by the Metadata and Classifications Unit of the AIHW.

Other members of the Committee include senior representation from the AIHW, Australian Bureau of Statistics (ABS), Independent Hospitals Pricing Authority, Commonwealth Department of Health, and two AHMAC nominees (both considered experts in health classification).

Meeting #1 – 6 February 2015
The first meeting of the AHCAC was held on 6 February 2015.

The focus of the meeting was on providing an introduction to the WHO’s work on the reference classifications, ICD, ICF and ICHI.

The Committee also heard the WHO’s plans for the ICD-11 Field Trials and the potential arrangements for Australian involvement.

There was also initial discussions on the various strategic issues that Australia need to consider with regard to future classification requirements within Australia.

This meeting coincided with a visit to Australia by Dr T. Bedirhan Üstün, the Coordinator of Classifications, Terminologies and Standards in Health Statistics and Information at WHO.

Dr Üstün was invited to attend the meeting and presented the Committee with a short overview of the WHO’s current classification development work, including an update on the status of the ICD-11 redevelopment.

Meeting #2 – 16 April 2015
The second meeting of the AHCAC was held on 16 April 2015.

This meeting focused on the strategic issues requiring consideration for the potential implementation of ICD-11 in Australia. The Committee also discussed the proposed features and benefits of ICD-11 and what this could mean for Australia’s potential uses of the classification.

James Eynstone-Hinkins from the ABS and Professor James Harrison from the National Injury Surveillance Unit at Flinders University were invited to the meeting to give a report from the WHO’s Informal Workshop on the ICD Revision Process (on the Joint Linearization for Mortality and Morbidity Statistics) held in March in Geneva.

Dr Vijaya Sundararajan from the University of Melbourne was also invited to the meeting, to present information on the activities of the Quality and Safety Topic Advisory Group for the development of ICD-11.

Topics of interest to the Committee included how ICD-11 could be used to enhance health care safety and quality information in Australia, potential impact and opportunities for the coder workforce, and how use of ICD-11 could help link mortality and morbidity data across the patient journey. The Committee also expressed interest in the AIHW working with the WHO on the WHO’s ICD-11 transition studies.

Meeting #3 – 21 August 2015
The third meeting of the AHCAC will be held on 21 August 2015.

There will be a focus on considering the issues to be discussed at the WHO’s September workshop on the Joint Linearization for Mortality and Morbidity Statistics, including WHO’s plans for testing and finalising ICD-11.

Discussion will also progress on implementation issues for Australia.

Future Meetings
Future meetings of the AHCAC will focus on:
• How Australia can participate in the ICD-11 field trial and testing process to best suit Australia’s needs.
• Issues to be considered for a potential transition from ICD-10(-AM) to ICD-11 in Australia - and for Australia’s neighbours in the Pacific region – including benefits, costs and timeframes.

Acknowledgements
We thank the AHCAC members and invited guests for their valuable contributions to this Committee to date.

Terms of Reference
The AHCAC has three items as its Terms of Reference. These include:

1. Provide advice to the AIHW, as the ACC, in relation to the ACC work program.
2. Provide advice to AHMAC (through the Commonwealth Department of Health) about the WHO’s work to develop the Family of International Classifications.
3. Provide advice to the Commonwealth Department of Health for Australian inputs on any classification development issues considered by the World Health Assembly.

Acknowledgements
We thank the AHCAC members and invited guests for their valuable contributions to this Committee to date.
CONDITIONS RELATING TO SEXUAL HEALTH IN ICD-11

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Abstract
A new chapter in ICD-11 has been created to focus on the data collection/information dissemination of sexual health. The unification of the various conditions related to sexual health into a newly formed chapter in ICD-11 will help measure, report and better understand the global burden of these diseases. Commitment to the measurement of conditions related to sexual health will reinforce the topic as a public health issue.

Introduction
The Genito-urinary Reproductive Medicine (GURM) Technical Advisory Group (TAG) constituted with its Secretariat in RHR functions as the planning and coordinating advisory body for the following ICD-10 Chapters:
• Diseases of the genitourinary system
• Pregnancy, childbirth and the puerperium
• Certain conditions originating in the perinatal and neonatal period

The WHO Department of Mental Health and Substance Abuse (MSD) is responsible for the management of activities related to the revision of the ICD-10 chapter on Mental and Behavioural Disorders.

A new chapter in ICD-11 has been created to focus on the data collection/information dissemination of sexual health.

The jointly proposed changes reflect current scientific evidence and best practices, support the provision of accessible and high-quality health care services to be more responsive to the needs, experience, and human rights of affected populations.

Methods & Materials
Sexual health is relevant throughout the individual's lifespan, not only to those in the reproductive years, but also to both the young and the elderly nor is sexual health limited to physical or organic conditions.

Conceptually, sexual and reproductive health are closely linked. However, advances in contraception in the past 50 years have increasingly freed individual's sexual behavior from the reproductive consequences.

To reflect these nuances in ICD-11, RHR and The WHO Department of Mental Health and Substance Abuse (MSD) worked together to provide proposals regarding placement, definitions and other diagnostic information for these categories in the ICD-11.

The concept of sexual health is increasingly becoming more important in public health as people are having more sex without the goal of reproducing.

The measurement of sexual health adverse outcomes can be achieved with the help of the ICD, and should be based on the WHO definition of sexual health while taking into account various important aspects required to achieving this such as safe-sexual experiences, sexual pleasure, eroticism, gender identity, violence/coercion-free sex, etc.

Further, taking into account the definition of sexual health and the need to measure the sexual health indicators, the GURM TAG proposed the creation and inclusion of a new chapter on sexual health within ICD-11.

Presenting the concepts within one chapter helps to better define the realm of sexual health and facilitates related specialized tabulation of data. According to ICD dimensions/criteria, the following concepts related to sexual health can be measured and reported:
• Sexually transmitted infections
• Sexual dysfunction
• Violence against women
• Female genital mutilation
• Gender incongruence
• Unintended/unwanted/Unplanned pregnancy
• Abortion/unsafe abortion

Although these concepts are presented together in the sexual health chapter of ICD-11, for statistical tabulation purposes, some are tabulated in their original chapter, such as infections, violence or abortion, while others are now primarily tabulated to the sexual health chapter, e.g. gender incongruence.

In the ICD, sexual dysfunctions have traditionally been divided into ‘organic’ and ‘non-organic’, and split between the Diseases of the Genitourinary System and Mental Health ICD chapters respectively.

In the ICD-11, the ‘organic’ and ‘non-organic’ sexual dysfunctions have been brought together in the new sexual health chapter.

Gender incongruence is an updated entity in the ICD-11. Previously coded as transsexualism, this code was moved out of the mental and behavioural disorders chapter. These codes are important to the notion of sexuality as defined by WHO, as gender is considered an important aspect of sexuality.

Female genital mutilation (FGM), abortion, sexually transmitted infections, sexual violence and unplanned pregnancy are all important concepts related to sexual health that can be better measured using the ICD. These have been “multiple-parented” into the new chapter for epidemiological and statistical purposes that will help highlight the importance of sexual health in the public health.

Conclusions
The unification of the various conditions related to sexual health into a newly formed chapter in ICD-11 will help measure, report and better understand the global burden of these diseases. Commitment to the measurement of conditions related to sexual health will reinforce the topic as a public health issue.

Acknowledgements or Notes
We would like to thank the GURM TAG members, as well as the members of the Working Group on the Classification of Sexual Disorders and Sexual Health that have contributed (WGSDSH) to the development of the new chapter of Sexual Health. We would also like to acknowledge the chairs and members of the other Topic Advisory Groups and Working Groups with whom the GURM TAG has had fruitful exchanges, such as the Pediatrics TAG, Endocrinology WG, Mental Health TAG. Thank you to the CTS team for guidance and collaboration throughout this process.
MATERNAL MORTALITY: DEFINITION AND ISSUES RELATED TO MEASUREMENT

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Abstract
The GURM TAG and the Maternal Mortality Estimation Interagency group (MMEIG) are often consulted for clarification regarding the definition of maternal mortality as a subset of pregnancy-related mortality. Explicit recommendations for the reporting of nationals dying outside of their country of citizenship and how these statistics should be accounted for in international comparison need to be considered. Also, situations where the woman is poisoned, drowned, etc. because of her pregnancy raise significant concerns regarding gender-based violence as well as suicide in unwanted/unplanned pregnancy. Coding rules and/or updates to the definition of maternal mortality need to be implemented in the ICD-11 to improve the quality of data related to maternal mortality.

Problem Statement
Several initiatives that started in efforts to achieve the fifth Millennium Development Goal (MDG): improving maternal health focus on improving the measurement of maternal (and child) deaths. This would require that countries have taken significant steps to establish a system for registration of births, deaths and causes of death, and have well-functioning health information systems that combine data from facilities, administrative sources and surveys.

The Maternal Mortality Estimation Inter-Agency Group (MMEIG), comprising the World Health Organization (WHO), the United Nations Children’s Fund (UNICEF), the United Nations Population Fund (UNFPA), The World Bank and the United Nations Population Division (UNPD), together with teams at the National University of Singapore and the University of California at Berkeley, have been working together to generate internationally comparable Maternal Mortality (MMR) estimates. A technical advisory group (TAG) provides additional independent technical guidance. The GURM TAG and the Maternal Mortality Estimation Interagency group (MMEIG) are often consulted for clarification regarding the definition of maternal mortality as a subset of pregnancy-related mortality. The explanation of “aggravating” factor in pregnancy should be explicitly given in the definition, and applied by countries in their assessment of the underlying cause of death for (indirect) maternal deaths.

Discussion
Some external injuries, such as poisoning, drowning, or other injuries that result in death, are truly incidental events.

However, situations where the woman is poisoned, drowned, etc. because of her pregnancy raise significant concerns regarding gender-based violence as well as suicide in unwanted/unplanned pregnancy.

These cases warrant re-consideration as maternal deaths, rather than pregnancy-related deaths; especially as global reporting on maternal health is focused on the former.

Coding rules and/or updates to the definition of maternal mortality need to be implemented in the ICD-11 to improve the quality of data related to maternal mortality.

Currently, adjustments for misclassification are made by the MMEIG, the entity responsible for official Millennium Development Goal (MDG) reporting. The pregnancy check-box on the death certificate is acknowledged, but has proven to be insufficient at the country level. Are other mechanisms available in the ICD to improve the reporting of maternal deaths?

Please consider explicit recommendation of the reporting standards for nationals dying outside of their country of citizenship and how these statistics should be accounted for in international comparison.

Resolution
With regard to MDG reporting and the post-2015 agenda, we recognize limitations in coding maternal deaths and what we are able to measure due to constraints in the data availability/quality.

One often cited example of concern among Member States is the absence of a specific late maternal death concept in ICD-9.

As the MDG reporting period straddles both ICD-9 and ICD-10 reporting, we have faced difficulties in how best to combine these datasets given the implication on MDG reporting and progress.

These examples can serve as the basis for lessons learned in re-conceptualizing maternal mortality estimation post-2015.

As reporting for the Sustainable Development Goals (SDGs) will likely commence at the time of ICD-11 release, we will look carefully at the results of the stability analysis.

Implications
As country level data has and will become a major focus in MDG and SDG framework, clarifications and assistance on these items will be greatly appreciated.

Acknowledgements or Notes
We would like to thank the GURM TAG members, as well as the members of The Maternal Mortality Estimation Inter-Agency Group (MMEIG).

Thank you to the CTS team for guidance and collaboration throughout this process.
We present recommendations made to the WHO by the ICD revision’s Quality and Safety Topic Advisory Group (Q&S TAG) for a new conceptual approach to capturing healthcare-related harms and injuries in ICD-coded data. The Q&S TAG has grouped causes of healthcare-related harms and injuries into four categories that relate to the source of the event: a) Medications and substances, b) procedures, c) devices and d) other aspects of care.

For ICD-11, our proposal is that these now be coded in a substantially revised “External causes of morbidity and mortality” chapter with separate sections for each of these causes (sources and contexts) of harm. For each cause of harm, there are now also accompanying codes for the modes (mechanisms) of harm, which can now be found in expanded coding sections, also in “External causes of morbidity and mortality”. The actual harms or injuries are then coded with any available diagnosis codes throughout ICD11 for the listing of codes and clinical concepts that have been created in this new coding model for healthcare related harms.

Chapter 24 of ICD-11 contains a listing of supplementary codes for a miscellaneous collection of “other factors” influencing health status. Text Box 5 lists new codes capture concepts relating to the training of healthcare providers, staffing levels in a facility, availability of needed facilities, and miscellaneous other factors that can influence care and outcomes.

The Q&S TAG has proposed 4 categories for causes of healthcare-related events that relate to the source of the event: a) Medications and substances taken therapeutically, b) procedures, c) devices and d) other aspects of care (Figure 1).

Under the proposed multiple coding approach, these sources of harm must be coded with a combination of codes (linked through clustering) to depict:

- A “cause or context” of harm;
- A “mode or mechanism” of harm; and
- A code describing the actual injury or harm that resulted from the event.

The causes of harm may be procedures, devices, substances (i.e., drugs or medicaments), or other aspects of care.

The Proposed Model

The WHO proposed a new coding framework and mechanism for capturing healthcare-related harms and injuries in ICD-coded data and outcomes. The Q&S TAG was funded by the Agency for Healthcare Research and Quality (AHRQ), Canadian Institute of Health Canadian Patient Safety Institute (CPSI), and Canadian Institute for Health Information (CIHI).
Abstract By means of the It.DRG project, the Italian Ministry of Health is going to move from the current DRG system, based on ICD-9-CM, to a new Italian system based on an Italian modification of ICD-10 and an improved procedures classification. While the first step has been the development of the official translation of ICD-10 2014, the Italian WHO-FIC Collaborating Center is now working on the clinical modification, for which an innovative approach has been chosen.

Methods & Materials

The basic idea is to modify ICD-10 starting from other classifications, which in particular include first choice ICD-11, and secondarily other existing clinical modifications. The former is aimed at preparing forward compatibility with ICD-11, as soon as it will be available. For this aim, a software called GemmIT has been developed that i) extracts candidate extensions from ICD-11 and other clinical modifications and ii) allows to choose among them the proposed modifications for ICD-10-IT. To test the approach, a pilot study has been carried out on DRG MDC5 (Diseases & Disorders of the Circulatory System).

Acknowledgements: Dr. Andrea Di Lenarda, President Elect, Italian Association of Hospital Cardiologists for MDC5 revision and discussion.

Table 1 – Examples of suggestions by GemmIT

Table 2 – First hypothesis on I21 updates

Results

ICD-9-CM diseases belonging to MDC5 have been transcoded to ICD-10 using revised transcoding rules and software (TransIT). Then, those ICD-10 codes with an approximate mapping to ICD-9 CM codes have been submitted to GemmIT to generate candidate extensions. The candidate extensions were verified by Italian experts. Extensions coming from ICD11 were considered as the most interesting to modify ICD10. Consensus positions on the classification of the main cardiovascular diseases were taken into account.

Conclusions

The pilot study allowed to justify the approach for the generation of the Italian clinical modification starting from already available and clinically justified modifications. The presented approach may be of great help for a possible transition to ICD-11.

References

http://eurheartj.oxfordjournals.org/content/ehs/33/23/184

Digital, Mobile, Now!
In 2010, WHO started a collaborative project to produce an international classification of traditional medicine (ICTM). As part of the ICTM project the diagnostic categories used in the traditional medicine (TM) that originated in ancient China and are now commonly used in China, Japan, Korea and elsewhere around the world were developed for inclusion within ICD. This study aims to provide a methodologically robust process for the peer review of the TM ICD-11 codes and an initial field-testing with case study vignettes.

**Methods & Materials**

As a new Chapter in ICD-11, the TM Chapter will be subject to peer review and international field-testing. This study aims to provide a methodologically robust process for the peer review and an initial field-testing with case study vignettes.

**Study objectives:**
- To assess whether the TM ICD-11 codes incorporate the range of TM disorders and TM patterns utilized by European traditional acupuncturists within clinical practice.
- To assess the inter-rater reliability of TM ICD-11 codes.
- To explore conceptual and operational issues related to the TM ICD-11 codes.

**Phase 1: Survey of practitioner perspectives on draft TM ICD-11 codes.**

A ‘Basic Questionnaire’ (BQ) has been developed which addresses key areas of importance, including practitioner familiarity with current ICD codes; perceived value of TM ICD-11 codes; and conceptual and operational issues relating to the TM ICD-11 codes.

The questionnaire will be initially piloted with a purposive sample of 10 UK traditional acupuncturists. Acupuncturists will be selected from the British Acupuncture Council, the largest regulatory body of traditional acupuncturists within the UK. Acupuncturists will be selected based on clinical and academic expertise. The BQ will be redrafted accordingly. The final BQ will additionally include demographic details and practitioner training/affiliation.

The final questionnaire will be completed online using Survey Monkey software. A convenience sample of European Union traditional acupuncturists will be invited to complete the survey. EU acupuncture and TCM professional groups will be identified through the World Federation of Chinese Medicine society. Each professional group will be asked to approach their individual members by email providing a link to the online survey. It is estimated that 52 professional groups will be contacted, spanning 23 European countries. Given the diverse languages in European countries the BQ will only be available in the English language.

Data will be coded, downloaded and entered into Statistical Packages for Social Sciences (SPSS). Frequency data and crosstabs will be generated, and were applicable chi-squared tests used to identify any correlations between variables.

**Phase 2: Double coding of case study vignettes.**

Case study vignettes have been provided by traditional medicine ministries of China, Japan, and Korea. Based on the findings from the phase 1 BQ survey, diagnoses and patterns frequently utilised by European acupuncturists will be identified. 4 case study vignettes will be selected from the WHO database of case studies. The case study vignettes will be double coded with a sample of practitioners from European Field Trial sites. Four European Field Trial sites have been identified. Each field trial site will be invited to participate in the study, and identify 6 traditional acupuncturists to participate in the double coding exercise (24 acupuncturists in total). Each participating acupuncturist will be provided with a copy of the 4 case study vignettes and asked to code the vignette according to the TM ICD-11.

The reliability of agreement (inter-rater reliability) will be assessed for participating acupuncturists assigning the diagnosis and pattern according to TM ICD-11 codes. Data will be inputted into SPSS and analysed using a Fleiss’ Kappa test. The level of inter-rater reliability ranges from 0 to 1.0 (although negative numbers are possible) where larger positive numbers mean better reliability, values near or less than zero suggest that agreement is attributable to chance alone. For the purposes of this study a Kappa value of >0.7 will be required for a good level of agreement on the coding of TM ICD-11 codes.

**Phase 3: Survey of acupuncturists participating in the double coding of case study vignettes.**

The acupuncturists participating in phase 2 will additionally be asked to complete a brief questionnaire relating to the content of the case study vignettes, as well as any conceptual and operational issues related to using the TM ICD-11 codes.

**Conclusions**

The feasibility study is ongoing and will be completed by April 2016. The findings from the study will be summarised and presented both at medical conferences and through peer reviewed publications in medical/CAM journals.

Once the study is complete it is envisaged that further funding will be sought for a mixed methods international field trial to evaluate the utility of TM ICD-11 codes when applied in a clinical setting with real patients, with representatives in each field trial site collaborating on the project.
The international classification of traditional medicine is of great significance to the development of traditional medicine. In China, the national standard of Classification and Codes of Diseases and Syndromes in Traditional Chinese Medicine has been widely used in the fields of traditional Chinese medical treatment, hygiene statistics, management of Chinese medical records, scientific research, teaching, publishing, and domestic or international academic exchange over 20 years. As the TM Chapter of ICD-11 Beta version will begin Field Trial in China soon, Chinese Work Group of WHO International Classification of Traditional Medicine has studied the specific situation of TCM in China, and set up a plan of standard mode of process of the Field Trial in China to ensure that the Field Trial will be doing smoothly.

**Abstract**

The international classification of traditional medicine is of great significance to the development of traditional medicine. In China, the national standard of Classification and Codes of Diseases and Syndromes in Traditional Chinese Medicine has been widely used in the fields of traditional Chinese medical treatment, hygiene statistics, management of Chinese medical records, scientific research, teaching, publishing, and domestic or international academic exchange over 20 years. As the TM Chapter of ICD-11 Beta version will begin Field Trial in China soon, Chinese Work Group of WHO International Classification of Traditional Medicine has studied the specific situation of TCM in China, and set up a plan of standard mode of process of the Field Trial in China to ensure that the Field Trial will be doing smoothly.

**Introduction**

In China, the Traditional Chinese Medicine and the Western Medicine are always emphasized equally since the establishment of People’s Republic of China. By the end of 2013, the number of TCM health institutions in China has exceeded 40,000, and the total number of TCM personnel in these institutions has surpassed 500,000 **. According to the arrangement of WHO, the TM Chapter of ICD-11 beta version will begin Field Trial soon. For the purpose of finishing the trial smoothly, Chinese Work Group of WHO International Classification of Traditional Medicine has studied the specific situation of TCM in China, and found that a standard mode of process of the Field Trial in China would be necessary.

**Methods & Materials**

METHODS: Field investigation and consultation
MATERIALS: Build a standard mode in China based on the related personnel, reference standard, application process and the quality control of ICD-11 Beta Version TM Chapter Field Trial Process through the investigation of the application of TCM diagnosis in health institutions with different types, levels and regions.

**Results**

**With What?**
- WHO ICD-FIT
- Printed or electronic doc.
- Hospital information System
- Other Applications

**Inputs**
- ICD-11 Beta TM Chapter
- GB/T15657-1995
- GB/T 16751-1997

**Process**
- ICD-11 Beta TM Chapter Field Trial in China

**Outputs**
- Testing report on feasibility, reliability and utility

**With Who?**
- Clinicians
- Coders
- Medical Record Practitioners
- Information Managers, etc.

**How?**
- Training
- Logic checkout
- Review management

**Performance?**
- Adequacy
- Accuracy
- Consistency

**Conclusions**

ICD-11 Beta Version TM Chapter Field Trial will not only effectively promote the perfection of this chapter, but also provide reference for application in various countries in the future. The Field Trial in China will be faced with many difficulties including extensive applications, extensive staffing, different configurations of hardware and software among all levels of medical institutions, and hardship in statistic management; therefore, a standardized testing process can be set up as a better reference for future applications in China.

**Acknowledgements or Notes**

*Corresponding author
**Data source: http://www.satcm.gov.cn
The experience of collaborative translation of ICD 11 Beta Draft into Spanish

Authors: Gawryszewski V1, Mazas MA2, Jiménez APR3, Hernandez MY3, Navarro Robles AG8, Torres Palacios LM3, Marconi E2, Orellano A2, Guevel C2, Martínez ML1, Cordero C8, Espallargues Carreras M8, Estrada MD9, Bess SI9, Martínez MA10, Guerra E10, Piedra D10, Argimon JM11, Bo M11, Lopez M11, Canela J11, Conejo C11, Conesa A12, Cirera L12, Río J12, Ferrer R12, Garolera M12, Gelabert G12, González A12, Hernández-Cortés A12, Llauger A12, Laxe S12, Martínez A12, Molina P5, Nebot C2, Romero R1, Salazar MM5, Alonso A5, Serrano J3, Konstanjsik NFT7

Abstract

For the Spanish-speaking countries participating in the first phase of the ICD 11 Field Trials, the translation of the ICD 11 Beta Draft, study protocols and the web-based system is critical. In order to accomplish this challenging task in a timely manner, the Collaborator Centers and National Reference Centers in the Region of the Americas and in Spain (called the PAHO-WHO-FIC network) have decided to work collaboratively. Since the beginning of the 2015, this network has held virtual meetings on a regular basis to develop a work plan for distributing the translation among the Centers to standardize the translation of specific terms and share experiences.

Introduction

About the PAHO/WHO-FIC network. To promote the correct use of WHO-FIC in the Region of the Americas, there are seven designated Collaborator Centers (CCs): Venezuela (CEVEC), Brazil (CBCD), United States (NACC, Mayo Clinic & Stanford University), Mexico (CEMECE) and Argentina (CAUCE). In addition, the region has National Reference Centers (CNRs) in some countries: Cuba (CECUCE) (under designation), Chile, Colombia, among others. Since 2011 the CCs and CNRs have established the PAHO/WHO network to work collaboratively. In 2013 the Collaborating Center in Barcelona (under designation) (CC-BCN) has joined this network.

The PAHO/WHO unit responsible for the theme assume the role of Secretariat to facilitate sharing experiences among members and countries in the Region. The RELACIS website is used to facilitate communication among members and dissemination of documents.

ICD 11 revision. To better contribute to the ICD 11 revision and participate in the field trials the translation of some key components were crucial:

- ICD Fit
- ICD 11 Beta Draft
- study protocols

Taking into consideration that the translation platform allows various translators to make the translation directly in the tool, the PAHO/WHO-FIC network has decided to carry out the work through a COLLABORATIVE TRANSLATION.

Objectives

The objective of this report is to share the experience of collaborative translation into Spanish carried out by the PAHO/WHO-FIC Network with other countries to stimulate them to participate in the field trials.

Method/mechanism of working during 2015

1) Regular virtual meetings: From February 5th to the date, the PAHO/WHO-FIC Network has been holding virtual meetings every two weeks, to develop the work plan, to monitor and review the work, share experiences, and solve problems.

2) Development of a work plan. The Centres agreed on distributing the Chapters according to their interest and expertise. The initial work was focused on the translation of the priority Chapters for the first phase of the field trials. Responsible for each Chapter, deadlines for translation and revision were established.

3) Establishment of a team of translators. At first, general translators responsible for each Chapter were assigned by the Centres. Later, experts were assigned for the necessary revision of the content translated. Secondly, reference translators were assigned for the final approval.

4) Training on navigation on the platform. During the work plan development, it was necessary to provide virtual trainings in how to access the platform. WHO and CC-BCN played an important role in this activity and then CACE and CECUCE were able to train new participants and develop tutorials to help them.

5) Development of guidelines. CACE and CECUCE developed some practical guidelines on how to access the platform that were important for new volunteers.

6) Standardization of difficult terms to translate. Since the translation started, the translators noticed that some important terms should be standardized among them. A document “Translation’s agreements”, fed by translators, circulated to have the input of the network.

Major accomplishment to date

Translation of priority Chapters of the ICD 11 Beta Draft will be finished for the field trials, ICD Fit translated, study protocols translated.

Lessons learned

- “Plan the work and work the plan”.
- Hold routine virtual meetings
- Ensure the involvement of experts since the beginning
- Share experiences
- Collaborative approach instead of individual is pivotal

Acknowledgements

To all who collaborate or work voluntarily in this project.
Abstract

In this presentation, we describe our efforts in 1) developing ICD-11 Common Ontology and 2) exploring the formalization of clinical diagnostic criteria. For the former, we leveraged the SNOMED compositional expressions and Semantic Web Ontology Language (OWL); for the latter, we developed a modular architecture for creation of rule-based clinical diagnostic criteria, in which the Quality Data Model (QDM) is used as a reference standard.

ICD-11 Common Ontology

The ICD-11 Foundation is the major innovation in ICD-11. The ICD-11 Foundation Scaffold includes the definitional components that are common between SNOMED CT and ICD-11.

The ICD-11 Foundation defines the “atoms” used in the definition of the ICD-11 mortality, morphology and derivative classification schemes.

These “atoms” are defined in terms of SNOMED CT. Exact maps are specified whenever possible. When there is no exact target in SNOMED CT, new concept definitions are created using the SNOMED CT Compositional Grammar. Depending on their general applicability, some of these definitions are forwarded for adoption by IHTSDO and others will be maintained by the WHO.

The mapping process allows the comparison of two subsumption hierarchies – one in the ICD-11 Foundation and one in SNOMED CT itself. The maps between these hierarchies can be compared to detect mapping and classification errors by:

1. Separate the maps into four distinct ontologies:
   1. The ICD-11 Foundation Ontology
   2. SNOMED CT
   3. Additional concept definitions
   4. Mapping assertions from (1) to (2) or (3)
2. Convert all four ontologies into OWL and classify using Snorocket reasoner.
3. Analyze inferred structure of (1) with maps to (2) and (3) to find inconsistent / incompatible hierarchical structures (non-order preserving and non-order embedding)
4. Manually review results to determine error type:
   1. Incorrect map
   2. Incorrect ICD-11 or SNOMED CT definition
   3. Incorrect or incomplete added concept definitions

Clinical Diagnostic Criteria

Diagnostic criteria is one of main parameters specified in the ICD-11 content model for describing an ICD-11 category. However, very limited research has been done on building a unified architecture to support the goal of diagnostic criteria formalization. In particular, the lack of a standards-based information model has been recognized as a major barrier for achieving computable diagnostic criteria.

Figure 1 shows the system architecture that contains two major modules: one is an authoring module that utilizes a standards-based information model and the other is a translation module that utilizes Semantic Web Rule Language (SWRL).

The first module contains an upper ontology that supports the organization of diagnostic criteria. We manually integrated a collection of selected ICD-11 content model elements and Quality Data Model (QDM) elements informed by the analysis of real-world diagnostic criteria. The module also contains a unified web user interface that supports collecting and authoring diagnostic criteria from clinicians or experts. All collected data elements, value sets and logic expressions of diagnostic criteria are formalized using QDM-based templates that are used for automatic parsing and reasoning.

The second module contains a rule translation engine that converts diagnostic criteria represented in QDM-based templates into domain-specific diagnostic criteria ontology and a set of rules using SWRL. The rule translation engine supports further diagnostic inference on patient data.

Conclusions and Future Work

Common Ontology:

Figure 1: A modular architecture for creation of rule-based clinical diagnostic criteria.

Figure 1: A modular architecture for creation of rule-based clinical diagnostic criteria.

Common Ontology:

Initial Mapping (as of 2/2015)

Chapter (%)

Infectious diseases 95
Diseases of the blood and blood-forming organs 100
Endocrine, nutritional and metabolic diseases 60
Diseases of the ear and mastoid process 60
Diseases of the circulatory system 100
Diseases of the digestive system 100
Diseases of the genitourinary system 95
Diseases of the skin 80
Diseases of the musculoskeletal system and connective tissue 95
Diseases of the nervous system 100

Hierarchical Analysis and Review

Diseases of the circulatory system 25

Next Steps:

Automated processes need to be established to speed analysis and review:
- Online, real time classification
- Incremental update
- Workflow and review tracking

Clinical Diagnostic Criteria:

The QDM is an information model that describes clinical concepts in a standardized format to enable electronic quality performance measurement. We envision that the QDM-based information model and tools for representing quality measures can be potentially used for tackling with the challenges in achieving computable diagnostic criteria. We demonstrated that the common patterns informed by QDM are useful and feasible in building a standards-based information model for computable diagnostic criteria.

We have prototyped a number of key components of our proposed architecture for diagnostic criteria knowledge modelling and reasoning. In the future, we will rigorously evaluate and enhance each prototyped component for the formalization of clinical criteria to support the ICD-11 revision project.

Acknowledgements

This work is supported in part by funding from the caCDE-QA (1U01CA180940-01A1), PhEMA (R01 GM105688) and a Mayo-WHO Contract 200822195-1.
A foundation terminology at the basis of morbidity coding in primary care: methodological issues

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Abstract

Harmonizing medical terminologies is a time-consuming but critical process to ensure information interoperability and full understanding of the meaning conveyed. This work proposes a methodology for integrating different terminological resources, both standardized and non-standardized, to create a foundation terminology to be used as reference for morbidity coding in primary care. The strength of this work is given by both the establishment of relationships between natural and structured/coded languages and the integration of lay terminologies. The resulting foundation terminology can be integrated in automatic coding systems based on rules and used by general practitioners (GPs) in the search of morbidities and related encoding.

Introduction

Harmonizing and integrating medical terminologies are time-consuming processes but they are critical to ensure information interoperability and to fully understand the meaning conveyed, thus avoiding the proliferation of non-integrated and heterogeneous terminologies within Electronic Health Records (EHRs). Moreover, as shown in recent studies of some of the authors [1], physicians, especially GPs, massively use natural language to record health conditions, in particular comorbidities, because they:

• do not know how to properly use coding systems;
• ignore that coding systems are highly structured and allow coding of different types of disease conditions;
• consider coding as an excessively time-consuming activity.

In order to overcome these issues, a terminological tool to support the transition from the specialized and natural language used by GPs in their EHRs to the coding language of the main clinical classification systems is proposed. This tool focuses on the development of a cross reference terminology of structured technical and lay medical terms, to be used as intermediate between the natural language and the corresponding concepts of international clinical coding systems.

Methods & Materials

The proposed methodology, preliminary applied to the Italian language, is based on four main steps:

1. creation of a Dictionary resulting from a term extraction process on a database of GP EHRs, particularly rich in natural language texts related to diagnoses and diseases, medical procedures and other conditions registered in the EHR problem list [1]. This step includes also some Natural Language Processing (NLP) tasks such as normalization, cleaning, etc.;
2. semi-automatic integration of the Dictionary with existing Italian vocabularies/terminologies relevant to the domain, such as the ICD-10 Alphabetical Index [2], the ICD-11 narrower terms [3], including synonyms and quasi-synonyms, and the ICMV (Italian Consumer-oriented Medical Vocabulary) which contains lay and popular medical terms mapped to technical terms from standardized medical terminologies and classification systems [4];
3. review by domain experts of the reference terminology resulting from the integration process described in the previous phase, to ensure the relevance of the selected terms to the application domain;
4. mapping of the reference terminology to the international coding systems used in the Italian primary care setting (i.e. ICD-9-CM, ICD-10 and ICPC-2).

Results and Conclusions

A foundation terminology including relevant technical and lay terms of the domain, particularly for morbidities, is proposed. This terminology can be used as intermediate, i.e. interface terminology, between the natural language used by GPs in their everyday practice and the structured formal language of the international clinical coding systems, thus facilitating the automation of the coding process. It could also be used in two different scenarios: i) as a support for GPs to find terms related to morbidities and comorbidities and their correspondences within the reference coding systems, and ii) as support for the implementation of an automatic coding system based on rules.

References


Acknowledgements

This work results from the Collaboration Agreement signed by the Institute of Informatics and Telematics of the Italian National Research Council, the Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC and the Bruno Kessler Foundation (prot. n. 0005688). It is supported by the following projects: SemanticHealthNet Expert Agreement (prot. 0008991), Smart Health 2.0 (PON04a2_C20 “Smart Health - Cluster ODS+ Smart FSE - Staywell”), ...
Toward enhancing the clinical omics representational function for clinical omics information, we have developed the clinical omics information sub model which can build up to the content model of ICD11 as a part of clinical information model. Some practical use of genomic/omic information in clinical scene such as Clinical sequencing come into stage worldwide, installing genomic/omic information into clinical information is essential issue to establish future medicine and medical researches. In this study, we have developed omics information sub model which can correspond to current ICD11 contents model mainly based on ISO 25720. Genomic Sequence Variation Markup Language) which is formal international standard (IS) in ISO (International Organization for Standardization). Our sub model can be called as reverse transcription information model which can connect parameters of ICD11 contents model with parameters of omics molecular information model through transcription module of sub information model. This reflects a kind of causal association among parameters. We also verified interoperabilities with other standardized structure such as SS-MIX2 which is a kind of Japanese MHLW standard based on HL7 FHIR and CCDA. This time we report about the issue around the discussion with ISO TC215 WG2 for the refine of the ISO 25720 toward developing nobel standard with using iCOS concept and technologies. Recently, update season of IS25720 is coming at ISO TC215 WG2. ISO is in the process of setting up the special joint group for IS25720 update with ISO TC215 WG2, CDISC, WHO iCOS, and HL7 CG SIG using iCOS concept.

Introduction

In the Background of escalation of huge amount of Omics information, utilizing Omics information has got to be essential. installing omics sub information model in ICD 11 is essential task for next decades medicine. We developed ICD11 Omics Sub information model (iCOS) based on GSVML(Genomic Sequence Variation Markup Language) which is a recognized standard as IS25720 at ISO (International Organization for Standardization), then we validated it through using on real data. Basically, refined IS25720 is planned to introduce technology of iCOS in WHO, CDISC BRIDGE technology, and HL7 CG SIG development based on FHIR technologies. Some points of refinement will be some extensions of functions of the current IS25720 as follows:

1. Target molecules extension to correspond the progress of sequencing technology. At current IS25720, Genomic Sequence Variation will be extended to 2 types of New Work Item Proposal (NWIP). The first one will be Omics extension which can include all kinds of omics sequencing and information. The second one will be whole genomic sequencing extension which can include WGS from next generation sequencer (NGS).

2. Technological integration to enhance the clinical trial. Basic technology will be integration of current IS25720, CDISC BRIDGE, WHO iCOS, and CG technology in HL7.

3. Extension of adjunctive information to represent the relations and effects of hierarchical omics information. Representing the relations of hierarchical Omics information and the complicated arrangements among omics information are essential information to elucidate the appropriate applications of the adjunctive information.

Methods & Materials

Outline of iCOS development were as follows:

iCOS has ability to represent whole Omics information with combining clinical information for both research purpose and clinical purpose. It has easy interoperability with ICD11. Based on this iCOS, with introducing standard technologies such as CDISC BRIDGE, HL7 CG knowledge, with feeding back to IS25720, IS25720 can be refined as newly required global standard model to establish interoperability among international omics clinical medicine and researches.

Results

Aboves are the basic concept of ICD11 Omics Sub Information Model (iCOS α and β).

In the iCOS study, we validated whether iCOS is on the right track or whether iCOS has enough ability to be built in the content model of ICD11 with using real clinical omics data stored in Integrated DB project.

Conclusions

Chart 1: ICD 11 Omics Sub Information Model (iCOS α and iCOSβ)

Aboves are the basic concept of ICD11 Omics Sub Information Model (iCOS α and β).

In the iCOS study, we validated whether iCOS is on the right track or whether iCOS has enough ability to be built in the content model of ICD11 with using real clinical omics data stored in Integrated DB project.

Acknowledgements or Notes

This research is funded by MHLW and MECSST of Japanese government.
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<td>C418</td>
<td>Towards a calculation of the MMR helpful for decision making</td>
<td>Torres; Rhenals; Jimenez; Uriostegui; Pina; et al.</td>
</tr>
<tr>
<td>C419</td>
<td>Interdisciplinary Nature in Rating Indicators for Measuring Patient Safety using ICD</td>
<td>Januel; Ghali; Burnand</td>
</tr>
<tr>
<td>C420</td>
<td>Why there are so many ICD-10 codes? In Defense of Granularity</td>
<td>Soliz Sanchez</td>
</tr>
<tr>
<td>C421</td>
<td>Reason for encounter: a superior description of the epidemiology and management of flu syndromes in the Italian family medicine setting</td>
<td>Buono; Petrazzuoli; Cavicchi; Farinaro; Cocchi; D’Addio; Scelsa; Baldassarre; et al.</td>
</tr>
<tr>
<td>C422</td>
<td>A systematic review of ICD coded algorithms for stroke and TIA</td>
<td>Lethebe; Hao; Jolley; Cunningham; et al.</td>
</tr>
<tr>
<td>C423</td>
<td>Systemic Review of Validated Case Definitions for Diabetes in ICD-9 and ICD-10 Coded Data</td>
<td>Khokhar; Jette; Metcalf; Cunningham; Quan; Kaplan; Butalia; Rabi</td>
</tr>
<tr>
<td>C424</td>
<td>A Binary Decision Tree Approach for Conducting the Verbal Autopsy</td>
<td>Yergens; Fabreau; Minty; Jakob; Ustun</td>
</tr>
<tr>
<td>C425</td>
<td>International examination for morbidity coders</td>
<td>Hong; Lewis</td>
</tr>
<tr>
<td>C426</td>
<td>Virtual Course on Medical Coding Information based on ICD-10</td>
<td>Navarro Robles; Orellano</td>
</tr>
<tr>
<td>C427</td>
<td>Impact of the implementation of IRIS Software for ICD-10 cause of death coding in England and Wales</td>
<td>Wells; Tower; Cook; Tatlock</td>
</tr>
<tr>
<td>C428</td>
<td>Revision of the French Iris dictionary for automated cause of death coding</td>
<td>Boulat; Robert; Vazifeh; Rey; Lamarche-Vadel</td>
</tr>
<tr>
<td>C429</td>
<td>An Automated Rapid Literature Review Approach for Supporting the GHMC</td>
<td>Yergens; Minty; Ghali; Fabreau</td>
</tr>
<tr>
<td>C430</td>
<td>Ensuring completeness of cancer statistics</td>
<td>Gautrey, Bannister</td>
</tr>
</tbody>
</table>
Algorithmic Approach to Mapping

Authors Kathy Giannangelo1, Ian Green1, Donna Morgan1, Brian Carlsen2
1IHTSDO, Copenhagen, Denmark
2West Coast Informatics, Oakland, California, USA

Abstract

Mapping from SNOMED CT to ICD-10 requires clearly defined rules, principles and heuristics and a tool to facilitate the workflow and process. Last year, algorithms were developed and tested to determine if this method of mapping is possible. The outcome from the test showed an algorithmic approach to mapping is conceivable for those areas that can be precisely defined.

Methods & Materials

The project relied on an algorithm to generate candidate maps to ICD-10, rank them in a variety of ways and then choose one (or more) of the candidates as the official algorithm choice – to be compared against a map specialists edits.

The algorithm was written to gather evidence from a number of sources and generate potential candidate maps. Then evidence was weighted, combined, and a threshold mechanism was used to determine when a particular coding choice had sufficient strength to be the initial candidate map target.

Once candidate maps were scored, a series of thresholds/conditions were applied to determine what would be the algorithms “choice”.

Along with an algorithm to generate candidate target codes, score them, and choose “winners”, additional algorithms were developed to:
- Identify candidate map principles
- Modify target codes and advice after editing had taken place
- Flag for QA review concepts that violated known conditions. The following sections describe the details of these algorithms

The IHTSDO Mapping Principles Handbook was comprehensively (and iteratively) analyzed so that algorithms could be developed to identify likely mapping principles that would apply. For example, algorithms were developed to programatically assign map advice.

Introduction

In 2014, the IHTSDO contracted with West Coast Informatics (WCI) to map over 68,000 SNOMED CT concepts. IHTSDO’s goal was to publish a complete SNOMED CT to ICD-10 map in 2015. To accomplish this, WCI used an algorithmic approach to mapping. Members of the IHTSDO content team responsible for the SNOMED CT to ICD-10 map worked with WCI to develop the algorithms and quality assure the output.

Results

As map records were delivered, a sampling rate of 10% was used to allow the Mapping Service Team to review incoming work and identify (and fix) potential problems. Categories of QA feedback were identified and used to drive redelivery of records that potentially suffered similar problems.

A total of 8531 concepts that were included in samples were identified. This enabled a comparison of mappings for those same concepts against the initial delivery of content from West Coast Informatics, and then the final delivery (after feedback patterns were addressed). Comparison was done in a variety of different ways.

Exact concordance: map groups, group order, targets, and advice all exactly match

All but advice: same as above but advice does not have to exactly match .8 vs .9: same as the first except we allow .8 and .9 of the same code to match in this case

Fuzzy' concordance: allow advice, group order or .8 and .9 to be different

Fuzzier' concordance: allow advice, group order to be different and compare codes only at 3 digit level

Primary code match: cases where the codes in primary position are the same (without considering other factors).

Following final delivery of all map records, including redelivery of records after quality assurance feedback and remapping, the maps not yet seen by the Mapping Service Team were compared against a complete map of SNOMED CT to ICD-10 prepared by UKTC.

A total of 58,110 records were compared. Out of these the UKTC had maps for 28,906 concepts and excuse codes (unmappable concepts) for the remaining 29,204 cases. A review was undertaken. The review of the maps was undertaken as a manual exercise and if patterns emerged which could be addressed by refining an algorithm this was done.

Conclusions

The time frame for this project was very short and many tools and processes had to be designed and implemented for the process to work. In hindsight, there are some important opportunities that were missed that would or could have improved algorithm performance. For example, having a data-driven approach to know when it was likely that one code should also go with another one could improve multiple-coding accuracy.

In addition to some specific things, better incorporation of the rules of the Mapping Principles Handbook into the scoring algorithm would have improved accuracy.

Finally, there are potential other resources to connect SNOMED CT and ICD-10 that could have been leveraged. Co-occurrence of SNOMED CT and ICD-10 codes in other documents such as medical literature, or medical records, or other similar resources may also have improved accuracy.

This process was an intense and interesting exercise that generated a lot of new ideas for how to approach a new mapping project, how to incorporate automations and real-time quality assurance checking to limit human error, and how to incrementally develop an understanding and improve quality over time.

The next step will be the automation of rules and map advice which will be incorporated into the mapping tool. Map advice for adding an external cause code or possible requirement for a morphology code are examples of ICD-10 rules which always apply to certain categories. It is expected these enhancements will improve quality of released maps and reduce discrepancy rate during the mapping process.
**Abstract**

As per 1 July 2015, the Dutch Healthcare Authority (NZA) obliges medical specialists in the Netherlands to use the International Classification of Diseases (ICD-10, 2014 version) to register their patients' diagnoses in EHRs. The Diagnosis Thesaurus (DT) was developed in the context of the programme 'Registration at the Source' (Registratie aan de Bron) and has proven to assist medical specialists with this. The DT links clinical terms used in daily practice (reference terms - RTs) to both SNOMED CT terms and ICD-10 classes. Thereby it facilitates reliable EHR data entry using clinical terms from daily practice and automatically produces the corresponding ICD-10 classes which are required for reimbursement and reporting purposes. This poster refers to the process of validating the links between RTs and both the SNOMED CT and ICD-10 mappings.

**Background**

As per 1 July 2015, the Dutch Healthcare Authority (NZA) obliges medical specialists in the Netherlands to use the International Classification of Diseases (ICD-10, 2014 version) to register their patients' diagnoses in EHRs. The Diagnosis Thesaurus (DT) was developed by Dutch Hospital Data (DHD) in the context of the programme 'Registration at the source' (Registratie aan de Bron). It consists of lists of clinically relevant diagnoses (Reference Terms – RTs; in Dutch), based on SNOMED CT terms. As the DT was developed for use in hospitals, each specialty has its own list of RTs deemed clinically relevant based on use in daily clinical practice. These RTs are linked to SNOMED CT, ICD-10 classes and Dutch codes used for reimbursement. The DT interconnects SNOMED CT, ICD-10 and terms used in daily clinical practice. This enables medical specialists to report on this in due course.

**Methods & Materials (Cont’d)**

Professional medical associations were asked to evaluate (add / delete) lists of RTs specific to their specialty. Some chose to include relatively few terms for their specialty (<200, e.g. neurosurgery or psychiatry; see Figure 1) where others included larger numbers of RTs (>4000, e.g. paediatrics or clinical genetics). To date, well over 30,000 RTs have been identified for use in the DT by 26 medical specialties. The majority of these have been assigned a Dutch code for reimbursement. Subsequently, DHD linked the RTs to a provisory SNOMED CT term (SCT) and to one or more provisory ICD-10 codes. The SCT links are then validated by the Centre of Expertise for Standardisation and eHealth (Nictiz). The starting point for this validation is the international mapping SNOMED CT - ICD-10 2010 by IHTSDO, with the update of this mapping to ICD-10 2014 by the UK Terminology Centre (UKTC). Should it be determined that the international mapping is not applicable to the RT, it is studied further to see if the international mapping needs improvement (reported back to IHTSDO) or if this specific mapping is just not applicable to the Dutch situation. Changes to the lists of RTs are likely to decrease over time. Changes to the lists of RTs are likely to decrease over time. Changes to the lists of RTs are likely to decrease over time. Changes to the lists of RTs are likely to decrease over time.

**Results**

Figure 1 gives an overview per medical specialty of the work done in validating the links and the amount of work still ahead. Four specialty areas (Oral and Maxillofacial Surgery, Nuclear medicine, Specialized Mental Health Care, and Sports Medicine) have not been linked to SCT nor to ICD-10 yet. This is scheduled to be published Q4 of 2015. The number of RTs per specialty area is depicted in green. Approximately 19.000 out of more than 30,600 RTs have been linked to a SCT (red stacks in Figure 1). Over 21.400 out of more than 30,600 RTs have been linked to one or more ICD-10 codes (yellow stacks).

**Conclusions**

The DT interconnects SNOMED CT, ICD-10 and terms used in daily clinical practice. This enables medical specialists to register relevant clinical information about a patient from which generic data for reporting and reimbursement can be derived. Since each of the RTs in the DT is linked to a unique SNOMED CT concept, there is no ambiguity in terms and therefore ‘unity in language’ is achieved. The DT facilitates one-off discrete registration of diagnoses for multiple use, such as billing, statistics and scientific research.
Health decision-making requires evidence from high-quality data. As one example, the Discharge Abstract Database (DAD) compiles data from Canadian hospitals to form one of the most comprehensive administrative databases available for health research, internationally. However, despite the success of this and other administrative health data resources, little is known about their history or factors that have led to their success. This paper provides an historical overview of administrative data for health research in Canada. We conducted a content analysis related to key events, individuals, challenges, and successes in this field over time. We found that in Canada, administrative data for health research has developed in tandem with provincial research centres. Interestingly, the lessons learned from this history align with the original recommendations of the 1964 Royal Commission on Health Services: standardization and centralization of data resources that is facilitated through governmental financial support. This history illustrates the need for long-standing partnerships between government and academia for classification and standardization.

Table 1. Overview of the history of health statistics and administrative data in Canada, pre-1964.

<table>
<thead>
<tr>
<th>Event</th>
<th>Year</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census and Statistics Actimplemented</td>
<td>1851</td>
<td>Mandated compulsory registration of births and deaths in Canada</td>
</tr>
<tr>
<td>Joseph Charles Tache appointed Deputy Minister of Agriculture</td>
<td>1864</td>
<td>Resulted in standardization of statistical collection</td>
</tr>
<tr>
<td>Bureau of Labour Statisticsformed</td>
<td>1884</td>
<td>Centralized department for statistics, with Parliamentary representation</td>
</tr>
<tr>
<td>Québec begins to collect hospital data</td>
<td>1885</td>
<td>First instance of administrative health data collected (e.g., length of stay, separations from hospital)</td>
</tr>
<tr>
<td>Ontario begins to collect hospital data</td>
<td>1900</td>
<td>This information would eventually populate the HMRI and DAD</td>
</tr>
<tr>
<td>APHA recommends Canada adopt Bertillon Classification of Causes of Death</td>
<td>1894</td>
<td>Canada rejects standardized classification of diseases</td>
</tr>
<tr>
<td>National system of Vital Statistics</td>
<td>1926</td>
<td>All provinces and territories report vital statistics and hospital data</td>
</tr>
<tr>
<td>Canada adopts the international Classification of Diseases, 5th revision</td>
<td>1941</td>
<td>Marks beginning of standardization of health information across the country; allows for comparability</td>
</tr>
<tr>
<td>WWII</td>
<td>1939-1945</td>
<td>Hospital data reported irregularly due to volatile circumstances</td>
</tr>
<tr>
<td>Royal Commission on Health Services chaired by Justice Emmett Hall</td>
<td>1961-1964</td>
<td>Identified need for vast improvement to current system of health information</td>
</tr>
</tbody>
</table>


- Government support and close relationships were imperative in the establishment of provincial data centres, and ensures the relevance of the work that they do.
- The early successes in the history of administrative data in Canada led to the establishment of the Canadian Institute for Health Information (CIHI).

Many of the innovations that have occurred in the recent history of administrative data in Canada reflect those originally proposed by the Hall Report in 1964.

Conclusions

CIHI, and the provincial research centres that preceded it, marks a watershed moment in the history of administrative data in Canada. CIHI has successfully implemented each of the recommendations put forth by the Hall Report for health statistics over 50 years ago. It is recommended that countries wishing to develop their own administrative data resources for health research follow these recommendations.

References

Barriers to High Quality Coding of Hospital Chart Information to Administrative Data: An Upcoming Qualitative Study

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2. Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Canada

Abstract
High quality administrative health data is essential, given its widespread use and the downstream consequences of low quality data in research and policy decision-making. In Canada, though coding of major diagnoses is consistent and accurate, there are issues with under-reporting and miscoding of diagnoses, as well as a lack of specificity and precision. These issues arise despite standard international classification systems and national coding guidelines. Therefore, the objective of this study is to explore the barriers in accurately coding information from hospital charts to administrative databases from the perspective of Canadian professional coders and their coding managers.

Methods & Materials
Our study design is qualitative. We will recruit professional coders and their managers who work at major hospitals in Calgary, Alberta, Canada, using a multimodal recruitment strategy. This includes the use of direct recruitment materials (i.e., email, telephone, posters) and also snowball sampling through key informants. We will conduct approximately 15 face-to-face, semi-structured interviews with coders and their managers or supervisors. We will sample widely to gain a variety of experiences and training backgrounds.

Inclusion criteria (all participants):
• 18+ years of age
• Professional coder or coding manager
• Works at Calgary hospital

Characteristics of coders (will vary among participants):
• Work experience (e.g., <5, >5)
• Volume of coding (e.g., high, low)
• Male or Female
• Full-time or Part-time
• Training (e.g., online, professional program, university program)

Introduction
Administrative data, though primarily collected for program administration purposes, is extensively used in health services research, surveillance of disease on a population level, and in the evaluation of quality indicators of health care delivery. Given this widespread use and the downstream consequences of low quality data in research and policy decision-making, there has been much work to assess the validity and quality of administrative data.1 In Canada, though coding of the major diagnoses is consistent and accurate, there are issues with under-reporting of diagnoses,1-5 lack of specificity and precision in coding,6 and errors in the coding of diagnostic types.6 These issues arise despite standard international classification systems and national coding guidelines. Barriers to high quality coding at the level of coders, or those who translate written chart data into classifications ("codes"), must be explored to inform future work in designing interventions to improve data quality.

Analysis
All interviews will be audio-recorded and transcribed to facilitate thematic analysis. We will conduct line-by-line analysis of interview transcripts using an open coding method.7 From our codes, we will generate themes that we will compare across our dataset (i.e., triangulation) to ensure our interpretations accurately represent study findings. The study team will discuss these themes, modify them, and determine how they might be interpreted regarding the barriers faced by coders.

Impact
This study is the first to qualitatively explore barriers to high quality coding from the perspective of professional coders and their managers or supervisors. This approach will provide in-depth insight into the barriers that occur early in the coding process.

We anticipate that the findings from this study will inform future work, such as a national survey of professional coders to determine the prevalence of barriers identified from this project, to improve national standardization across Canada.

This study may also inform interventions to improve coding quality of hospital data. Depending on the themes that emerge from this study, recommendations to improve quality of coding may include changes in the education of coders, the physical space or work environment, or organizational-level changes. We will discuss our findings with stakeholders and groups involved in coding (e.g., CIHI, educational bodies) to best understand the implications of this work.

Interview Guide

Job Training
1. What is a typical workday for you?
2. What training have you completed to prepare you for your career as a professional coder?
3. What areas do you feel that your training did not prepare you well for?

Coding Process
1. What is the process you use for coding each chart?
2. What could be improved upon in hospital charts to help you with coding?
3. What challenges do you face when trying to follow the coding standards in assigning a diagnosis type to a diagnosis?
4. What difficulties do you face that are related to ICD-9 or ICD-10?

Work Environment
1. Are there any coding challenges introduced by your work environment?
2. How do you feel about your workload?
3. Is there anything else you would like to share with us?

Current Stage
Our study team is currently piloting our interview guide with stakeholders involved with coding and data management. We are also undergoing our recruitment of medical chart coders and their supervisors.

Reference
5. Martin et al. Coding of obesity in administrative hospital discharge abstract data: accuracy and impact for future research studies. BMC Health Serv Res. 2014;14:70.
We defined comorbidities among hypertensive patients using ICD data in hospital discharge abstracts database (DAD), physician claims and the different duration of retrospective observation (6 months, 1 year, 2 years, and 3 years). The comorbidities prevalence is greatly impacted by the data source and the duration of retrospective observation. A combination of DAD and physician claims improves the performance for outcome prediction model.

Introduction

The outcome research is required to adjust for comorbidities, as failing to adjust for comorbidities may raise questions for results and lead to erroneous conclusions. To measure comorbidities, previous studies have used various data sources, including hospitalization discharge abstract database (DAD), physician claim, and drug dispensations database and different durations of retrospective observation. No existing studies have compared different data sources and durations for estimating the burden of comorbidities, and the impact these approaches have on the model performance of risk adjusted outcomes. Therefore, we conducted this study to define Charlson comorbidities using DAD and physician claims data for four durations of retrospective observation to explore the impact of these different approaches on mortality and cardiovascular disease outcomes, among patients with newly diagnosed hypertension.

Methods & Study Population

Data Sources and Study population: The DAD, physician claims, population registry, and death registry in the province of Alberta, Canada from April 1, 1994 to March 31, 2010. The patients with hypertension extracted from the linked administrative data sources using the following ICD algorithm.

Outcomes: Outcomes included all-cause mortality — determined from death registry data, and cardiovascular disease (CVD) — defined as either myocardial infarction, heart failure, or stroke.

Comorbidity Definitions: Charlson comorbidities were defined using validated ICD-9 and ICD-10 coding algorithms. We applied these coding algorithms to our three data sources across four retrospective periods of observation.

Statistical method: The prevalence of Charlson comorbidities was calculated for each of our 12 approaches. We assessed our model performance by using C-statistics for logistic regression and concordance probability (CP) for Cox proportional hazard regression.

Results

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>456263</td>
<td>100</td>
</tr>
<tr>
<td>Age (year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;50</td>
<td>145659</td>
<td>31.9</td>
</tr>
<tr>
<td>50-64</td>
<td>167929</td>
<td>36.8</td>
</tr>
<tr>
<td>≥65.74</td>
<td>81396</td>
<td>17.8</td>
</tr>
<tr>
<td>≥75</td>
<td>61279</td>
<td>13.4</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>230952</td>
<td>50.6</td>
</tr>
<tr>
<td>Female</td>
<td>225311</td>
<td>49.4</td>
</tr>
<tr>
<td>Data source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician claims only</td>
<td>395864</td>
<td>86.8</td>
</tr>
<tr>
<td>DAD solely</td>
<td>45129</td>
<td>9.9</td>
</tr>
<tr>
<td>Physician claims and DAD</td>
<td>15270</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Conclusions

The prevalence of each comorbidity was higher for when both DAD and physician claims data was used, compared to when either of these sources was used alone. The prevalence also increased alongside an increased length of retrospective observation, although the increase from 2 to 3 years was less than the increase from 1 year to 2 years. Using a combination of DAD and physician claims data substantially improved the capture of chronic comorbidities. Prevalence was significantly increased with an increase in the duration of a retrospective observation period. However, duration had little impact on risk adjustment model performance among patients with newly diagnosed hypertension. A combination of DAD and physician claims data improves predictive model performance for outcomes, because many chronic conditions are managed in outpatient clinical settings.

Acknowledgements or Notes

The following are members of the Hypertension and Outcomes Surveillance Team of the Canadian Hypertension Education Program: Oliver Baclic, Gillian Bartlett, Debra Butt, Norm Campbell, Guanmin Chen, Sulan Dai, Brenda Hemmelgarn, Michael Hill, Helen Johansen, Nadia Khan, Lisa Lix, Finlay McAlister, Jay Onysko, Hude Quan, Mark Smith, Larry Svenson, Gary Teare, Karen Tu, Robin Walker, Andy Wielgosz.
Introduction

The classification of patients into groups allows for the prospective payment to physicians, and also the comparison of medical treatments and resource consumption between hospitals. Among health services researchers, this method used to group patients together are referred to as “groupers.” Since groupers were first developed in the late 1960s, many different ways of classifying and grouping patients have been developed, based on different outcomes (e.g., drug use, surgical intervention, injury categories). Currently, diagnosis-related groups are the most commonly used in practice. This paper will focus on diagnosis-related disease groupers. In the constantly growing international risk adjustment literature, many disease groupers have been developed using the International Classification of Diseases, ninth revision (ICD-9) and the ICD-9-Clinical Modifications (ICD-9-CM) to determine diagnosis, classify patients, and project their resource use. We describe which groupers are available for the widely implemented ICD-10, and consider the policy implications and recommendations from their use.

Methods & Materials

First we compiled a list of disease groupers in consultation with a content expert (HQ). We added to this list as new findings became available. We searched the academic literature for “disease groupers,” and related terminology and identified 26 unique groupers. We conducted a general internet search to identify variations and explore the backgrounds of these groupers. Over 60 sources informed this review, which occurred alongside a systematic review conducted by the study team.

Table 1. Disease groupers currently using ICD-10.

<table>
<thead>
<tr>
<th>Grouper</th>
<th>Country of origin (first-listed)</th>
<th>ICD-10 Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-DRG</td>
<td>USA, Belgium, Bulgaria, Greece, Hong Kong</td>
<td>ICD-10-CM</td>
</tr>
<tr>
<td>AR-DRG</td>
<td>Kyrgyzstan, Mexico, Portugal, Russia, South Africa, Spain, Thailand</td>
<td>ICD-10-CM</td>
</tr>
<tr>
<td>APR-DRG</td>
<td>USA, Belgium, China</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>AR-DRG</td>
<td>Australia, Bosnia, Croatia, Fiji, Ireland, Lithuania, Liechtenstein, Romania</td>
<td>ICD-10-AM</td>
</tr>
<tr>
<td>AN-DRG</td>
<td>Australia, Turkey</td>
<td>ICD-10-AM</td>
</tr>
<tr>
<td>C8H</td>
<td>Canada</td>
<td>ICD-10-CA</td>
</tr>
<tr>
<td>CRG</td>
<td>USA</td>
<td>ICD-10-CM</td>
</tr>
<tr>
<td>DkDRG</td>
<td>Denmark</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>DBC</td>
<td>Netherlands</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>G-DRG</td>
<td>Germany, Sweden</td>
<td>ICD-10-AM</td>
</tr>
<tr>
<td>G-Dra</td>
<td>Ghana</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>GHM</td>
<td>France, Tunisia</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>HRG</td>
<td>United Kingdom, England, Northern Ireland, Scotland, Wales</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>HBC</td>
<td>Hungary</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>IAP-DRG</td>
<td>USA, Columbia, Romania</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>JGP</td>
<td>Poland</td>
<td>ICD-10-PL</td>
</tr>
<tr>
<td>LKF</td>
<td>Austria</td>
<td>ICD-10-BSMG</td>
</tr>
<tr>
<td>NordDRG</td>
<td>Scandinavia, Denmark, Estonia, Finland, Iceland, Latvia, Sweden</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>SwissDRG</td>
<td>Switzerland</td>
<td>ICD-10-WHO</td>
</tr>
<tr>
<td>UNU-CBG</td>
<td>Malaysia, Chile, Indonesia, Iran, Mongolia, Philippines, United Arab Emirates, Uruguay, Saudi Arabia, Yemen</td>
<td>ICD-10-WHO</td>
</tr>
</tbody>
</table>

Key Findings

- 21 unique types of disease groupers were identified as those currently in use internationally, listed in Table 1.
- Each disease grouper used some form of ICD-10. Many used country-specific modified versions of ICD-10 (e.g., ICD-AM in Australia, ICD-CA in Canada, ICD-GM in Germany).
- Some groupers were discontinued or replaced with others when their software transitioned from the ICD-9 to ICD-10 coding formats (e.g., CMG to CMG+).
- ICD-10-WHO was the most frequently used system of classification among disease groupers.
- AR-DRG was the most commonly used disease grouper, used by at least 15 countries.
- 11 DRGs were developed and used only in their country of origin (e.g., DKDRG).

Conclusions

The existence of so many disease groupers makes it difficult to compare resource-use between countries. While most health systems have adopted some modification of ICD-10, some have not yet implemented this and are exploring grouping options (e.g., KDRG in Korea). A major contribution of this study is that it provides a snapshot of current classification systems for disease groupers internationally.

We recommend that countries who have transitioned to ICD-10 share their experiences. The identification of barriers, facilitators, challenges, and strategies of success may be of use to countries as they prepare for the shift to ICD-11.
To what extent do the Decision tables of pneumonia affect the selection of underlying cause of death?

Authors: Masato Izutsu, Saori Kobayashi, Kaori Nakayama, Emiko Oikawa, Mika Watari
Japan WHO-FIC CC

Abstract

To maintain international comparability and reliability of data, it is critical to follow the rules of ICD-10. However, some studies showed that selection of underlying cause of death (UCD) depended on a way of coding and interpretation of the rules. This poster presented that to what extent the interpretation of the rules affect the selection of underlying cause of death.

Introduction

Cause-of-death (CoD) statistics are important materials of forming public health policy and epidemiological research. To maintain international comparability and reliability of data, it is critical to follow the rules of ICD-10. However, some studies showed that selection of underlying cause of death (UCD) depended on a way of coding and interpretation of the rules. This poster presented that to what extent the interpretation of the rules affect the selection of underlying cause of death.

Methods & Materials

Finding the differences between the Decision tables of ACSEL (following the rules of ICD-10 in 2003) and those of Iris (following the rules of ICD-10 in 2010) especially in the interpretation of the Selection Rule 3 regarding pneumonia, we performed a bridge coding study. We used death certificates in 2012 (n=1,256,359). Firstly, we entered these data to ACSEL with Decision tables unique to ACSEL (Procedure 1). Secondly, in terms of Decision tables of pneumonia, we replaced Decision tables of ACSEL by those of Iris. We entered these data to ACSEL with modified Decision tables (Procedure 2).

We calculated Comparability ratio (CR) as below, indicating an expecting shift in frequency of death when we change from Procedure 1 to 2.

\[
CR = \frac{\text{Number in Procedure 2}}{\text{Total in Procedure 2}} \div \frac{\text{Number in Procedure 1}}{\text{Total in Procedure 1}}
\]

We yielded 95% confidence interval (CI).

Acknowledgements or Notes

We thank the Vital, Health and Social Statistics Division of the Statistics and Information Department at the Ministry of Health, Labour and Welfare for providing valuable data.

Table 1 Comparison between Procedure 1 and 2 by the condensed list of CoD for Japan

<table>
<thead>
<tr>
<th>CoD List of code Changes</th>
<th>CoD List of code Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant neoplasms</td>
<td>Heart diseases (excluding hypertensive heart diseases)</td>
</tr>
<tr>
<td>326,190</td>
<td>325,669</td>
</tr>
<tr>
<td>-521 1.00</td>
<td>1.00-1.00</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>113,549</td>
</tr>
<tr>
<td>85,165 -28,384 0.75</td>
<td>0.75-0.76</td>
</tr>
<tr>
<td>Cerebrovascular diseases</td>
<td>110,397</td>
</tr>
<tr>
<td>109,845 -552 1.00</td>
<td>0.99-1.01</td>
</tr>
<tr>
<td>Senility</td>
<td>54,945</td>
</tr>
<tr>
<td>54,945 0.10</td>
<td>0.99-1.01</td>
</tr>
<tr>
<td>Renal failure</td>
<td>22,819</td>
</tr>
<tr>
<td>22,837 18.00</td>
<td>0.98-1.02</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>14,694</td>
</tr>
<tr>
<td>14,722 4,028 1.25</td>
<td>1.25-1.30</td>
</tr>
<tr>
<td>Diseases of liver</td>
<td>14,468</td>
</tr>
<tr>
<td>15,363 895 1.06</td>
<td>1.04-1.09</td>
</tr>
<tr>
<td>Aortic aneurysm and dissection</td>
<td>13,896</td>
</tr>
<tr>
<td>13,898 2.00</td>
<td>0.98-1.03</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>12,966</td>
</tr>
<tr>
<td>13,186 220 1.02</td>
<td>0.99-1.04</td>
</tr>
<tr>
<td>Septicemia</td>
<td>10,890</td>
</tr>
<tr>
<td>11,216 326 1.03</td>
<td>1.01-1.06</td>
</tr>
<tr>
<td>In situ neoplasms and benign neoplasms and neoplasms of uncertain or unknown behaviour</td>
<td>9,847</td>
</tr>
<tr>
<td>10,763 916 1.10</td>
<td>1.07-1.13</td>
</tr>
<tr>
<td>Vascular dementia and unspecified dementia</td>
<td>8,034</td>
</tr>
<tr>
<td>12,944 4,910 1.61</td>
<td>1.57-1.66</td>
</tr>
<tr>
<td>Hypertensive diseases</td>
<td>6,586 4,690</td>
</tr>
<tr>
<td>-4 0.97-1.04</td>
<td>0.97-1.04</td>
</tr>
<tr>
<td>Alzheimer’s disease</td>
<td>6,196 8,498</td>
</tr>
<tr>
<td>2,302 1.37</td>
<td>1.33-1.42</td>
</tr>
<tr>
<td>Hernia and intestinal obstruction</td>
<td>5,764</td>
</tr>
<tr>
<td>5,771 7.00</td>
<td>1.07-1.14</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>5,514 7,726</td>
</tr>
<tr>
<td>2,212 1.40</td>
<td>1.36-1.45</td>
</tr>
<tr>
<td>Diseases of the musculoskeletal system and connective tissue</td>
<td>5,119</td>
</tr>
<tr>
<td>6,383 1,264 1.25</td>
<td>1.20-1.30</td>
</tr>
<tr>
<td>Viral hepatitis</td>
<td>4,862 5,146</td>
</tr>
<tr>
<td>284 1.06</td>
<td>1.02-1.10</td>
</tr>
<tr>
<td>Glomerular diseases and renal tubulo-Interstitial diseases</td>
<td>3,736</td>
</tr>
<tr>
<td>3,737 1.00</td>
<td>0.96-1.05</td>
</tr>
<tr>
<td>Other</td>
<td>18,287 19,648 1,361</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>947,839 945,789 -2,050</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 2 Major changes of the number of death from Procedure 1 to 2

<table>
<thead>
<tr>
<th>CoD List of code Changes</th>
<th>CoD List of code Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure, unspecified</td>
<td>J509 6,129</td>
</tr>
<tr>
<td>Pneumonia, unspecified</td>
<td>J189 -25,757</td>
</tr>
<tr>
<td>Pneumonitis due to food and vomit</td>
<td>J690 -5,118</td>
</tr>
<tr>
<td>Emphysema, unspecified</td>
<td>J439 2,250</td>
</tr>
<tr>
<td>Bacterial pneumonia, unspecified</td>
<td>J159 -1,636</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>G20 2,212</td>
</tr>
<tr>
<td>Bronchopneumonia, unspecified</td>
<td>J180 -440</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>I500 1,640</td>
</tr>
<tr>
<td>Sequela of cerebral infarction</td>
<td>J693 -373</td>
</tr>
</tbody>
</table>

497,839 death certificates were yielded UCD in Procedure 1, and 945,789 death certificates were yielded UCD in Procedure 2.

Table 1 showed changes in Procedure 1 and 2 coding of the condensed list of CoD for Japan in 2012. The change of procedure caused a decrease of Malignant neoplasms (-521), Pneumonia (-28,384) and Cerebrovascular diseases (-552). There was an increase of Heart diseases (excluding hypertensive heart diseases)(8,657), Vascular dementia and unspecified dementia (4,910), Chronic obstructive pulmonary disease (4,028), and so on.

Table 2 indicated major changes of the number of death by more detailed code, namely 4-Digits code. There was a significant drop of 25,757 in Pneumonia, unspecified (J189.9) and decrease of 5,118 in Pneumonitis due to food and vomit (J690.9). On the other hand, the number of death rose by 6,129 in Heart failure, unspecified (I509.0), and by 4,169 in Unspecified dementia (F03).

Conclusions

To understand our results reasonably, it should have been clarified that how much the differences of the Decision tables and version of ICD-10(i.e. 2003 and 2010) each affect our results. But, unfortunately, it was unable due to practical issues. Though we have no intention of which table is suitable, favourable or precise, this study revealed there are inconsistencies of UCD by which Decision tables you applied. To improve the international comparability, the rule of ICD is needed to be written more specifically, but taking into account the differences of demographic structure, the system of vital statistics etc. among countries, the interpretation of the rule of ICD is needed to be left to the discretion of the countries. Further studies and discussions will be needed.
Abstract

In the frame of federated and interoperable Electronic Health Records, specific coding systems are mandatory for filling out the Patient Summary. Because of the sensitivity of its content, PS needs to be validated by General Practitioners. This work proposes a support system based on standardized and formalized coding rules to ease the coding process supporting GPs in the compilation of the PS, thus avoiding coding errors and misspecifications of clinical data.

Introduction

In adopting the EU directive on Patient Summary, most Countries are regulating the use of coding systems, making some of them mandatory. Nonetheless, General Practitioner (GPs) massively use natural language to record health conditions in the Electronic Health Records (EHRs) [1], thus generating unstructured and not coded data, which cannot be used as they are for the compilation of the Patient Summary (PS). In fact, they require text processing and translation to a structured language before being mapped to coding systems. Moreover, data related to health conditions cannot be automatically derived from those available in the EHRs, because they need to be validated by the GP, the sole responsible of their content. In this scenario, an automated coding support system (CSS) can be of help without breaking the law. A centralized coding system management through a rule-based supporting tool [2] would solve a number of critical issues reported in the literature about the use of coding systems by GPs and other healthcare professionals. This work proposes a methodology for the creation of a CSS that will be initially experimented for the Italian PS use case.

Methods & Materials

According to the EU Guidelines, the PS is the minimum set of information needed to assure healthcare coordination and the continuity of care. PS reference elements, tagged as mandatory or optional, can be reported as free text or by using dedicated coding systems. Because of its highly structured content, the PS could be well coded using formal rules and implementing a challenging automated support system. In order to set up an automated CSS, an Italian collaborative work group was set up and a work plan was defined for developing the resources and tools to assist physicians in coding the PS.

A four-step methodology is proposed (see Figure 1):

1. Analysis of existing projects results (e.g. epSOS) and of the automated ICD-10 coding rules for mortality data. This step will produce standardized coding rules based on general guidelines by qualified institutions (e.g. WHO);
2. Design of an algorithm that applies coding rules to produce candidate codes and assess their accuracy;
3. Creation of a cross reference terminology of structured technical and lay terms (based on existing terminological tools such as ICD-10 Alphabetical Index, the ICMV [3], ICD-11 narrower terms, and Dictionary for NLP created from a database of 295,000 EHRs [1]), as intermediate between natural language and concepts of the international coding systems. Transcoding tables will be used to manage different versions of a coding system or to map between different systems;
4. Composition of the cited tools to build a web service-based CSS.

Expected Results

The following resource to be used by the CSS will be generated:

- a set of coding rules in an open format based on general guidelines defined by qualified institutions (e.g. WHO) and described by the literature, to be embedded in third-party software;
- the algorithm that applies the coding rules implemented in a suitable computable formal language for representing guidelines/rules and the domain (e.g., OWL + SWRL, Asbru, etc.);
- a set of complementary tools to support the transition from the specialized and natural language used by GPs to the coding language (i.e. the cross reference terminology);
- a web service to directly support natural language text coding.

Conclusions

This work proposes a standardized methodology for the development of a rule-based CSS that facilitates the compilation and coding of PS by GPs. The advantages of a sound rule-based CSS are: (i) it is based on internationally updated standard coding systems and standardized methodology to code health conditions; (ii) it could significantly reduce coding time and costs; (iii) it improves the quality of coding by reducing the variability due to different subjective interpretations. Limitations are mainly related to the computational costs of the system and to the complexity of the domain, since it could be necessary to formalize a huge amount of rules. Although developed for the Italian PS, this methodology could be further adapted to other EU Countries.

References


Acknowledgements

This work results from the Collaboration Agreement signed by the Institute of Informatics and Telematics of the Italian National Research Council, the Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC and the Bruno Kessler Foundation (prot. n. 0005688). It is supported by the following projects: SemanticHealthNet Expert Agreement (prot. 0008991), Smart Health 2.0 (PON0402_C20 “Smart Health - Cluster OSSH - Smart FSE – Staywell”).

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**Abstract:** Administrative health data are generated through the routine administration of health care programs including physician claims and inpatient data, and are commonly used for surveillance of various conditions. The World Health Organization's International Classification of Diseases (ICD) is a set of standardized codes used in administrative data to classify disease. The objective of this study was to conduct a systematic literature review exploring ICD codes for hypertension (HTN). This study will add to a larger study creating a comprehensive list of ICD coding algorithms used to identify other conditions.

**Introduction**

Hypertension is defined as abnormally high blood pressure. It is highly prevalent worldwide as a disease and as a cardiovascular risk factor. One of the best methods for hypertension surveillance at a population level would be to use administrative data. However, in order to use administrative data, the validity of various case definitions to define hypertension using administrative data must be determined. The purpose of this study was to determine the validity of using ICD codes to define hypertensive patients in administrative data.

**Methods & Materials**

A systematic review was performed with two reviewers searching using MEDLINE and Embase for terms related to and including hypertension. We combined these terms using the boolean operator AND with search terms related to ICD coding. A reference check/grey literature search was performed afterwards to capture any studies that may have been missed in the search. All of the abstracts from the search were imported into software known as Synthesis. A consensus review was performed at both the title/abstract stage and the full-text stage to identify relevant articles, with inter-rater agreement assessed (kappa statistic) at both stages. Articles that were included needed to mention ICD-9 or ICD-10 codes for hypertension, be published after 1975, and be published peer-reviewed papers. A data abstraction tool was created and tested and the data that was abstracted included: title, authors, year published, journal, study population, sample size, study period, condition(s) of interest, ICD version, diagnostic coding field position, ICD coding algorithm time period, ICD codes used, administrative data used, gold standard, sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and the 95% confidence intervals for each of the validity measurements.

**Results**

A total of 7973 articles were initially retrieved. After duplicates were removed, 542 full text articles were included. A total of 27 studies were included that validated algorithms for hypertension. There were a wide array of codes used and 8 different countries performed studies, 13 of which were performed in the USA, followed by 6 in Canada, 2 in Australia, 2 in Taiwan and 1 in Sweden, Denmark, Kuwait and China. Of these 12 used ICD-9 codes, 9, used ICD-9-CM, 10 used ICD-10 and there were 2 country specific; ICD-10-CA and ICD-10-AM. Sensitivity ranged from 2%-100%, Specificity ranged from 39%-100%, PPV ranged from 18.72%-100% and NPV ranged from 29%-100%.

**Conclusion**

Validated case definitions for hypertension have been reported with varying degrees of accuracy in studies using administrative data. As more health services and population health researchers are utilizing administrative data to study hypertension prevalence and outcomes, and accurate case definition to identify a cohort of patients with hypertension is needed. Ultimately, by compiling a thorough list of ICD codes for hypertension and other cardiovascular risk factors, a more standardized approach to acquire a cohort of these patients can be determined and used for international comparisons and chronic disease surveillance.

**Acknowledgements or Notes**

We would like to acknowledge the team of The Methods Hub (www.themethodshub.com), Dr’s Hude Quan and Maria Santana for their support throughout this project and Dean Yergens for his generous support for the use of Synthesis.
INTRODUCTION

Injuries and violence are recognised within the Caribbean as having a major impact on youth and those of the productive and reproductive age-groups\(^1\). Largely predictable and preventable, they are identified as a priority area in the Caribbean Health Research Agenda, in support of the Caribbean Cooperation in Health Phase III (CCHIII)\(^2\).

The Caribbean Public Health Agency (CARPHA) maintains a regional database of cause-of-death data, populated with annual data submitted by its member states. A first step to tackling injuries and violence is to quantify and describe the problem. This paper partially determines the magnitude of the burden of injuries in the Caribbean through a review of cause-of-death data for the region.

OBJECTIVES

To partially determine the magnitude of the burden of injuries and violence in the English- and Dutch-speaking Caribbean through a review of cause-of-death data for the region.

METHODS

Data from CARPHA’s regional mortality database\(^3\), for the period 2007-2013, were reviewed and the following variables analysed: age, gender and the underlying cause of death (UC)\(^4\). The UC was coded using the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10).

The most recent year of available data for each country for the period 2007-2013 was analysed. Descriptive analyses were used to summarise the causes of death by 5-year age bands. The Global Burden of Diseases (GBD) grouping was used for the top ten leading causes of death among persons aged 1-44. For each country, the crude death rate due to injuries (per 100,000 population), by gender, was calculated followed by a description of the distribution of the type of injuries contributing to death.

RESULTS

More than a 1/4 of deaths from injuries in each 5-y age group. Males and persons aged 1-44yrs most vulnerable groups affected by injuries.

Conclusions

This review provides useful information on vulnerable groups and the countries most affected by injuries and violence. Poor documentation practices by certifying physicians and inadequate access to external causes of death by mortality coders are some of the limitations. Deaths from violence and injuries among males 1-44 years are more likely than any other cause; injury deaths exceed the regional average in countries with larger population sizes (Guyana, Trinidad and Tobago, Belize and Jamaica). The profile of injury deaths varies from country to country, with road traffic accidents, drownings, violence and suicide contributing to deaths in almost every country.

ACKNOWLEDGEMENTS

Special thanks to staff in Ministries of Health and other sectors in the English- and Dutch-speaking Caribbean for their continued compliance with mortality surveillance requirements and to CARPHA supporting staff.

\(^2\)Data from 21 of 24 CARPHA member states (CMS) were used in this analysis; BES Islands, Sint Maarten and Haiti were not included.
\(^3\)Software used: PostgreSQL version 8.4, pgAdmin 1.18.1, Microsoft Access 2013, Microsoft Excel 2013 and Tableau 8.1.
# Implementation and publication of an updated French version of ICD-10

**Authors:** Olivier GUYE\(^1\)-\(^3\), Diane PAILLET\(^1\)-\(^3\), Nicole MELINI\(^1\)-\(^3\), Max BENSADON\(^1\), Laurence DURIF\(^1\), Antoinette SCHERER\(^1\), Agathe LAMARCHE-VADEL\(^2\)-\(^3\)

\(^1\) ATIH (French hospitalization data process agency), 2 CépiDc-Inserm, 3 French WHO-FIC CC

## Abstract

French is one of the six official languages of WHO organization. The latest validated French publication of ICD-10 on the WHO website was in 2008. In 2014, the French collaborating center started updating and amending the French ICD-10 for a document delivery in 2015. The French version of ICD-10 was managed with the help of Classification tool kit software (CTK) from 2008 ClaML file transmitted by WHO. In March 2015, the updated French ICD-10 without French modifications was sent to WHO organization in both ClaML and PDF format.

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Results</th>
<th>Prospects</th>
</tr>
</thead>
<tbody>
<tr>
<td>French ICD-10 Volume 1 had not been updated since 2008. Therefore a new version of this document was needed. The WHO organisation enabled us to update this document thanks to their organisational help.</td>
<td>Informatics department managed to get files with proper presentation for the different notes. Decision for word standardisation were improved during the WHO annual meeting in 2014. French ICD-10 including French modifications (CIM-10 FR) was edited on the ATIH website on December 2014: <a href="http://www.atih.sante.fr/cim-10-fr-2015-usage-pmsi">www.atih.sante.fr/cim-10-fr-2015-usage-pmsi</a></td>
<td>We would like to implement the international anatomic classification using the proper common French words. The last update of the French ICD-10 Volume 3 was in 2008. Another perspective is to update this document with new entries added in URC update from 2008 until 2015 and vocabulary changes due to progress in practice. The work on ICD-10 will be useful to implement the French version of ICD-11.</td>
</tr>
</tbody>
</table>

## Methods & Materials

ATIH leads the morbidity part of ICD-10 for the French collaborating center. ATIH met WHO representative on April 2014, an updated French ICD-10 was mentioned.

The German institute of medical documentation and information (DIMDI) came to Lyon for a two-day training on the CTK software. WHO organisation had the CTK files for the 2008 French ICD-10 without French modifications. We implemented these files with modifications made from 2008 until 2015. For the French translation, as a first step we used some documents made by our predecessors. We proofread to correct mistakes.

Bearing in mind the English logic, we adapted it to the French language. The translation was corrected or the sentences made easier to understand.

Typographical errors, out of date words and text harmonization were corrected. We have implemented the latest 1990 French spelling rules.

We compared with the English ICD-10 and other ICD-10 in French such as Canadian and Swiss publications to be sure that we would keep the same meaning. Five people read the ICD-10 classification and each one was in charged of 4 chapters. After reading a chapter, modifications were considered and decided on using a collegial approach. Changes were implemented in ClaML files.

## Results

The French ICD-10 Volume 1 without French modifications was submitted to the WHO organisation with a lexicon summing up the spelling modifications. In the future it might be reviewed by other French speaking countries.

Comments would be appreciated to complete the vocabulary or make any changes needed in other countries.

## Conclusions

French medical coders needed a French updated ICD-10 to code health conditions in hospital. Now that the PDF file is available, they require HTML or ClaML files to integrate this classification into their software.

The French ICD-10 including French modifications will be updated at the same time as the English ICD-10.

## Acknowledgements

We would like to thank:
- WHO representatives and specially Robert Jakob,
- the DIMDI, specially Stefanie Weber and Ulrich Vogel from medical information department.

All the work carried out could not have been done without their precious collaboration.

Contact detail: nomenclatures-de-sante@atih.sante.fr
Introduction
Albania is currently preparing to go through ICD-10 implementation, within a wider process to update the information and communication technologies in order to enhance the quality of health data.

Methods & Materials
The WHO Regional Office for Europe asked the Italian WHO-FIC Collaborating Centre to render make available expertise to the Albania WHO-Country Office in order to support the implementation of ICD-10 at national level. After a preliminary step in 2011, the cooperation was renewed by organizing a site visit in Italy to update the state of art of the transition to ICD-10 in Albania and in Italy and to define a possible collaborative workplan. Members of MOH Albania visited the WHO Italian Collaborating Centre in Udine to discuss about Collaborating Centre organization, activities, challenges and electronic tools for the maintenance and development of ICD10 classification.

Results
The Albanian delegates evaluated the implementation status of ICD in their Country. The collected information regarded the different data flows in the health system, the classifications in use at the moment, the willingness to change to ICD-10 and the roles of the different institutions in the process.

Comparisons with the Italian transition to ICD-10 were made, searching for similarities and differences. Tools developed by the Italian WHO-FIC Collaborative Centre to manage the ICD-10 translation and update were examined and considered useful to Albania implementation process (Figures 1 and 2). Recommended actions and next steps were drafted, considering two different combined actions: to include in the Italian WHOFIC CC work plan an activity specifically devoted to support EURO Region in supporting Albania; and to verify the possibility to sign a direct agreement between the Albanian and Friuli Venezia Giulia Ministry of Health. Table 1 summarizes the three milestones to proceed in that direction.

Conclusions
This activity represents an example of cooperative model in which common goals to implement ICD can be catalyzed by the joint effort of countries, WHO and its Collaborating Centres.

Table 1 – Milestones to implement and maintain ICD-10 in Albanian language

<table>
<thead>
<tr>
<th>Milestone</th>
<th>How to proceed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web translation tool</td>
<td>Use Italian CC web platform to insert the translations currently made. Let’s say a new workspace is created on the Italian server where the agreed ClamL file will be imported. There would be created users credentials allowed to enter/edit data, including here a supervisor.</td>
</tr>
<tr>
<td>Staff for developing and maintaining ICD updated</td>
<td>MOH Albania could employ/dedicate 2-3 data entry operators who can input the data online. The operators will take a simple training on how to use the web tools and be supervised for the content and the progress.</td>
</tr>
<tr>
<td>Committee of Maintenance</td>
<td>In the meanwhile a Committee of Maintenance would be set up and the collaborative tool would be developed. But at least this committee would have a digital version of the classification ICD-10.</td>
</tr>
</tbody>
</table>

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**Introduction**

The Office for National Statistics (ONS) publishes mortality statistics for England and Wales, categorised by underlying cause of death, age, sex and a selection of other demographic variables. All medical factors mentioned on the death certificate are coded using ICD-10 and the underlying cause derived following ICD rules. This process is automated using IRIS software for over 80% of deaths.

Increasingly, traditional reference tables have been replaced as the most important means of communication by a variety of online presentations on the ONS website (www.ons.gov.uk) including downloadable spreadsheets, summaries, and user-friendly static and interactive graphics. These have enabled us to present the data in new ways reaching a wider range of users from the inquiring citizen to the expert analyst. Analyses are presented for different ICD-10 code groupings including leading causes of death\(^1\), amenable causes and preventable causes\(^2\).

Below are examples of the improvements and innovations made by ONS in communicating mortality statistics classified according to ICD-10.

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**Methods of Visualisations**

The various visualisations have been a great success where the number of web views are available below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of views</th>
<th>Measurement method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths in England and Wales, 2013 (Figure 1)</td>
<td>23,413 (16.7.2014-27.7.2015)</td>
<td>Webtrends</td>
</tr>
<tr>
<td>Leading Causes of Death, 2012 (Figure 2)</td>
<td>21,089 (12.12.2013-27.7.2015)</td>
<td>Webtrends</td>
</tr>
<tr>
<td>Downloadable reference table (Figure 4)</td>
<td>6,733 (29.10.2014-27.7.2015)</td>
<td>Webtrends</td>
</tr>
<tr>
<td>What are the top causes of death by age and gender? (Figure 5)</td>
<td>4,187 (27.2.2015-27.7.2015)</td>
<td>Google analytics</td>
</tr>
</tbody>
</table>

\(^*\)There are many differences between Webtrends and Google analytics. The main two are, 1. if a visitor has javascript disabled, Webtrends still counts their visit, Google will discount it; 2. Webtrends takes visitor numbers from server logs and tracking on pages, whereas Google takes it from script built into the page alone.

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**References**


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Vasita Patel
Office for National Statistics, UK
Abstract

The Summary Hospital-level Mortality Indicator (SHMI) is an official statistic produced and published by the Health and Social Care Information Centre (HSCIC) which compares the actual number of deaths following time in hospital with the expected number of deaths. Here, it is used to illustrate the importance of accurate clinical coding in the calculation of clinical indicators.

Introduction

The Summary Hospital-level Mortality Indicator (SHMI) is published by the Health and Social Care Information Centre (HSCIC) as an official statistic on a quarterly basis. The SHMI compares the actual number of deaths following time in hospital with the expected number of deaths.

The expected number of deaths is estimated taking into account the following characteristics of the patients treated: current and underlying medical condition(s), age, sex and method of admission to hospital.

Methods & Materials

The SHMI includes deaths which occur in hospital or within 30 days of discharge and is calculated using Hospital Episode Statistics (HES) data linked to death registrations data from the Office for National Statistics (ONS).

In HES, diagnosis information is submitted by trusts using the 10th revision of the World Health Organisation’s International Classification of Diseases (ICD-10). To calculate the SHMI, each ICD-10 code is assigned to a Clinical Classifications Software (CCS) category using a mapping produced by the Agency for Healthcare Research and Quality (AHRQ). This collapses thousands of ICD-10 codes into a smaller number of clinically meaningful categories for statistical analysis. CCS categories are then further grouped into the 140 SHMI diagnosis groups and records are assigned to diagnosis groups using the primary diagnosis code.

Secondary ICD-10 diagnosis codes are also used to capture whether the patient suffers from any long term conditions.

This diagnostic information is used along with other data (such as the age of the patient) to estimate the risk of the patient dying in hospital or within 30 days of discharge, using statistical models. For example, the estimated risk for a patient with cardiac arrest will be higher than the risk for a similar patient with a superficial injury.

Results

For any given number of expected deaths, a range of observed deaths is considered to be 'as expected'. To help users of the data understand the SHMI, trusts are categorised into one of the following three bandings:

- where the number of deaths is 'higher than expected'
- where the number of deaths is 'as expected'
- where the number of deaths is 'lower than expected'

This is illustrated by the funnel plot below, where the circles represent individual trusts and the extremes of the 'as expected' range are shown by the two dotted lines.

Conclusions

The calculation of the SHMI relies on accurate coding of diagnostic information in the HES dataset. If records are submitted with inaccurate or invalid ICD-10 codes then this can lead to the patient being assigned to the wrong SHMI diagnosis group, which in turn affects the calculated risk of mortality.

To help trusts improve data quality, the HSCIC is developing contextual indicators on:

- the number of records used in the SHMI with an invalid primary diagnosis code
- the depth of coding (the number of secondary diagnosis codes submitted).

Notes

[1] The most recent SHMI publication can be accessed at www.hscic.gov.uk/pubs/shmijan14dec14


[3] Further background information on the SHMI, including full details of the methodology used in its calculation, is available at http://www.hscic.gov.uk/SHMI
Mortality data are fundamental input for understanding and responding to the nature and magnitude of health problems in a population. In countries with underdeveloped civil registration and vital statistics (CRVS) systems, the scarcity and quality of mortality data present a considerable gap in public- and population-health knowledge. This, in turn, presents an important reason for comprehensive and independent research on the characteristics and quality of a country’s mortality data.

A synopsis of findings is presented from a project that aimed to assess the availability and quality of mortality data for South Africa.

**Methods**

Four methodological approaches, detailed in the references below, were followed:

1. a mortality **data source review** and critical appraisal of the public availability, strengths, and limitations of different data sources;
2. an evaluation study of CRVS death and cause-of-death data, based on known demographic and epidemiological principles;
3. a detailed **record-linkage study**, matching death records from CRVS and a demographic surveillance system, applying deterministic and probabilistic methods; and
4. an application of **adjustment factors** from the linkages study to district-level cause-of-death data.

**Introduction**

1. The **data source review** found a rich and varied list of mortality data sources, summarised in Table 1. Additional to official routine CRVS data, a range of mortality data items were included in alternative sources: three population censuses; three INDEPTH Health and Demographic Surveillance Systems sites; a number of national surveys of which some had been conducted annually; ongoing mortality audits; and disease notification programmes. The only source of detailed cause-of-death data are available from CRVS and HDSS.

**Results**

2. In the **evaluation study**, nine criteria were rated to assess the quality of national CRVS mortality data:

- **Satisfactory:** 1) coverage, 2) completeness, 3) temporal consistency, 4) age/sex classification, 5) timeliness, and 6) sub-national disaggregation;
- **Unsatisfactory:** 7) ill-defined and non-specific codes, 8) content validity; and
- **Undetermined:** 9) Epidemiological consistency.

Six satisfactory ratings reflect considerable progress in strengthening mortality data over the past 20 years. However, consistent with findings from small-sample urban studies, substantial shortcomings were found in national cause-of-death data.

3. In response, a **record linkage study** was designed to compare causes of death assigned in Agincourt HDSS and CRVS records that belong to the same deceased, for the period 2006–2009. Of 3,726 HDSS records, 2,264 (61%) were linked to the CRVS system. The findings included:

- Records belonging to more vulnerable people, e.g. young children, poorer persons, and non-citizens, were less likely to be matched;
- Having the deceased’s national identity number recorded, increased the odds to be matched by nearly 14 times;
- Cause-of-death agreement was very low at 15% (kappa 0.1083; CI: 0.0985–0.1171), at the WHO Special Tabulation List level with 103 causes;
- At the level of a locally-relevant short list of 15 causes, agreement remained low at 23% (kappa 0.1631; CI: 0.1511–0.1751).

**Results, continued**

4. Applying **adjustment factors** derived from the linked Agincourt HDSS/CRVS data, to data of the surrounding Ehlanzeni district, resulted in substantial change in the district’s cause profile:

- Change was most noticeable in the increase in HIV disease, and reductions in Diarrhoea, Pneumonia, and Respiratory infections.

**Acknowledgements & References**

**Progress in strengthening cause-of-death statistics in South Africa**

**Abstract**

The importance of valid cause-of-death data as key input for public health programmes is globally acknowledged. South African mortality data sources were reviewed, and the quality of national Civil Registration and Vital Statistics (CRVS) mortality data assessed, using nine criteria. The quality of CRVS cause-of-death data was assessed in a sub-study, linking Agincourt HDSS and CRVS data. We found considerable progress from a dysfunctional mortality data system to one that offers data that can be adjusted for known biases. However, quality challenges remain for unadjusted cause-of-death data.

**Introduction**

Four methodological approaches, detailed in the references below, were followed:

1. a mortality data source review and critical appraisal of the public availability, strengths, and limitations of different data sources;
2. an evaluation study of CRVS death and cause-of-death data, based on known demographic and epidemiological principles;
3. a detailed record-linkage study, matching death records from CRVS and a demographic surveillance system, applying deterministic and probabilistic methods; and
4. an application of adjustment factors from the linkages study to district-level cause-of-death data.

**Methods**

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**Results, continued**

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- Change was most noticeable in the increase in HIV disease, and reductions in Diarrhoea, Pneumonia, and Respiratory infections.

**Conclusion**

Socio-political transformation, stakeholder cooperation, capacity strengthening, and leadership in research and academic institutions have spawned a new era of enhanced mortality data availability and focussed strengthening of cause data. A promising low-cost validation method in the linkage study provided not only a very “meaningful exchange of health information” among Stats SA, the Agincourt HDSS, and collaborating researchers, but also empirical evidence which advanced knowledge about local cause data and locally-feasible methods.

Low cause agreement, however, should be of substantial concern to certifiers, coders, researchers and health planners. Adjustment factors considerably more representative than these would be needed in a study of a much larger scale to assess and adjust national cause-of-death data. A multi-source interoperable project is currently being proposed for such a study.

**References**


Dominican Republic has initiated a process of capacity building in coding with ICD-10, the personnel linked to the SIGS at sub national levels, with the aim of improving the quality of data on deaths and morbidity.

Introduction

The Directorate of Health Information and Statistics (DIES) from Ministry of Health (MSP) is responsible for developing, coordinating, regulating and administering the General System of Health Information (HMIS), to fulfill the functions of integration instance national mortality statistics; in this regard, it is appropriate to strengthen the capacities of personnel responsible for processing statistical death certificates.

During 2006 and 2007 two courses of medical coding in ICD-10 morbidity and mortality health personnel were conducted. During that same period they were formed as instructors in three Dominicans statistical coding in the Collaborating Center for the Family of International Classifications of WHO in Mexico - CEMECE.

Despite these efforts, mortality coding in early 2013, continued centralized in DIES, with the availability of two encoders.

We present the main activities that the country has developed during 2013 - 2014, related to improving the quality of health information and, in order to establish the National Reference Center for the Family of International Classification Statistics.

Training and consultancy

From June 2013 the plan to train coders ICD10, with support from PAHO/WHO Dominican Republic, the CEMECE and RELACSIS set. This plan is targeted at the health information system at different levels of MOH and institutions such as the Dominican Social Security Institute (IDSS), National Institute of Forensic Pathology (NPPO), National Police (PN) and private health institutions.

<table>
<thead>
<tr>
<th>Number of trained</th>
<th>Type of staff</th>
<th>Gender</th>
<th>Training Type</th>
<th>Morbidity and Mortality</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>142</td>
<td>Managers statistics and hospital coding, regional services and the central level</td>
<td>Women 102 Men 40</td>
<td>Morbidity 24 Mortality 7</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Epidemiologists</td>
<td>Women 16 Men 8</td>
<td>Morbidity 4 Mortality 3</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>166</td>
<td>TOTAL</td>
<td>Women 118 Men 48</td>
<td>Morbidity 26 Mortality 10</td>
<td>128</td>
<td></td>
</tr>
</tbody>
</table>

Source: Record of participants course of coding of morbidity and mortality in ICD-10. DIES-MSP. Dominican Republic.

In the form of classroom training courses lasting three to five days in the period from July 2013 to September 2014. These were taught by instructors CEMECE and national instructors being trained about 156 health workers linked to SIGS taught.

The country selected 10 participants in the first edition of the virtual course that produced the Working Group 2 of the Latin American and Caribbean Network for Strengthening Health Information Systems (RELACSIS), lasting three months, from March to May 2014 three graduates of the course as national tutors were selected in the second edition of the virtual course that is currently done with an enrollment of 21 students to Dominican Republic.

- Increases the number of coders at the central level, from two to eight, which results in improving the processing of death certificates.
- Increases by 40% the provincial offices that implement procedures coding underlying cause of death.
- The formation of the National Reference Center for the IFC is pending matter for training, coordination, research and advice from the IFC.
- The DIES continue promoting actions to strengthen the General System of Health Information with emphasis on improving the quality of data of deaths and morbidity.

Geographical distribution of the provinces where the procedures for coding underlying cause of death to be implemented in September 2014.
Use of Swiss ICD-10 coded hospital discharge data to monitor obstetric safety

Authors: Le Pogam MA1, Burnand B2, Chevalier J3, Guillain H2

1 Institute of Social and Preventive Medicine (IUMSP), Lausanne University Hospital (CHUV), University of Lausanne (UNIL)
2 Health Records Management and Coding Unit (CAM), Lausanne University Hospital (CHUV), University of Lausanne (UNIL)

Abstract

Postpartum hemorrhage (PPH) cumulative incidence measured on hospital discharge data has been identified as a potential maternal safety indicator in Switzerland and elsewhere. Regressions of data coding and procedure classifications, recurrent modifications in coding rules and the lack of harmonized clinical definitions associated with diagnosis and procedure codes may tremendously affect comparability over time and between hospitals or geographic areas.

As posterior hemorrhage (PPH) is one of the leading causes of severe maternal morbidity and because it may be related to the quality of obstetric processes, the PPH cumulative incidence measured on hospital discharge data has been identified as a potential maternal safety indicator in Switzerland and elsewhere.

Methods & Materials

- The 2011 Swiss national hospital discharge database was used to measure PPH and severe PPH cumulative incidences among Swiss maternity hospitals (case identification algorithms and indicators specifications are shown in Fig 1). Diagnoses and procedures were respectively coded using the ICD-10-GM (German Modification) classification version 2010 (13'315 codes) and the CHOP classification version 2011 (11'331 codes). We analyzed variations in PPH and severe PPH incidences across Swiss hospitals that performed more than 30 caesarean deliveries during 2011 using funnel plots. Indeed, caesarean delivery is usually well coded (liable indicator denominator) and a risk factor for PPH (variability in PPH incidence should be more strongly associated with coding practices or quality of care).
- We then tried to evidence the impact of classifications revisions (Tab 1) and coding rules modifications related to the 2012 transition from AP-DRGs to Swiss-DRGs by studying temporal trends in PPH and severe PPH incidences at a large university hospital that participated in the development of the Swiss DRG system and employed professional coders. PPH and severe PPH incident cases were extracted from the Lausanne university hospital (CHUV) administrative database for the period 2011-2014.
- A qualitative analysis of coding practices was secondly performed.

Results (1)

- For the whole country, 79’766 births occurred in 114 maternity hospitals in 2011 : 53’238 vaginal deliveries (66.7%) and 26’528 hospital deliveries (33.3%).
- National PPH and severe PPH rates equaled 7.2% (5’772/79’766) and 1.0% (818/79’766) respectively for all deliveries and, 3.5% (916/26’356) and 1.0% (252/26’356) for caesarean deliveries.
- Caesarean-related PPH incidence varied widely across hospitals (Fig 2). More than 2.7% hospitals were outliers (instead of 3 expected by chance) indicating a systematic variation that could be related to the quality of the data source (coding practices) or of the care processes. This result was not observed for severe PPH incidence (3 outliers). Indeed, severe PPH case identification was much more specific.
- Temporal trend analysis (Fig 3) showed that PPH rate at the CHUV (an inlier for caesarean-related PPH and severe PPH incidences in 2011) significantly decreased in 2012 and remained constant in 2013 and 2014. CHUV professional coders related the 2012 decrease to the transition from AP-DRGs to Swiss-DRGs which led to better coding practices. The 2013-2014 increase was attributed to a modification in the secondary diagnosis definition that became less precise in 2012 and 2013. PPH were coded according to the following definition: blood loss ≥500 mL after vaginal birth or ≥1000 mL after caesarean delivery or a 10-point decline in postpartum hematocrit or hemoglobin concentration from antepartum levels or blood loss leading to hemodynamic instability or transfusion. Since 2013, PPH may be coded if they "required a treatment". Again, this result was not observed for severe PPH incidence because of a strong specificity in severe PPH case identification.
- A qualitative analysis of coding practices in Switzerland led to the following observations: important variation in coding practices across hospitals and regions: professional coders using medical record abstracts in some hospitals (potential lack of information) vs physicians in others (potential interpretation of medical records); lack of national training and FAQs for coders; recent modifications in Swiss DRG system and in classifications and coding rules: only trend comorbidities are coded as secondary diagnoses (certain risk factors are not available for indicators risk adjustment); lack of harmonized clinical definitions associated with diagnosis and procedure codes (e.g. O72.2 was coded for PPH occurring after the mother had returned to her room without being declared in the delivery room, 24 hours or not); lack of CHOP codes (embolization or ligation of uterine arteries, uterine compression sutures, etc.)

Conclusions and perspectives

- The validity of administrative data in recording PPH may be improved by harmonizing clinical definitions associated with ICD-10-GM and CHOP codes and by stabilizing coding rules.
- Severe PPH cumulative incidence may be a more valid indicator than PPH cumulative incidence for comparisons.
- ICD-11 should improve PPH coding and should include severe PPH specific codes.

Tab 1: Annual versions of ICD-10-GM and CHOP for diagnosis and procedure coding and DRG system transitions that determined coding rules modifications.

<table>
<thead>
<tr>
<th>Classification systems by year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHOP</td>
<td>2011</td>
<td>2011</td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>AP-DRG</td>
<td>SwissDRG 1.0</td>
<td>SwissDRG 2.0</td>
<td>SwissDRG 3.0</td>
<td></td>
</tr>
</tbody>
</table>

*SDS: statistically significant difference
Abstract: Mexico has implemented the deliberate search and reclassification of maternal deaths since 2002 (BIRMM) to correct the misclassification. Additionally, it has improved the measurement of the denominator with the implementation of a strategy to improve the measurement of the denominator. This strategy has allowed the detection of problems in the definitions and procedures of maternal ICD coding, that must be corrected to improve the measurement of MMR.

Introduction

Measuring the MMR is essential to assess the health situation but it is not easy to measure. In most countries with good coverage information, misclassification of these causes is the biggest problem; but even there are problems with the definitions and coding procedures with ICD-10 and in measuring of the denominator. Mexico has made a national effort since 2002 through two strategies:

• Research, analysis and correction of misclassification of maternal deaths and suspected cases of hiding a maternal death (BIRMM in Spanish)

• Use of live births occurred and registered in the year, adjusted in some states with the support of the estimates of the National Population Council.

However the review of definitions and coding procedures is required. There are differences in measurement of MMR among countries and by the international agencies that assess the fulfillment of the Millennium Development Goals.

Methods & Materials

Over the past 13 years, the BIRMM has been carried out in Mexico, which each year have rescued about 30% of maternal deaths, initially classified as non-maternal. Confirmed and suspected cases are investigated for ratification or rectification of the causes of death.

Comparison is made between the recorded causes in the death certificate with the causes obtained after investigating the case using the clinical summary, verbal autopsy and other documents that provide information. Cases where two coders do not match are under review to determine their final coding. For the MMR late and sequelae maternal deaths are excluded. Most difficult to classify has been mainly the indirect obstetric deaths (O98, O99, O96.1, and O97.1).

Results

Chart 2: Deaths investigated, confirmed maternal deaths and maternal deaths rescued

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths of women initially screened and selected</th>
<th>Cases selected for investigation</th>
<th>Discarded by research</th>
<th>Confirmed by research</th>
<th>Unstudied</th>
<th>Maternal deaths rescued</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7,792</td>
<td>7,078</td>
<td>7,546</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,523</td>
<td>4,584</td>
<td>4,945</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,336</td>
<td>3,378</td>
<td>3,921</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,067</td>
<td>1,073</td>
<td>1,019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>133</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>297</td>
<td>342</td>
<td>356</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

• Every year 30% of deaths that initially was misclassified is rescued and vital statistics were corrected.

• Indirect obstetric deaths (O98-O99) tend to rise each year and take the first place.

• Late maternal deaths and from sequelae also have an upward trend.

• Nonetheless, the rescue of indirect obstetric deaths, plus late and from sequelae indirect obstetric are difficult due to problems in ICD -10 definitions and coding procedures, that are not equal to the selection of the underlying cause for no maternal deaths.

• The general definition of maternal death is vague in what it excludes (incidental ? causes) which contradicts the definition of indirect obstetric causes, many of which are incidental.

• The rules for the selection of the underlying cause, are not applicable to deaths from indirect obstetric causes, because in many cases the pregnancy, childbirth and post-partum are contributors, and they are annotated in part II and often are not taken into account to classify deaths as maternal.

• Problems in how to measure MMR by countries and by the Interagency Group (WHO, UNICEF, UNFPA, WB) have been detected, since the latter includes late and from sequelae maternal deaths, that are not within the definition, affecting international comparison and measuring of the Millennium Development Goals.

• The WHO application of ICD-10 to deaths During Pregnancy, childbirth and puerperium: MM ICD, does not solve the problem, because it contradicts some basic definitions and procedures of ICD-10 and confuses to the users.

Notes

• By 2030, all countries should reduce MMR by at least two thirds of their 2010 baseline level.

We need better definitions, rules and coding procedures to properly measure the achievement of goals at the country until 2030.
Abstract
The International Classification of Diseases (ICD) provides an important opportunity to measure patient safety in hospitals, based on a routinely collected and standardized data system in interdisciplinary, whereas ICD is barely used by healthcare professionals other methodology that we are developing to show the interdisciplinary nature of the ICD.

Introduction (Context & Background)
The International Classification of Diseases (ICD) provides, worldwide, an important tool to measure aspects of performance, quality and safety in healthcare in hospitals, based on a routinely collected and standardized data system in countries. According to the World Health Organization (WHO) actual or potential users include physicians, nurses, other providers, researchers, health information managers and coders, health information technology workers, policy-makers, insurers and patient organizations. Actually, quality and safety issues are clearly interdisciplinary, across all healthcare professions, whereas ICD is barely used by healthcare professionals other than physicians to assess healthcare performance.

We assume that this underuse of the ICD could provide lower validity of outcome indicators in measuring quality of health care and patient safety. In addition based on previous works and discussion by the Topic Advisory Group on Quality and Safety (TAG on Q&S)1, to add elements from other discipline of healthcare (e.g., nursing and midwifery) could improve the validity of metrics.

The objective of this study is to present the methodology that we are developing to assess the interdisciplinary nature of the ICD in evaluating patient safety and to provide evidence that would justify the necessity of a broader interdisciplinary use of the ICD.

Expected results
We expect to provide conclusive results on the ability of the ICD to be used as a standardized taxonomy in measuring patient safety at interdisciplinary level. Especially we expect results on how it is possible to improve the quality of the documentation related to healthcare, and the consequence in terms of significant positive impact on the validity of a series of PSI.

This project should not only achieve results on the national level but also by contributing to the international level by adding more value to the work by the TAG on Q&S.

Finally this project also provides an important opportunity for several health disciplines to collaborate on a major issue that will be in the coming years in terms of advanced practice and professional leadership shared.

Methods & Materials
The research project is planned over a 3 year period (2016-2018) and will involve an interdisciplinary analysis of the terminology of care represented by the ICD. The main objective is to evaluate how the nursing, midwifery and medical disciplines could improve the ability of the ICD-10 and the Beta version of ICD-11 (ICD-11-β) in measuring a series of patient safety indicators (PSI) that are listed in the Table.

Four steps are related to four intermediate objectives, respectively.

- The first step will be based on an analysis of ICD codes that are potentially used in measuring the series of patient safety indicators (PSI). For that we will develop a modified Delphi method to rank the related codes according to their potential contribution in the three targeted disciplines respectively.

- Steps 2 to 4 will be carried out in three university hospitals in Switzerland (Lausanne, Basel and Bern).
  - Step 2 will use a questionnaire and focus groups to assess knowledge of professionals from the three disciplines on the possible prospects for improving health care documentation that could impact on the quality of ICD coding in the context of PSI.
  - Step 3 will be to develop an interdisciplinary model to improve health care documentation based on recommendations in terms of good practices for documentation (i.e., intervention).
  - In step 4 we will finally evaluate and compare the positive predictive value (PPV) of the series of PSI alternately using the ICD-10 and ICD-11-β before and after the intervention. We will also estimate the sensitivity according to the availability of an electronically patient record in the three hospitals respectively.

Table. Selected PSIs from PSIs that were adapted using the ICD-10 by the IMECCHI2

<table>
<thead>
<tr>
<th>Label of selected PSIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Complication of anesthesia</td>
</tr>
<tr>
<td>- Pressure ulcer</td>
</tr>
<tr>
<td>- Foreign body left in during procedure</td>
</tr>
<tr>
<td>- Iatrogenic pneumothorax</td>
</tr>
<tr>
<td>- Central venous catheter-related bloodstream infections</td>
</tr>
<tr>
<td>- Postoperative hip fracture</td>
</tr>
<tr>
<td>- Postoperative physiologic and metabolic derangements</td>
</tr>
<tr>
<td>- Postoperative pulmonary embolism or deep vein thrombosis</td>
</tr>
<tr>
<td>- Postoperative sepsis</td>
</tr>
<tr>
<td>- Accidental puncture or laceration</td>
</tr>
<tr>
<td>- Birth trauma - injury to neonate</td>
</tr>
<tr>
<td>- Obstetric trauma - vaginal delivery with instrument</td>
</tr>
<tr>
<td>- Obstetric trauma - vaginal delivery without instrument</td>
</tr>
</tbody>
</table>

Conclusions
This research project provides an important opportunity to assess the interdisciplinary achievement of the ICD, and especially the next revision (i.e., ICD-11).

References
Why there are so many ICD-10 codes?
In Defense of Granularity
Patricia Nilda Soliz Sanchez
Pan American Health Organization (PAHO/WHO)

Abstract
ICD-10 is the standard diagnostic tool for epidemiology, health management and clinical purposes. This includes the analysis of the general health situation of populations. It is used to monitor the incidence and prevalence of diseases and other health problems, proving a picture of the general health situation of countries and populations. The detail reported by ICD can be further increased, such as by using codes meant to be reported in a separate data field. One of ICD virtues is the granularity, but how many codes are being used by the countries to generate the mortality patterns? The main findings exploring the AMRO mortality database are included in this poster.

Introduction
ICD-10 is divided into 22 chapters. The chapters are subdivided into homogeneous 'blocks' of three-character categories. Each chapter contains sufficient three-character categories to cover its content; not all available codes are used, allowing space for future revision and expansion.

Although not mandatory for reporting at the international level, most of the three character categories are subdivided by means of a fourth, numeric character after a decimal point, allowing up to 10 subcategories. Chapters XIX, XXI and XXII are not allowed to use for mortality.

There are over 2000 rubrics at the three-character level, identifying all conditions likely to be of public health interest.

One important feature of ICD is the granularity. The users can use different levels of specificity depending on the work field and the necessity of detailed information. However, some users do not consider that granularity is a good feature. They even think that ICD has too many codes and they were developed unnecessarily.

What is granularity?
It is the extent to which a material or system is composed of distinguishable pieces or grains. It can either refer to the extent to which a larger entity is subdivided, or the extent to which groups of smaller distinguishable entities have joined together to become larger distinguishable entities.

Data granularity refers to the size in which data fields are sub-divided.

All countries in the Region are implementing the ICD-10 for integrating national and regional databases reporting the underlying cause of death at the fourth character. This is a real example of using the ICD-10 granularity. The AMRO regional mortality database is updated annually as a part of a joint effort between countries and PAHO and also includes codes at third and fourth character.

Materials and Methods
The main goal of this first approach was to identify the number of the ICD-10 codes as the underlying cause of death that the countries are using annually.

• Nine countries were selected to explore their original databases before integrating the regional database because during this process some validation rules are implemented and some changes in the number of categories could happen artificially. (see figure 1)

• The criteria used to select the countries were:
  - number of deaths and its percentage
  - different levels of mortality information quality
  - different mortality patterns and 2013 as the last available year

Results
Furthermore to count the number of codes used in 2013, the codes that contributed to 80% of total deaths were identified too. This reference value (80%) was chosen by convenience.

The percentage (%) the codes that contributed to 80% of the total deaths are shown in figure 2.

Dominica was the country with the highest percentage, 40% (81 codes). The remainder eight countries presented percentage less than 10. The 3.3% of the total codes used in 2013 by Brazil contributed to 80% of total deaths (182 of 5,522). More that 100 codes in Mexico, Argentina, Chile and Nicaragua contributed to the 80% of total deaths representing 4.1%, 3.4%, 6.7% and 8.7% respectively.

The number of codes used, Cuba and Guatemala were 97 (2.6%), 89 (4.8%) and 88 (6.1%). At regional level a 2.4% the codes contributed to 80% of total deaths (156 of 6,577).

Figure 1
Number of deaths and percentage, The Americas

<table>
<thead>
<tr>
<th>Country</th>
<th>Code %</th>
<th>Deaths</th>
<th>ICD-10 codes (number)</th>
<th>% under-registration</th>
<th>% ill-defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>48%</td>
<td>2,596,993</td>
<td>6577</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>BRA</td>
<td>22%</td>
<td>1,210,474</td>
<td>5,522</td>
<td>6.7</td>
<td>5.9</td>
</tr>
<tr>
<td>MEX</td>
<td>11%</td>
<td>596,129</td>
<td>3,823</td>
<td>0</td>
<td>1.7</td>
</tr>
<tr>
<td>ARG</td>
<td>6%</td>
<td>323,327</td>
<td>2,023</td>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>CHL</td>
<td>2%</td>
<td>97,269</td>
<td>1,902</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CUB</td>
<td>1%</td>
<td>2,973</td>
<td>1,454</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>GTO</td>
<td>0.4%</td>
<td>3,218</td>
<td>1,349</td>
<td>25.6</td>
<td>1.2</td>
</tr>
<tr>
<td>NIC</td>
<td>0.1%</td>
<td>2,218</td>
<td>0.2</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>DMA</td>
<td></td>
<td>619</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2
Codes that contribute to 80% of total deaths

Conclusions
•These findings constitute a first approach to know the number of ICD-10 codes that the countries use to generate mortality information as well the number that contributed to 80% of total. There is interesting differences that should be analyzed deeply.

•The number of codes at 3rd and 4th character have to be identified specifically and theirs percentage as of total codes too.

•Despite the low % of the number of codes that contributed to 80% of total deaths identified, this is not enough reason to affirm that ICD-10 granularity was developing unnecessarily. The ICD should allow all users to find the code properly linked to the health condition researched regardless of the magnitude.

•It is important to identify and study the main variables related to the number of codes used, for example: i)manual or automated coding, ii)national ICD-10 validation rules, iii)magnitude of diseases, iv)epidemiological transition, v)level of knowledge of ICD and vi)quality of information.

For further information: solizspa@paho.org
Reason for encounter: a superior description of the epidemiology and management of flu syndromes in the Italian family medicine setting

Background

Influenza-like illness (ILI) and Acute Respiratory Infections (ARI) remain a considerable health problem in Europe. Diagnoses are based on clinical signs and symptoms which are very well known by Family Doctors (FDs). The most common reasons patients give for seeking health care are presented in the form of symptoms and complaints and the International Classification of Primary Care (ICPC) advocates recording patients’ Reasons for Encounter (RfE) as presented to the family doctors (FDs).

Research Question

What is the epidemiology of ILI and ARI syndromes in Italian family medicine? How do FDs manage ILI and ARI diagnosis and how do RfEs influence FDs interventions during winter season 2013/14?

Methods & Materials

Over a period of four months 8 FDs registered the patients’ reason for encounter, the number and type of encounters, procedures adopted, ILI and ARI diagnoses, drugs prescriptions and referrals to other health care providers. FDs recorded details of their patients using electronic patients’ records based on the International Classification of Primary Care Italian version, collecting data on all elements of the doctor-patient encounter for those diseases in an Episode of Care (EoC). The study took place in several urban and rural areas in Northern and Southern Italy.

Results

Patients with suggestive symptoms for ILI and ARI were 1,536 (average age 48.1±18.7). The number of patient-doctor encounters was 1,715. RfEs and EoCs numbered respectively 3,800 and 1,536. The total number of interventions (ICPC components 2-6) was 2,929. Of them 45.3% were diagnostic and preventive procedures, 44.0% medications, 0.2% results, 9.6% administrative procedures and 0.7% referrals and other reasons for encounter.

Table 1. Characteristics of the population

<table>
<thead>
<tr>
<th>Reason for encounter</th>
<th>Total population</th>
<th>ARI</th>
<th>ILI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients’ number</td>
<td>1,536</td>
<td>848 (55.2%)</td>
<td>688 (44.8%)</td>
</tr>
<tr>
<td>Males</td>
<td>762 (49.6%)</td>
<td>405 (53.1%)</td>
<td>357 (46.9%)</td>
</tr>
<tr>
<td>Females</td>
<td>774 (50.4%)</td>
<td>443 (57.2%)</td>
<td>331 (42.8%)</td>
</tr>
<tr>
<td>Average age</td>
<td>48.1±18.7</td>
<td>51.2±19.5</td>
<td>44.4±16.9</td>
</tr>
<tr>
<td>Encounter Subj.</td>
<td>1.715</td>
<td>947 (52.5%)</td>
<td>768 (44.7%)</td>
</tr>
<tr>
<td>Reason for Encounters</td>
<td>3.800</td>
<td>2,153 (56.7%)</td>
<td>1,647 (43.3%)</td>
</tr>
<tr>
<td>Vaccinations</td>
<td>267</td>
<td>201 (75.3%)</td>
<td>66 (24.7%)</td>
</tr>
<tr>
<td>Total ICPC Comp.</td>
<td>2,929</td>
<td>1,539 (52.5%)</td>
<td>1,390 (47.5%)</td>
</tr>
<tr>
<td>Diagnostic &amp; presc.</td>
<td>1.326</td>
<td>733 (55.3%)</td>
<td>593 (44.7%)</td>
</tr>
<tr>
<td>Medications</td>
<td>1.291</td>
<td>669 (51.8%)</td>
<td>622 (48.2%)</td>
</tr>
<tr>
<td>Results</td>
<td>7</td>
<td>3 (42.9%)</td>
<td>4 (57.1%)</td>
</tr>
<tr>
<td>Administrative proc.</td>
<td>284</td>
<td>120 (42.3%)</td>
<td>164 (57.7%)</td>
</tr>
<tr>
<td>Referrals</td>
<td>21</td>
<td>13 (61.9%)</td>
<td>8 (38.1%)</td>
</tr>
</tbody>
</table>

Table 2. The Epidemiology of flu syndromes

<table>
<thead>
<tr>
<th>Code</th>
<th>Label</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>R00</td>
<td>Influenza</td>
<td>688</td>
<td>44.8</td>
</tr>
<tr>
<td>R74</td>
<td>Upper resp. acute</td>
<td>328</td>
<td>21.4</td>
</tr>
<tr>
<td>R78</td>
<td>Acute bronchitis</td>
<td>168</td>
<td>10.9</td>
</tr>
<tr>
<td>R77</td>
<td>Acute laringitis</td>
<td>158</td>
<td>10.3</td>
</tr>
<tr>
<td>R76</td>
<td>Acute tonsillitis</td>
<td>128</td>
<td>8.3</td>
</tr>
<tr>
<td>R75</td>
<td>Sinusitis</td>
<td>29</td>
<td>1.9</td>
</tr>
<tr>
<td>HT11</td>
<td>Otitis media</td>
<td>25</td>
<td>1.6</td>
</tr>
<tr>
<td>BR3</td>
<td>Pneumonia</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,536</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 1. ILI and ARI distribution

Conclusions

The recording of patients’ Reasons for Encounter allows FDs to completely document the management of ILI and ARI syndromes. ICPC offers an accessible and practical solution for recording all elements of the encounter such as reasons for encounter, procedures adopted and diagnosis made by the doctors, drugs prescriptions, surgery, home and phone consultations, referral to specialists. The RfE is a core element of the process of making diagnosis and also influences interventions made by FDs during the winter flu season 2013-14.

References

A systematic review of ICD coded algorithms for stroke and transient ischemic attack (TIA)

Authors: Brendan C Lethebe, Sylvia Hao, Rachel J Jolley, Ceara Cunningham, Maria J Santana, Tyler Williamson, Hude Quan
Department of Community Health Sciences, University of Calgary, Canada

Abstract: Stroke and transient ischemic attack (TIA) is one of the leading causes of death and disability in Canada. One method of monitoring stroke and TIA prevalence is to use administrative data (hospital discharge, inpatient and outpatient data, and claims databases). We conducted a systematic review of literature pertaining to ICD-9 and ICD-10 case definitions for stroke and transient ischemic attack. We will create a comprehensive list - or dictionary - of ICD coding algorithms used to identify stroke or TIA patients from administrative datasets.

Introduction
Many studies have utilized administrative health data to study and monitor stroke and TIA prevalence and mortality. Administrative data utilizes the International Classification of Diseases (ICD) for standardized diagnostic codes, which allows for widespread epidemiological and health services surveillance of temporal trends. The objective of this study is to systematically review the international literature to identify ICD coded algorithms to identify stroke or TIA in administrative data. We further examined which studies had validated these algorithms and assessed their accuracy.

Methods & Materials
We performed a systematic review in both Embase and Medline using the search as outlined in Table 1. All of the abstracts from the search were imported into a literature review software known as Synthesis. Interrater agreement was assessed using kappa statistics at both the abstract and full-text level. We excluded articles that were published before 1975, those that were not original studies, those that were not in English, and those that were not related to our topic. We performed a systematic review in both Embase and Medline. After duplicates were removed, 6794 went on to title and abstract review. Of these 1454 full texts were then reviewed leaving a total of 810 full text articles included after applying the inclusion/exclusion criteria. Of these 810 included articles, 759 were not validated, 3 could not found. A total of 48 studies were included in this review containing validated ICD algorithms for stroke and TIA. There were a wide array of codes used and 8 different countries performed studies, 32 of which were performed in the USA, followed by 4 in Canada, 3 in France, 3 in Italy, 2 in Taiwan, and 1 in Australia, Denmark, and the UK. Of these 27 used ICD-9 codes, 12 used ICD-9-CM, and 7 used ICD-10. Sensitivity ranged from 13%-100%, Specificity ranged from 83.6%-99%, PPV ranged from 33.3%-100% and NPV ranged from 72%-100%.

Results

Table 2: Study Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>32</td>
</tr>
<tr>
<td>Canada</td>
<td>4</td>
</tr>
<tr>
<td>France</td>
<td>3</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2</td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
</tr>
<tr>
<td>Denmark</td>
<td>1</td>
</tr>
<tr>
<td>UK</td>
<td>1</td>
</tr>
<tr>
<td>ICD code version</td>
<td></td>
</tr>
<tr>
<td>ICD-9</td>
<td>27</td>
</tr>
<tr>
<td>ICD-9-CM</td>
<td>12</td>
</tr>
<tr>
<td>ICD-10</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 3: Accuracy measures (range)

<table>
<thead>
<tr>
<th>Accuracy Estimates (No. of studies)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (n=24)</td>
<td>13%-100%</td>
</tr>
<tr>
<td>Specificity (n=14)</td>
<td>83.6%-99%</td>
</tr>
<tr>
<td>PPV (n=34)</td>
<td>33.3%-100%</td>
</tr>
<tr>
<td>NPV (n=9)</td>
<td>72%-100%</td>
</tr>
</tbody>
</table>

Conclusions

Validated case definitions for stroke and TIA have been reported with varying degrees of accuracy in studies using administrative data. As administrative data is becoming more widely used to study prevalence, mortality, outcomes and health services used for different conditions such as stroke and TIA, an accurate case definition to identify a cohort of patients with these conditions is needed to ensure a more standardized approach to acquire a cohort of these patients can be determined and used for international comparisons and disease surveillance.

Acknowledgements or Notes

We would like to acknowledge the team of The Methods Hub (www.themethodshub.com) and Dr. Hude Quan and Dr. Maria Santana for their support throughout this project. As well as Dean Yergens for his creation and support with the software Synthesis.
results in variation of test measures being affected by disease case definition is significant.

Introduction

Diabetes surveillance systems using administrative data can efficiently and readily analyze routinely collected health-related information from healthcare systems and provide reports on risk factors, care practices, morbidity, mortality and estimate incidence and prevalence at a population level. With steady increases in big data and data analytics over the past two decades, administrative health databases have become more accessible to health services researchers and are now used regularly to study the processes and outcomes of healthcare. However, administrative health data are not collected primarily for research or surveillance. There is therefore the need for health administrative data users to examine the validity of case ascertertainment in their data sources before use. Surveillance depends on a consistent case definition of diabetes. However a variety of diabetes case definitions exist, resulting in variation in reported diabetes prevalence estimates.

Objectives

To systematically review validated International Classification of Diseases, 9th edition (ICD-9) and 10th edition (ICD-10) based case definitions for diabetes and to compare the validity of different case definitions across studies and countries and not restrict it to a particular case definition.

Methods

This systematic review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Two citation databases, MEDLINE and EMBASE, were searched from 1980 until April 2015 using the following terms:

1. Health outcomes research or administrative data or hospital discharge data or ICD-9 or ICD-10 or medical record or health information or surveillance or physician claims or claims or hospital discharge or coding or codes)
2. (validity or validation or case definition or algorithm or aggressiveness or accuracy or sensitivity or specificity or positive predictive value or negative predictive value)
3. K for medical subject heading terms for diabetes. Searches were limited to human studies published in English.

Results

Sensitivity values ranged from 26.9% to 100% for ICD-9 and from 59.1% to 89.6% for ICD-10 data. PPVs range from 21% to 100% for ICD-9 and from 59.1% to 89.6% for ICD-10 data. Specificity and NPVs were consistently high for studies using ICD-9 and even higher in those using ICD-10 codes.

Conclusions

This review demonstrates that the more data sources used (physician claims and hospital discharges), the longer the observation period, the better the definition performed. A conclusive recommendation of an optimal definition cannot be made because the definition depends on the purpose of use and the availability of different data types. Approaches used in developing case definitions for diabetes can be simple and practical because the definition depends on the purpose of use and the availability of different data types. Approaches used in developing case definitions for diabetes can be simple and practical and result in high sensitivity, specificity and PPV. Overall, administrative health databases are useful for undertaking diabetes surveillance but the awareness of the variation in sensitivity, specificity, PPV, NPV and kappa being affected by disease case definition is significant.

Acknowledgements

Ms. Khokhar was supported by Alliance for Canadian Health Outcomes Research in Diabetes Trainee Program.
The Verbal Autopsy (VA) is an important approach for collecting mortality data in less developed countries. The premise of the VA is to ask basic questions at a local level with someone familiar (associated) with someone who has died. An approach to improve the data collection through computerization using a series of binary questions has been proposed previously. This study demonstrates a beta version of a binary tree approach for conducting the verbal autopsy.

The purpose of this study is to examine the use of a binary tree approach for conducting the verbal autopsy.

A Java application, VA20q-binary, was created to ask binary questions (yes or no) in reference to the Verbal Autopsy. VA20q-binary is populated with any set of questions based upon a configuration file using a modification of the Graphviz [2] language. We modified the GraphViz language so that tree diagrams could be automatically generated using our question configuration file.

Each line in the VA20q-binary configuration file refers to 1 question using the following format:

"[Question] -if Yes-> [Yes Question] # Question # Secondary Information"

No responses automatically go to the next question.

VA20q-binary collects all responses from the users and saves them in a CSV file with the user's name and date and time stamps to determine how long the user took to answer.

If at the end of the set of questions, VA20q-binary does not determine the correct cause of death, the user is asked to fill in additional information.

This approach provides a beta version of how the Twenty Question approach could be applied to the Verbal Autopsy using a binary tree approach.

The ability to quickly collect the relevant information needed to determine the cause of death would have several advantages including:

a) timely mortality data;

b) less user and respondent fatigue from unnecessary questions;

c) a systematic approach with instant feedback and data management.

Future research will involve handling uncertainty in the responses (i.e. Don't Know) and adapting the application for use with Android mobile smart phones.

A modified GraphViz language example:

ISAccident -> IsTrafficAccident; #Was it a road traffic accident  #3E110 – Did they suffer from a road traffic accident

IsTrafficAccident -> IsOccupantVehicle; #Were they in the vehicle #Were they in the vehicle

IsTrafficAccident -> IsFall; #Were they injured in a fall #3E310 – Were they injured in a fall

References


# International examination for morbidity coders

Joon H. Hong, Carol A. Lewis
IFHIMA, Republic of Korea, IFHIMA, USA

## Abstract
In 2000 the WHO-FIC Education Committee (now Education and Implementation Committee –EIC) and the International Federation of Health Record Organizations (now International Federation of Health Information Management Associations – IFHIMA) agreed to collaborate in developing an international training and certification program for mortality and morbidity coders/trainers. Since then, pilot examinations for morbidity coders have been conducted which have stimulated coders, provided much useful information and have led to the improvement of training programs. The goal now is to administer the examination in additional countries to improve the quality of coded data globally.

### Introduction

The WHO-FIC Education Committee (now EIC) started to develop an international training and certification program for mortality and morbidity coders/trainers in collaboration with the IFHIMA in 2000. The major goals of this program are to promote the production of high quality, consistent and timely coded health data on which so many decisions are based, and to increase the international coder workforce with well-trained coders so that internationally comparable, high quality health information exists.

Following the exam which credentialed 79 mortality coders in 2007, the feasibility of a test for morbidity coders were explored and approved. Given the fact that some countries have adopted their own rules for morbidity coding and may use an adaptation of ICD-10, the international exam for morbidity coders is not for the certification of coders but rather to assess coders’ skills in using ICD-10.

### Methods & Materials

Coders having more than 2 years coding experience are eligible to the morbidity coding pilot exam.

The exam consists of three parts:
- 20 multiple choice questions
- 30 coding diagnosis questions
- 10 short and 5 long scenarios

Three hours is the total time allotted for the questions.

The exam questions collected from 11 countries were reviewed, verified, and finally selected by the sub-group members responsible for the morbidity coding exam.

IFHIMA will manage the morbidity coding examination from 2015 by the request of EIC.

Countries interested in conducting the morbidity coding pilot test need to indicate their intention to EIC/IFHIMA and designate an organization in their countries to take the responsibility of managing the test. Then EIC/IFHIMA will send the “Guidelines for candidates of international examination for morbidity coders.” When they are ready to conduct the test, EIC/IFHIMA will send the organization the exam questions and other related documents. The country is responsible for translating exam and the related documents into its language.

### Results

Six countries(Korea, Japan, Jamaica, Sri Lanka, Sweden, Indonesia) conducted morbidity coding pilot exam from 2010 to 2012.

The total number of the examinees was 293. The average grade of each country was pretty low which reflects some problems with the coding exam and the country’s different coding rules and practices. The grade of the multiple choice questions was the highest and that of the scenarios was the lowest in all countries.

The areas showing the different coding practices were assigning morphology codes, additional or optional codes, external cause codes and assigning 5th digit codes. The problems identified were as follows:

- Using different versions of ICD-10 by country or by province in a country
- Using country specific coding instructions
- Translation problem
- Human resources and the cost for conducting exam

The examinees of three countries had the following comments.

- 66% of the examinees: the exam questions were difficult.
- 48% of the examinees: 3 hours was the too short a time to answer the questions.
- 19% of the examinees: the questions were not clear.

The examinees’ major motives for applying to take the exam were to evaluate their coding skills and to know the pattern of the questions of the international exam.

We learned that good communication is essential, i.e. examinees’ clear understanding of the questions, accurate translation, and clear instructions for what is expected in a correct answer.

### Conclusions

In the survey of EIC and FDRG members and some other WHO-FIC related people in 2010, the respondents showed highly positive responses(94.2%) for the necessity of an international morbidity coding exam. Since then the EIC has been continuously supportive of efforts to develop and promote the international morbidity coding exam.

We identified the benefits of international morbidity coding exam as follows.

- The coding errors identified areas of coding education that need improvement
- Education and self-studying the exam will bring the improvement of coding skills
- But there are still some challenges for an international examination.
  - Countries use different versions of ICD-10
  - The different national coding instructions
  - Human resources and costs for conducting exam especially in the developing countries

### Acknowledgements or Notes

Many individuals contributed to the international morbidity coding exam by submitting questions, discussing and arriving consensus on the correct answers and the structure of the exam, administering and marking the exam. EIC appreciates the IFHIMA board’s acceptance of the request for promoting and managing the morbidity coding exam.
En la búsqueda de estrategias para la capacitación en codificación de información médica, se creó un curso de capacitación e-learning, tomando como base los vigentes en México y Argentina, cuya finalidad fue contribuir a la formación de codificadores en la aplicación adecuada de la CIE-10, utilizando el entorno virtual de la OPS. Diseñado los contenidos conforme a la modalidad, se implementó el primer curso con una duración de tres meses y la participación de 14 países de la Región. Superadas ampliamente las expectativas se dictó una segunda edición, con la participación de 12 países de la región.

### Introduction
La educación a distancia es una manera particular de crear un espacio para generar, promover e implementar situaciones en la que los alumnos aprendan. La tutoría virtual, es una actividad docente que realiza un experto en enseñanza a distancia y en contenidos, con nuevas estrategias didácticas para guiar el aprendizaje, orientar y facilitar la utilización de recursos y materiales didácticos digitales, promoviendo la interacción con y entre los estudiantes a través de medios tecnológicos, para motivarlos al logro de un aprendizaje autónomo basado en el desarrollo de sus potencialidades lo cual se realiza sin limitaciones geográficas, físicas y temporales.

Es una realidad común el hecho de que existe una gran movilidad del personal codificador ya formado, hacia otras áreas que no se relacionan con esta actividad. Todo ello ha generado la necesidad de utilizar nuevos métodos como es el uso de Internet, para dar respuesta a las demandas crecientes de capacitación.

### Methods & Materials
El segundo curso se impartió entre los meses de setiembre y diciembre de 2014, con una duración de 300 horas, estuvo constituido por 8 módulos, que incluyan recursos para el aprendizaje: Estructura del módulo, Contenido (recurso de lectura), Guías prácticas con ejercicios a realizar por el alumno, diapositivas relacionadas con cada tema y las indicaciones sobre puntos importantes, utilizados para la modalidad a distancia, los cuales debían ser estudiados de manera secuencial. Módulos de estudio teórico práctico:

1. Nociones básicas sobre educación a distancia
2. Terminología Médica y Anatomía
3. Generalidades de la Clasificación Internacional de Enfermedades
4. Estructura básica de la CIE-10
5. El diagnóstico y su codificación
6. Reglas y orientaciones para el registro y la codificación de la Mortalidad
7. Reglas y orientaciones para el registro y la codificación de la Morbilidad
8. Presentación estadística

Adicionalmente la edición 2008 de la CIE-10.

En este curso (a diferencia del primero), se utilizó el sistema de Tutores por país que tuvieron a su cargo a alumnos de su propio país. Actuaron como tutores, participantes seleccionados y formados en el primer curso. Se generaron dos grupos donde México y Argentina coordinaban a los tutores, de cada país participante, quienes, guiaron el aprendizaje a los alumnos, resolviendo dudas, controlando las actividades y orientándolos durante todo el curso.

Se realizaron evaluaciones inicial y final y por cada módulo con lo que se promedió la evaluación final de cada alumno. Al finalizar el curso, se aplicó una encuesta que permitía conocer el perfil de los alumnos, así como sus observaciones y recomendaciones al mismo.

<table>
<thead>
<tr>
<th>Participating Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
</tr>
<tr>
<td>Colombia</td>
</tr>
<tr>
<td>Costa Rica</td>
</tr>
<tr>
<td>Chile</td>
</tr>
<tr>
<td>Ecuador</td>
</tr>
<tr>
<td>El Salvador</td>
</tr>
<tr>
<td>Nicaragua</td>
</tr>
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<td>Panamá</td>
</tr>
<tr>
<td>Paraguay</td>
</tr>
<tr>
<td>Perú</td>
</tr>
<tr>
<td>República Dominicana</td>
</tr>
<tr>
<td>Uruguay</td>
</tr>
</tbody>
</table>

### Results
En este segundo curso participaron 202 alumnos de distintos países: Argentina, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Nicaragua, Panamá, Paraguay, Perú, República Dominicana y Uruguay. 72% de los alumnos terminaron el curso. Del total de alumnos que se inscribieron algunos no iniciaron el cursado; otros iniciaron y resolvieron solo la Evaluación inicial y primer Módulo y en otros abandonaron el curso en módulos más avanzados.

De los 143 alumnos que terminaron el curso, el 49% son personas menores de 40 años, lo que indica que se tiene una población joven, garantizando mayor permanencia de trabajo activo en sus diferentes instituciones y países; y tienen oportunidad de adquirir más experiencia en su tiempo libre.

El 68% fueron mujeres y el 32% restante hombres. Poco más de las dos terceras partes de los alumnos manifestaron realizar funciones de codificación con la CIE-10; en el 23% de ellos es su principal actividad; mientras que el 39% no lleva a cabo esta actividad. Las principales actividades de codificación que realizan es en: certificados de defunción, egresos hospitalarios y consulta externa.

17% de ellos, manifestó que ha impartido cursos de codificación, lo cual favorece en la formación de otros codificadores y será un apoyo para sus países en futuros cursos. Los alumnos manifestaron su intención de continuar capacitándose en temas de mortalidad (43%), morbilidad (32%) y 25% en procedimientos en medicina.

El 86% señaló que el acceso al entorno virtual, fue fácil y 14% que fue medianamente fácil. La apreciación de ellos tuvieron fue favorable, ya que 92% indicó que fue fácil, y el 8% restante, que fue medianamente fácil.

El 53% señaló que la comprensión de los módulos fue fácil y adecuada, un 65% indicó que además fue didáctica, y solo un 8%, lo sintió poco comprensible, razón por la cual, el 97% consideró este curso satisfactorio y recomendable.

### Conclusions
El curso concluyó de manera exitosa, confirmando una vez más que la educación a distancia es una opción viable y efectiva.

Este grupo de trabajo GT2 (Implementación de Cursos Virtuales con la CIE-10), está participando en el grupo GT3 (Implementación de un sistema electrónico asistido para codificación de la mortalidad), capacitando a los países que implementarán este sistema automatizado, en las actualizaciones efectuadas a la CIE–10 imprescindible para la utilización del sistema.
Impact of the implementation of IRIS Software for ICD-10 cause of death coding in England and Wales

Claudia Wells, Elaine Tower, Lois Cook, Demelza Tatlock
Office for National Statistics, UK

Abstract: In 2014, the Office for National Statistics implemented IRIS software to code cause of death. The dictionary supporting IRIS was standardised. The dual coding study showed that while 95% of deaths remained in the same chapter there were statistically significant differences in 12 chapters between ICD-10 v2013 (IRIS) and ICD-10 v2010 (NCHS).

Introduction
The Office for National Statistics (ONS) has used Automatic Cause Coding Software since 1993 to code deaths occurring in England and Wales.

Between 2001 and 2013, ONS used the MMDS ICD-10 provided by the United States National Center for Health Statistics (NCHS). In 2014 ONS replaced NCHS ICD-10 v2010 with IRIS software.

IRIS v2013 software included major updates to the ICD modification and selection rules and changes to coding of drug mentions. A key component of IRIS is the user-generated dictionary of medical terms.

Methods & Materials
Creation of the UK English dictionary
The UK English dictionary was created from the US English dictionary. UK English terms were retained and US terms removed.

Abbreviated text was deleted but full text remained for the abbreviated conditions.

Regular Expressions were created in the Standardisation tables:
- to link multiple misspellings to output one correct spelling
- to link various names to output one common name eg Oesophagus/ Oesophageal is set to be output as Oesophagus
- to create one output term for many plural words
- to remove apostrophes, semi colons, colons, etc to remove these grammatical characters to enhance the automation percentage rate
- dictionary reduced from 500,000 to 100,000 entries.

Dual coding study
A sample of 38,718 deaths (7.8% of all non-neonatal deaths) in four weeks (one week in each of January, April, July and October 2012) already coded using the NCHS ICD-10 v2010 software and rules, were recoded using ICD-10 v2013 rules (IRIS).

Results
Comparison and analysis of the dual coded dataset allowed ONS to identify the impact of coding updates and rule changes.

There were statistically significant percentage increases in the deaths allocated to an underlying cause in seven ICD-10 chapters, and significant decreases for five chapters when coded in ICD-10 v2013 (IRIS). However 95% of deaths remained in the same chapter.

A change in the coding of chest infections contributed to a reduction of 2.5% in deaths allocated an underlying cause of respiratory disease and an increase of 7.0% in those allocated to the mental and behavioural disorders chapter, which includes dementia.

Deaths given an underlying cause of dementia were also increased by a rule change to count aspiration pneumonia as being a consequence of one of a number of other conditions. The total percentage change in deaths attributed to an underlying cause of dementia was 7.1%.

Deaths allocated to certain infectious and parasitic diseases as an underlying cause increased 4.9% following the transfer of deaths involving sepsis/Septicaemia from other chapters.

Table 1 Underlying cause of death by Chapter in ICD-10 v2013 (IRIS) and ICD-10 v2010 (NCHS)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>IRIS</th>
<th>NCHS</th>
<th>Change</th>
<th>IRIS</th>
<th>NCHS</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200</td>
<td>4</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>0</td>
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<tr>
<td>2</td>
<td>500</td>
<td>7</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>1000</td>
<td>15</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>2000</td>
<td>30</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Conclusion
The evaluation this change highlights the importance of understanding the consequences of technical classification changes for the comparability of mortality statistics-internationally and over time.

Dual coding studies need careful planning and to be published at the same time as the statistics are made available.

Moving from one automated system to another is a big change for coders. They must be:
- involved from an early stage
- have adequate time for training
- made aware of the impact of ICD updates to their coding activities.

Acknowledgements
We thank the following:
- all the team at the IRIS Institute and the Core group for their help and advice during our preparations to implement IRIS
- the ONS IRIS project team, especially Demelza Tatlock
- the ONS cause coders for their hard work and dedication on production coding and dual coding.

References

The dual coding dataset is also available at this link.
Since the year of death 2011, France uses the international automated coding system Iris for the coding of its causes of death (560,000 a year). The dictionary (index giving a correspondence between a French label and the proper ICD10 code(s)) was derived from a previous coding system and contained all expressions formerly encountered on French death certificates. It was adapted to the functionalities proposed by Iris, especially the Standardization, a module of Iris which transforms a character string into another, using Regular Expressions language (RegEx). The Standardization can be used to transform synonyms and abbreviations or to suppress words. This dictionary contained 158,137 couples label-code (entry), with 142,130 different labels and 6,126 ICD10 different codes. Based on 2011 and 2012 encoding, about 65,000 entries were used for coding, whereas 93,000 were not (rare disease, meaningless labels, misspelled words etc.). We decided to review this French dictionary to optimize it.

### Methods & Materials

We proceeded in 4 steps:
- First, we had to clean up misspelled words, so we checked spelling by an automatic method, using Natural Language Processing (NLP) with a Levenshtein-Damerau algorithm.
- Second, we made decisions about a normalization of the labels: uppercase for drugs, proper nouns and acronyms; suppression of non-alphanumeric characters (!,*,$...), dots (in acronyms or abbreviations) and most articles.
- Third, we replaced each synonym or acronym by a leader term in the dictionary and completed the Standardization module so that each synonym would be transformed into its leader term.
- Finally, we studied the words which have most often no influence on the code choice (“not meaningful”) and suppressed them from the labels where they had no influence, and added them to the Standardization (for example suppression of right, left, important, serious, massive, recent, inoperable, neglected etc.). We suppressed duplications at each step to reduce dictionary’s size.

### Results

The original version contained 158,241 entries. After normalization and spelling correction, 4,428 entries were modified, and 368 were suppressed because they were already in the dictionary and became duplications after the modifications. The suppression of non-alphanumeric characters, dots and articles resulted in 28 entries suppressed, and no modifications (all of these entries already existed). We included in the Standardization the acronyms that had synonyms (for example an English and a French acronym for the same syndrome) suppressing 417 more entries and modifying 842. The simplification work of entries with “not meaningful” words allowed the suppression of 16,626 more entries: 13,671 with the suppression of “right” and “left”, and 2,955 with the suppression of 45 other “not meaningful” words and their derived words (female/plural). All told, we modified 13,989 entries and suppressed 17,439 others, to end up at a final dictionary with 140,802 entries.

### Conclusions

This work already improved the French Iris dictionary but there is still a lot to do. There are still synonyms to be added to the Standardization and “not meaningful” words to be removed to simplify the dictionary. A work on lacking codes for drugs has been done but not implemented in the dictionary yet. We also intend to correct a few grammatical errors using an automatic NLP method, validated by the Computer Science Laboratory for Mechanics and Engineering Sciences (LIMSI-CNRS) and some coding errors which can remain. The dictionary is completed each year with new labels encountered and these additions should be made in agreement with all the modifications that normalization, spelling correction and Standardization imply (maintenance work). At the same time we will apply the spelling correction and normalization modules developed here to a « pre-Iris module » in order to format the certificates’ texts and help the comparison to the dictionary. Once completed, the revised dictionary shall improve automated coding with Iris in French.

### Acknowledgements

Thanks to Gérard Pavillon and the LIMSI-CNRS for their advices.
Introduction

Previous efforts to catalogue the use of the ICD globally have included the creation of the Global Health Metadata Catalogue (GHMC), described as an "online, open access compendium of existing codified health data resources for all officially listed countries" [1]. The GHMC was assembled using a combination of internet searches, telephone interviews, and e-mail and written correspondences. Additional efforts to populate the GHMC are currently being explored through crowd sourcing via web-based courseware [2].

These approaches are labor intensive and may not be the optimal approach for initially detecting the application and use of the ICD globally, especially around less developed countries where administrative health data are scarce. Additionally, the GHMC may become out dated if sequential resources are not applied to it on a regular basis.

One potential solution is to use the existing academic published literature to identify the use of the ICD globally given its importance in medical and health services research.

We conducted an initial PubMed search in July 2015, using the search terms "International Classification of Disease*", "ICD-8", "ICD-9", "ICD-10", and "ICD-11". References were then imported into a literature review software application known as Synthesis [3] where automated text retrieval could occur. Synthesis was used to automatically identify the countries where the published ICD data originates and versions of the ICD, through the use of keywords, from published titles or abstracts.

Each reference was then annotated (tagged) based upon the keywords identified. Summary statistics were produced including, country, ICD version, publications by year, and most frequent journals and mesh headings found.

Results

The PubMed search resulted in 13,430 references. The algorithm used for identifying the country (data origin) located 3882 references where the country name was attached.

<table>
<thead>
<tr>
<th>ICD Version</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD-8</td>
<td>191</td>
</tr>
<tr>
<td>ICD-9</td>
<td>5882</td>
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<tr>
<td>ICD-10</td>
<td>6945</td>
</tr>
<tr>
<td>ICD-11</td>
<td>326</td>
</tr>
</tbody>
</table>

Conclusions

This approach demonstrates how a rapid literature review, with automatic annotating (tagging) of specific keywords or phrases can be used to rapidly extract information from a body of scientific literature.

This information can subsequently be used to identify the global locations and applications where the ICD has been applied. This may be particularly useful in less developed countries where this information is often difficult to determine.

A limitation with this approach is that literature searches are only able to identify the use of the ICD through the titles or abstracts only. Therefore, any mention of ICD contained strictly in the full-text article would not be identified.

Future research in this area, will examine the use of searching PubMed Central which provides full-text searches of publicly available (open-access) articles. Additionally, the country of data origin identification algorithm will be expanded to include states, provinces, cities, and towns.

References

[2] HarvardX massive online open source course (MOOC) ([highq.hsp.harvard.edu](http://highq.hsp.harvard.edu))
Abstract: This poster explains how the ICD coding of mortality and cancer data supports the completeness of cancer statistics in England and Wales. ONS works with other organisations to quality assure cancer registration data, identify cancer deaths and ensure the quality and completeness of the national cancer register.

Introduction

The Office for National Statistics (ONS) is responsible for producing vital events statistics in England and Wales, and works with regional cancer registries through Public Health England (PHE) to maintain the National Cancer Register for England. Complete and accurate ICD-10 coding of causes of death by ONS and ICD -03 coding of tumours by cancer registries is essential to these functions.

Process

Each year ONS processes around 400,000 new registrations of cancer. Cancer registrations are sent by cancer registries in England to PHE, and then to ONS to compile the national register. Following data cleaning the data is shared with the Health and Social Care Information Centre (HSCIC). This enables vital status updates to be returned to registries and medical cohort flagging which is key to research studies.

ONS receives mortality data from the General Register Office (GRO) in the form of death registrations. Around 500,000 registrations are received annually and are used to compile a death register for England and Wales. The textual cause of death descriptions are fed through the IRIS automated coding software tool. This applies around 80% of ICD-10 codes to the textual causes with the remainder of codes applied manually by skilled ICD coders.

Each week ONS provides around 3,000 cancer coded outcomes to cancer registries.

Chart 1. Flow of cancer and mortality data

Quality

The use and importance of ICD coding is embedded throughout the cancer and death registration process. This is vital in ensuring that both registers contain good quality data.

ONS worked closely with European colleagues to develop the IRIS mortality coding software. This in conjunction with intensive training for our coders ensures ONS follows the latest WHO rules. It is imperative codes are assigned correctly as the data to help inform Government policy, and is used by researchers and health professionals to understand trends in different causes of death, evaluate health initiatives and target resources.

Supplying correctly coded death registrations supports cancer registries in improving ascertainment. On receipt cancer registries use death registrations to corroborate known cancer patients. If the patient is unknown the death registration is used to investigate why a cancer registration was not made. This results in either the cancer diagnosis being found or a cancer registration being made solely on the basis of the death registration (Death Certificate Only).

Chart 2. How mortality data contributes to new cancer registrations

The table below details the amount of cancer registrations received at ONS. It highlights how many registrations were made as a result of ONS providing correctly coded mortality data to the registries.

Table 1. Number of DCO registrations

<table>
<thead>
<tr>
<th>Year of Diagnosis</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients identified from ONS mortality data</td>
<td>5572</td>
<td>8152</td>
<td>7461</td>
</tr>
<tr>
<td>Total Registrations</td>
<td>436740</td>
<td>436787</td>
<td>411883</td>
</tr>
<tr>
<td>% of patients identified from ONS mortality data</td>
<td>1.3</td>
<td>1.9</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Outputs & Uses

The ONS cancer incidence publication presents data at the both the three and four digit ICD code level. We include all the Neoplasm’s (C00-D48 ICD-10). When publishing survival data we use the three digit ICD code for a selection of the ‘C’ codes.

Fully coded cause of death data are a vital resource for disease registers, surveys and other research activities in addition to mortality statistics.

For example, ONS also uses the ICD codes when drawing samples for specialist surveys. A survey ONS runs to explore End of Life Care in England utilises ICD codes to ensure the survey is only sent to respondents whose relative was likely to require end of life care. We include deaths where the underlying cause is one of the following:

- Cardiovascular Disease (CVD): ICD–10 codes I00 to I99
- Cancer ICD–10 codes C00 to D48.9
- Other: ICD–10 codes A00 to R99 (excluding CVD and Cancer)
- We exclude any death that was due to accident, suicide or homicide (ICD–10 codes after R99).

Acknowledgements

The authors thank colleagues

- within ONS
- the General Register Office
- PHE and the Cancer Registries in England and Wales,
- the Health and Social Care Information Centre
<table>
<thead>
<tr>
<th>WHO ID</th>
<th>Title</th>
<th>Author(s)</th>
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<tr>
<td>C501</td>
<td>Use cases for ICF: starting ontological work from a practical approach</td>
<td>Martinuzzi; Della Mea</td>
</tr>
<tr>
<td>C502</td>
<td>Standardising the approach to proposal review -suggestions</td>
<td>Jelsma; Miller</td>
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<td>C503</td>
<td>First International Symposium: ICF education</td>
<td>Anttila; Valkeinen; NurmiKoikkalainen; et al.</td>
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<td>C504</td>
<td>ICF education and implementation Project by FDRG and EIC</td>
<td>Sykes; Martinuzzi; ten</td>
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<tr>
<td>C505</td>
<td>Interactive learning – the new colours and sounds of the ICF eLearning Tool</td>
<td>Nepel; Yokobori</td>
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<tr>
<td>C506</td>
<td>Dare to share: towards a portal for ICF education resources</td>
<td>Madden; Snyman; Sykes</td>
</tr>
<tr>
<td>C507</td>
<td>Use of technologies in teaching FCI</td>
<td>Cordero; Melchor; et al.</td>
</tr>
<tr>
<td>C508</td>
<td>Criteria for ICF consultants and educators</td>
<td>Martinuzzi; et al.</td>
</tr>
<tr>
<td>C509</td>
<td>ICF Training Course for Portuguese-speaking Countries</td>
<td>Martins; Santana-Araujo; Kraus de Camargo</td>
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<td>C510</td>
<td>ICF Education in Russia: The Next Milestone</td>
<td>Shestakov; Shoshmin; Besstrashnova; Svitsov</td>
</tr>
<tr>
<td>C511</td>
<td>ICF Education in Finland</td>
<td>Anttila, et al.</td>
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<td>C512</td>
<td>More Video Podcasts to Demonstrate ICF Coding</td>
<td>Hough</td>
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<tr>
<td>C513</td>
<td>Use of case reports in clinical management as educational strategy to teach Biopsychosocial model of ICF</td>
<td>Cid; Zepeda; Gonzales; Rojas</td>
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<td>C514</td>
<td>Disability Management Training Course Quinquennial assessment ICF course - 2009-2014</td>
<td>Scaratti; Schiayolin; et al. Figari; Plandolit</td>
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<td>C515</td>
<td>The design of the ICF-Lab in Flanders</td>
<td>Desnerck; Greetje; et al.</td>
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<td>C516</td>
<td>Application of ICF in Manual Medicine</td>
<td>Aartun; ICF Branch; Cote</td>
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<td>C517</td>
<td>Reading diseases as described in the literature as an unconventional way to validate ICF</td>
<td>Martinuzzi; Martinuzzi</td>
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<td>C519</td>
<td>Rare diseases and disabilities: An Orphanet project to improve the information currently available</td>
<td>De Chalendar; Daniel; Bee; Olry; Gerard; Urbero; Lanneau; Rath Castelpietra; Frattura</td>
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<td>C520</td>
<td>Advantages of using Expanded ICF-Environmental Factors to describe facilitators and barriers in supporting persons with disabilities</td>
<td>Castelpietra; Frattura; Simoncello; Bassi</td>
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<td>C521</td>
<td>How Expanded ICF-Environmental Factors can help to describe Individual Intervention Plans among psychiatric outpatients.</td>
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<td>C522</td>
<td>TEXIEF: a thesaurus of expanded ICF Environmental Factor terms.</td>
<td>Frattura; Bassi; Simoncello</td>
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<td>C523</td>
<td>How to enrich WHODAS 2.0 considering ICF coding and EFs</td>
<td>Frattura; Zavaroni; Bassi; Simoncello</td>
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<td>C524</td>
<td>Personal factors: a challenge for WHO-FIC</td>
<td>Leonardi; Sykes; Madden; Hollenweger; et al.</td>
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<td>C525</td>
<td>Gender &amp; Ethnicity Perspectives as Personal Factors in ICF Assessment and its instruments</td>
<td>Figari; Fernandez Unsain; Ugarte del Campo</td>
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<td>C526</td>
<td>ICF - Body Structure - Second Qualifier Confliction</td>
<td>Abhaya; Kaur</td>
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<td>C527</td>
<td>The ICF Rehabilitation Set</td>
<td>Prodinger; Rastall; et al.</td>
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<td>C528</td>
<td>Lighthouse Project Hand</td>
<td>Kus; Dereskewitz; et al.</td>
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<td>C529</td>
<td>The ICF scheme needs revision</td>
<td>Heerkens; de Weerd; et al. Madden</td>
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<td>C530</td>
<td>Time for an Integrative Measure of Functioning (IMF)</td>
<td>Madden; Fortune; Smith-Merry; Madden</td>
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<td>C531</td>
<td>An information model for the ICF based on activity theory</td>
<td>Hollenweger; Madden; Sykes</td>
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<td>C532</td>
<td>Harmonisation of routinely collected health information based on the ICF</td>
<td>Prodinger; Tennant; Ballert; Stucki</td>
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<td>C533</td>
<td>Getting Re-Started Using ICF Concepts and Codes in the UMLS</td>
<td>Hough</td>
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<td>C534</td>
<td>The infographic Family of Functioning Indicators (FaFI)</td>
<td>Frattura; Simoncello; Castelpietra; Bassi Frattura; Bassi; Roppa</td>
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<td>C535</td>
<td>Is ICF useful to guide the reform of disability determination in Italy</td>
<td>Li; Prodinger; Zhang; Selb; Liu; Reinhardt; Stucki</td>
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<td>C536</td>
<td>Toward the system-wide implementation of the ICF in routine clinical practice in China</td>
<td>van Gool; ten Napel; Heerkens Sengers; Abma; Wilming; Heerkens; Brouwer</td>
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<td>C537</td>
<td>Mapping COOP/WONCA charts to the ICF</td>
<td>Covelli; Contardi; Speziale; Leonardi</td>
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<td>C538</td>
<td>SMBA: towards an evidence-based method to assess work ability</td>
<td>Raggi; Covelli; Meucci; Quintas; Sattin; et al.</td>
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<td>C539</td>
<td>Assessing Needs of Ageing People with Down Syndrome using ICF Model of Functioning and Disability</td>
<td>Levy; Chaleat-Valayer; Fassier; Schott; Letrilliart</td>
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<td>C540</td>
<td>ICF based Patient Reported Outcome measures for Neurological patients</td>
<td>Sattin; Quintas; Raggi; Minicuci; Corso; Vittadello; et al.</td>
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<td>C541</td>
<td>Influence of functional disability and professional context on sick leave prescription for acute low back pain</td>
<td>De Oliveira Brasil</td>
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<td>C542</td>
<td>Measuring functioning, disability, quality of life and well-being in Ageing population in Italy: the IDAGIT study.</td>
<td>Hollenweger; Testot-Ferry; Hunt Leonardi; Raggi; Schiavolin</td>
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<td>C543</td>
<td>ICF a way to build Functional Health Policies</td>
<td>Leonardi; Meucci; Raggi; Carozzino</td>
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<td>Participation and inclusion of children with disability in the schools of Djibuti: the ICF based “School for all project”</td>
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<td>Barueri City: an example of the use of ICF on a large scale</td>
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<td>Sabariego; Coenen; Ballert; Cabello; Leonardi; et al.</td>
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<td>C549</td>
<td>Standardized assessment of functioning in Head and Neck Cancer (HNC)</td>
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Use cases for ICF: starting the ontological work from a practical approach

Authors: Andrea Martinuzzi 1,2, Vincenzo Della Mea3,2

Abstract
One way to establish the first steps towards an ICF ontology is to look at which and how ICF categories and qualifiers have been used in real-life implementations of the classification. In fact, if the ICF Ontology has to be developed by following the methodology adopted for ICD-11, the design of a content model that depicts the various properties of ICF concepts is needed. In turn, to develop it a clear understanding is needed about what and how of ICF is concretely being used in real applications. For this, a sample of use cases that have been currently adopted in a variety of settings might be useful. This because while ICD has few very clear and widely adopted use cases, ICF allows for many applications, whose commonalities are not yet well studied.

During the FDRG mid-year meeting in Helsinki a small group of FDRG members from various countries (Matilde Leonardi, Coen Van Gool, Ann Helene Almberg, Liane Simon, Paivi Nurmi-Koikkalainen, Joanne Valerius, Eduardo Santana de Araujo, Jaehwa Noh) compiled a list of ongoing ICF implementations and a provisional list of modalities by which the classification was used. The grid will be now used to gather information on the actual use of ICF in the six areas of implementation: Clinic, Education, Statistics, Epidemiology, Eligibility. From these data, from one side some clearcut use cases will be described as preliminary material for a revision of ICF in ontological sense. On the other side, ICF concepts can be better substantiated with an operational description of their properties and relationships, in particular in areas where heterogenous approaches are now used for coding, thus enforcing the possibly already logical structure of the classification.

Introduction
The development of the preliminary work towards an ICF ontology has been recognised as a common goal to address some of the problems that are surfacing after more than 14 years of ICF life. This task is a typically inter-Committee/group endeavour, involving to start with FDRG, ITC and FDC. In previous meetings (London 2014, Barcelona 2014) it was acknowledged that while a formal project on ICF ontology needs WHO leadership and substantial resourcing, the involved WHO-FIC components could address some propaedeutic work such as the gathering and characterization of ICF use cases. To this end a structured information grid agreed upon by the stakeholders might greatly ease the task.

Results
The different nationality as well as the different field of ICF implementation represented by the group members was a good element to guarantee sufficient coverage of ICF use cases. An initial grid of attributes and modalities of ICF use was drafted for general discussion. The revised grid was shared with the ITC co-chair and further refined. The list of attributes/modalities is shown below:
• In which area you deployed ICF? (Clinical, Education, Statistics, Epidemiology, Eligibility)
• Are you using ICF or ICF-CY?
• Who was the source of data? (Self-reported or proxy, mono professional, multi professional, Mixed person+professional)
• Which components did you use?
• Regarding AP, how did you use it? (only A, only P, both A and P, None, Overlapped, not used)
• Regarding EF, how did you use it? (Attached to AP, Attached to BS, Attached to BF, Attached to other domains (any), Not used)
• Regarding categories, did you use all of them, free level according to needs, All, but at some fixed level, Restricted: fixed pre selected checklists or sub sets, Restricted: expandable pre selected checklists or sub sets?
• Do you use qualifiers?
• For which components did you use qualifiers?
• Which qualifiers did you use in BS?
• Which numbers did you use in BF qualifiers?
• How do you evaluate capacity?

Conclusions
The ontological work on ICF is a long and complex process that needs a start. The gathering of information on how and where ICF is currently used is a bottom up approach aimed at the delineation of the most significant elements shared in the different settings or characterizing each setting. ICF users around the world are invited to fill in the requested information through the link. From the information that will accumulate the work may then proceed with a better logical characterization of the needs of the ICF Ontology.

Acknowledgements or Notes
The input for all the work group members is gratefully acknowledged.
Standardising the approach to proposal review - suggestions

Authors: Jennifer Jelsma\(^1\), Janice Miller\(^2\)
\(^1\)University of Cape Town, South African Collaborating Centre, URC ICF Co-chair
\(^2\)Canadian Institute for Health Information, FDRG IRG Moderator

Abstract: In 2014, a poster was presented identifying the issues that were associated with extended delay in resolving approval or rejection of ICF update proposals. As an ontological review is not likely to happen in the immediate future, a group met at the mid-year meeting in Helsinki to draw up some criteria which could be used to standardise the approach to reviewing these more complex proposals in the interim. The poster will present the suggestions of this group which included, as examples, "If no compelling reason, place in parent code suggested by proposer." and "Granularity – accept proposals with varying levels of sub-codes, if placed under the appropriate parent code".

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<td>The International Classification of Functioning, Disability and Health (ICF) was adopted in 2001 and, as was expected, increased usage has exposed inconsistencies and deficiencies in the classification. The development of the Children and Youth version of ICF (ICF-CY), released in 2007, did not only add content to the ICF, but identified other issues that needed attention. Following the decision to incorporate the amendments made for the ICF-CY into the foundation layer of the ICF in 2010, a large number of proposals were loaded onto the platform for review. In addition, over the last 4 years, other users have also submitted update proposals for review. Whereas many proposals have undergone review and a conclusion regarding their incorporation into the Foundation Layer of the ICF has been reached by the URC, there are some which, despite much debate have not been resolved. In 2014, we presented a poster highlighting the ontological issues that were raised by certain proposals. However, as an ontological review is not likely to happen in the immediate future, a group met at the mid-year FDRG meeting in Helsinki to draw up some suggestions which could be used to standardise the approach to reviewing these more complex proposals in the interim.</td>
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<td>Example of issues that had been previously raised are presented in the table below.</td>
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| Suggestion: If no compelling reason exists, place the update in the parent code suggested by proposer (e.g. ICF-CY). |
| The following suggestions made: |
| **Multiple parents:** Although multiple parenting are part of modern ontology, it is currently not allowed in ICF. Examples raised included the placement of “Indicating the need for toileting” which could fall under communication or self-care. |
| **Placement of update (e.g. developmental or other):** An example was the inclusion of activity codes in a developmental sequence, e.g. rolling over inserted after standing and bending. |
| **Granularity (e.g. Structure of brain or lung functions):** |
| **Overlap (e.g. Play as a life activity or recreation for children):** |

Methods & Materials

The group was diverse and included members of the URC, experts on ontology and representatives from several different collaborating centres. The results of the review of proposals presented at the 2014 WHO-FIC meeting and the issues raised by the proposals were highlighted. Guiding suggestions which were agreed upon by group consensus were then presented to the Plenary Session and modified following further discussion.

Applicability across the life span (e.g. General movements):
Suggestion: Desirable but allow inclusion even if it only applies to children or other age groups where it is not possible to make description apply to all age groups, or does not make sense.

Naming of health condition (e.g. “as in autism”) |
Suggestion: Health condition should not be included in descriptor notes (inclusions, exclusions)

Weight given to recommendations:
(E.g made by individual comments, expert in the field or Workshop)
Suggestion: Where recommendations have been provided as a result of a dedicated workshop/expert group focussed on particular update(s), provided by a Collaborating Centre or other, these will be given priority consideration

Conclusions and Recommendations

It is hoped that by having generally agreed upon suggestions, the FDRG-URC will be able to achieve consensus on the proposals which have remained unresolved for many years. These suggestions were included in the URC ICF Co-chair’s summary of the FDRG proposals before moving into the Closed Layer for voting. It remains to be seen if they are useful or whether these suggestions will need to be modified or others added.

Acknowledgements

Thanks to the Working Group which consisted of Heidi Anttila, Arna Harardottir, Jennifer Jelsma, Olaf Kraus de Camargo, Haejung Lee, Soraya Maart, Thomas Maribo, Janice Miller, Jack Smith, Stefanus Snyman & Ulrike Trinks.
First International Symposium: ICF education

Anttila H¹, Valkeinen H¹, Nurmi-Koikkalainen P¹, Snyman S², Sykes C³
¹ National Institute for Health and Welfare, Finland; ²Stellenbosch University, South Africa; ³ World Confederation for Physical Therapy, United Kingdom

Abstract
Before the WHO-FIC Functioning and Disability Reference Group (FDRG) and Education and Implementation Committee (EIC) meetings in Helsinki, Finland, a one day free Symposium on ICF education was arranged. We invited abstracts for oral and poster sessions, and held round table discussions and workshops. Poster Booklet and presentations were shared in social media. Participant feedback was collected for planning future educational activities.

Introduction
ICF can be a catalyst for interprofessional education and collaborative practice. However, there are unmet educational needs and, to our knowledge, no international symposia have been arranged to gather interested educators and professionals together to share their expertise and lessons learned.

The First International Symposium: ICF education was held 5th June 2015 in connection with WHO-FIC FDRG and EIC mid-year meetings in Helsinki, Finland.

The strategic intent was to capitalise on the number of educators from around the world present in the same place at the same time to share experiences of teaching about ICF and its applications.

Methods & Materials
The Finnish National Institute for Health and Welfare (THL) announced a call for abstracts on research or practice on following topics:
1. Teaching and learning to apply ICF
2. ICF implementation examples from around the world, and
3. Measurement and ICF.

We received 37 abstracts, of which three were withdrawn. All abstracts were accepted, and divided to three oral and two poster sessions. In addition, we organised a round table discussion on future ICF education need “Why, what, where, when and how ICF education” and two workshops
1. ICF updates, and

A participant survey was sent to collect feedback on success and quality measures.

Results
Fig 2: Vesa Jormanainen, THL Information Management Unit, opened the symposium. Thomas Maribo and Heidi Anttila, collaborators of the WHO-FIC Nordic Collaboration Centre wished the participants welcome.

From 27 countries, 137 attended. Feedback was received from 53 (39% response rate) participants (Table 1). The respondents, mostly social and health care professionals and educators and researchers, gave the symposium a general rating 8.5 on a scale 1-10, where 10 is best.

Table 1: Success of the symposium, as evaluated by the participants (n=53).

| The symposium was beneficial for me professionally. | 3.9 | 4.0 | 4.3 |
| The contents were of high quality. | 4.0 | 4.1 | 4.0 |
| The event provided me with new knowledge and or innovative perspectives. | 3.7 | 3.9 | 4.0 |
| I can apply the lessons learned in the symposium in my work and organisation. | 4.0 | 4.1 | 4.1 |
| The presentation modes and working methods were suitable. | 4.0 | 4.1 | 4.3 |
| The speakers were experts in the subject and knowledge sharing. | 4.0 | 4.1 | 4.3 |
| The practical issues were organised successfully. | 4.0 | 4.1 | 4.3 |
| Overall rating | 4.0 | 4.0 | 4.0 |

Fig 1: Round table discussions at symposium

The most important things learnt:
• All around the world we are struggling with the same problems
• We share common knowledge and understanding - exciting to see such a good understanding of the ICF
• There is an amazing bunch of ICF educators out there
• Variety of possibilities regarding to use of ICF
• New ideas for ICF education regarding to putting into practice
• Practical implementation examples of ICF
• The importance and options for developing online tools (e.g. mICF)
• Desire for shared resources for diverse applications of ICF

Conclusions
To put ICF into practice effectively participants advised a mix of education options. Wishes for the next topics included:

1. International symposia
   • Interprofessional education
   • Global issues
   • Use of ICF by persons with disabilities,
   • ICF and families with children and youth,
   • Clinical and practical use of ICF
   • Environmental factors,
   • ICF and ICD update facts and examples,
   • ICF and outcome measures, information and statistics.

2. National symposia
   • Current use of the ICF in clinical practice,
   • ICF implementation processes,
   • Basic ICF and train the trainer education,
   • Local networking, and bringing functioning as a focus in health care.

3. Smaller workshops
   • Implementation in daily practices in special fields and discipline-specific tools.

Acknowledgements
Organisers from the Ageing, Disability and Functioning Unit at Finnish Institute for Health and Welfare (THL): Sanna Ahola, Sarianna Savolainen, Marika Kangas, Stina Sjöblom, Outi Töyträ & Minna-Liisa Luoma.

Access, quickly, now!

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Organisation
WHO - FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK ANNUAL MEETING 2015

17-23 October 2015
Manchester, United Kingdom
ICF education and implementation Project by FDRG and EIC

Catherine Sykes¹, Andrea Martinuzzi², Huib Ten Napel³, Yukiko Yokobori⁴.

¹World Confederation for Physical Therapy (WCPT), United Kingdom; ²IRCCS Medea, Italy; ³National Institute for Public Health and the Environment, The Netherlands; ⁴Japan Hospital Association Japan.

Abstract  On June 7, 2015 the Functioning and Disability Reference Group (FDRG) and the Education and Implementation Committee of the WHO-FIC Network, held a joint meeting at the National Institute for Health and Welfare (THL) at Helsinki. Though there is cross-membership of FDRG and EIC with individuals attending both meetings, for the first time in the history of the Network meetings, annual or mid-year, the FDRG and EIC held a formal collaborative meeting to address ICF education and implementation. This offered participants the opportunity to be informed about Strategic Work Plan (SWP) work items relevant to ICF education and implementation that require collaboration. A statement was presented at the beginning of the meeting, to direct the work of the cooperative work to develop and provide education on ICF for ICF-users and potential users. This poster presents a report on the meeting and ideas generated.

Introduction

Compared to ICD the ICF has a much shorter history and still requires attention to education and implementation strategies to meet the information needs of WHO member states to support WHO disability, ageing and mental health action plans amongst other competing health priorities. ICF education demand is high and widespread, as shown by a recently completed survey on the ICF education needs (Sykes 2014). ICF education and implementation requires effort from experts in the fields of education, the various areas of possible implementation as well as the technical knowledge of the peculiarities of ICF. To promote and foster ICF education and implementation requires that these two elements interact positively with expertise from those whose key area of interest in ICD benefitting from ICF expertise and vice versa. This type of interaction is fully compatible with the matrix management approach set by WHO when planning the WHO-FIC committees and reference groups. (Figure 1)

Methods & Materials

On June 7th 2015 EIC and FDRG held in Helsinki a joint session satellite to their mid-year meeting. This joint meeting was held in conjunction with the First International Symposium: ICF education hosted by the Finnish National Institute of Health and Welfare, Helsinki; that counted 160 participants from 60 countries were in attendance. (see for further information: https://www.thl.fi/en/web/functioning/what-s-new/events)

The FDRG/EIC session was dedicated to ICF education with the aims to:  
• Review the status of ICF education  
• Identify the needs for ICF education and prioritise projects  
• Draw lines of development for ICF education where FDRG/EIC members and collaborators could contribute. Working groups further elaborated on three thematic areas:  
• Criteria to identify ICF experts & educators  
• Long term needs for ICF education  
• Way ahead for FDRG/EIC collaboration

Results

The joint meeting was hailed by participants and the WHO officers as a productive way to improve the effectiveness of planned actions and promote collaboration within the WHO-FIC Network on specific items. Results of some of the work are detailed in posters 30 & 108. Briefly:  
- a set of minimum criteria for ICF experts and educators was delineated;  
- short and long term steps for ICF education have been identified to be taken and carried forward jointly by EIC and FDRG  
- A prototype online portal for collecting and disseminating ICF education materials has been developed and will be demonstrated at the WHO-FIC annual meeting.

The results of the third group work were the following:  
• Assure cross-membership of FDRG and EIC  
• Assure common meeting times at annual meetings  
• Invite each CC to have within EIC at least one member who has interest/expertise in ICF, where possible.  
• Replicate the practice initiated in Helsinki by planning mid-year meetings in common locations and adjacent dates.

Conclusions

The direct interaction allowed by the FDRG/EIC session held in Helsinki was very positive. The opportunity to focus solely on ICF relevant issues of education and implementation with respect to group/committee Terms of Reference but with an eye on coordination and advancement of SWP items in need for dual input resulted in concrete actions that should produce tangible advancements. This practice exemplified what the theoretical matrix arrangement of WHO-FIC bodies had envisaged at its establishment. This experience may prove beneficial if replicated with other themes involving WHO-FIC bodies.

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<td>ICF ontology and development of ICF data capture using IT</td>
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Acknowledgements

All participants in the joint meeting are acknowledged for their valuable contributions.
Interactive learning –
The new colours and
sounds of the ICF eLearning Tool

Melissa Selb1,2 and Nenad Kostanjsek3

1ICF Research Branch, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications in Germany (at DIMDI), Nottwil, Switzerland; 2Swiss Paraplegic Research, Nottwil, Switzerland; 3Classifications, Terminologies and Standards, World Health Organization, Geneva, Switzerland

Abstract

When we want to compare data across various systems, disciplines and countries using the ICF, we want to ensure that the ICF is understood the same way by all users. This means that the ICF must be taught in a uniform manner. For this purpose, a web-based, self-teaching tool has been developed under the auspices of the EIC and with valuable support of the FDRG. Since 2010, the basic module of the ICF eLearning Tool has been available in both English and Spanish, and has trained countless users and potential users of the ICF. From 2012-2014 the basic module has undergone a major content and structural revision. In addition, a new software, Articulate Storyline, has transformed the revised ICF eLearning Tool into a more interactive training tool. The new ICF eLearning tool brings the ICF to life in colour and sound. This poster hopes to give you a sense (even if only visual) of the enhanced ICF eLearning tool.

Introduction

When we want to compare data across various systems, disciplines and countries using the ICF, we want to ensure that the ICF is understood the same way by all users. This means that the ICF must be taught in a uniform manner.

For this purpose, a web-based, self-teaching tool has been developed under the auspices of the Education and Implementation Committee (EIC) and with valuable support of the Functioning and Disability Reference Group (FDRG).

Since 2010, the basic module of the ICF eLearning Tool has been available in both English and Spanish, and has trained countless users and potential users of the ICF.

Revision ICF eLearning Tool

From 2012-2014 the basic module has undergone a major content and structural revision.

Why?

○ To balance the examples given to also include non-physical disabilities and a broader representation of world regions
○ To enable access using current technology e.g. tablets and mobile devices
○ To bring in interactive elements so that learning the ICF is fun

Some Highlights

Uses the same template from the beginning...
...to the end

Integrates sound as voice-over...

Congratulations, you have completed the ICF eLearning tool

From Lectora to Storyline

For this make-over a new software, Articulate Storyline, has been acquired to transform the revised ICF eLearning Tool into a more interactive training tool.

The new ICF eLearning tool brings the ICF to life – in colour and sound

Interactive learning –
The new colours and
sounds of the ICF eLearning Tool

Melissa Selb1,2 and Nenad Kostanjsek3

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Revision ICF eLearning Tool

From 2012-2014 the basic module has undergone a major content and structural revision.

Why?

○ To update content e.g. WHO-FIC information to include ICD-11, ICHI and reference to joint use of the reference classifications
○ To transform the content in a language that lay persons can better understand

Some Highlights

Uses the same template from the beginning...
...to the end

Integrates sound as voice-over...

Congratulations, you have completed the ICF eLearning tool

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The new ICF eLearning tool brings the ICF to life – in colour and sound
Dare to share: towards a portal for ICF education resources

Ros Madden¹, Stefanus Snyman², Catherine Sykes¹,³
¹University of Sydney, Australia; ²Stellenbosch University, South Africa; ³World Confederation for Physical Therapy, United Kingdom

Abstract
There is acknowledged significant unmet demand for ICF education. Cost effective online educational options are required to complement face-to-face options. Since the ICF is a recognised part of the solution to global inequalities in the health and disability fields, short term action is needed on education, as well as longer-term planning of integrated online courses. It is timely to develop a prototype website enabling sharing and use of online accessible ICF educational resources, to foster, inform and expand ICF use, with priority focus on freely available resources.

Long term vision

With two major WHO educational products now (or soon) available, the next vision should be to create a significant online educational resource suited to diverse audiences. Ideally this resource would provide courses covering (at least) the main topic areas of the ICF Practical Manual, featuring diverse methods of teaching and learning, and educators from around the world. To produce something like a MOOC (massive open online course) within the WHO-FIC governance arrangements is a medium to long term project, requiring considerable resources.

Short term action

Short term action is essential because:

• There is acknowledged significant unmet demand for ICF education [Sykes 2014; Helsinki symposium].
• ICF is a recognised part of the solution to global inequity in the health and disability fields; cost effective online options are required to complement face-to-face educational options.
• There is an increasing number of ‘players’ in the ICF educational field around the world and FDRG/EIC collaborators can offer some form of coordination and ‘light touch’ quality monitoring, to capitalise effectively on these existing resources.

A collaborative network approach is proposed for the development of a comprehensive on-line ICF education resource. The first step is to develop a prototype for evaluation at the 2015 WHO-FIC Network meeting, drawing on assets distributed throughout the network: motivation, expertise and resources. Network collaborators would continue to develop resources for their own purposes, and share these resources via a central repository or make them available to users from their own web sites, via links from a central portal. After evaluation of a prototype by WHO-FIC network members, the network and portal would be opened up to ICF educators, users and students.

The portal will be demonstrated at the WHO-FIC meeting in October 2015.

Acknowledgement: icfeducation.org funders, without whom the portal would not exist.

The prototype Portal

The prototype Portal is an independent website with search features to enable users to locate resources of potential interest to them.

Search parameters:
• Content (e.g. ICF fundamentals, clinical practice, the education of health personnel and information, indicators and statistics)
• Format (e.g. online courses, slide sets, and exercise materials)
• Language of material
• Level (introductory, transitional, specialised)
• Main audience(s) (e.g. service administrators, persons with disabilities, their families and service providers)
• Any conditions of use of resource

Key references: Users are urged to use the resources alongside the ICF.

Terms and conditions are included so that all education resource users and providers are aware of the overall purposes of the Portal and the fact that it is a public good, underpinned by Creative Commons agreements, as well as the responsibilities of all users.

Maintenance, governance, quality: An Editorial Team, comprising those who established and funded the Portal and others who contributed their expertise at the 2015 FDRG/EIC mid-year meetings, will conduct initial fast evaluations of resources offered, chiefly to check relevance; conduct or arrange reviews and ratings; monitor overall contents and seek to ensure coverage of i) the main topic areas and ii) global representation; analyse use patterns, feedback and commentary.
Introduction

The upgrading of equipment coding states is an unquestionable need, however mobilize these groups to the formation increasingly requires costs, so since 2013 the training and upgrading were initiated with the use of technological tools that allow shorten distances, reduce costs without diminishing the quality of education provided; This led to the creation of coding units in the states as a tool that allows us to multiply our efforts at the central level and provide instruments to these units to act as replicators of knowledge across the country. Replication of this practice as an optimization strategy classifications within countries is considered, which will result in increasing the quality of health information on regions.

Method

1.-The establishment of the network encoder: conformed by existing in each of the 24 states encoders. Workshops were conducted to determine the profile of the encoder, as well as their powers, the perpetrator subsequently established by the state to start the activities of the network.

2. Development of a work plan: the initial work focused on creating programs to teach courses, adapting to virtual format at this point he had the support of the Institute of Higher Studies Dr. Arnoldo Gabaldon (IAESP) who provided your Moodle for course placement and the virtual room for meetings with the network. Alongside the Bolivarian University of Venezuela (UBV) he showed interest to practice and request they were provided support for the creation of virtual course coding for students of the degree in Public Health Management.

3. Develop schedule of activities: an activity schedule, which was sent to members of the network encoders with the intention of staff who apply for training in them was established.

4. Training and dissemination relating to FCI-WHO: regards this aspect, virtual training began, as well as attendance by network managers by state, thus becoming multipliers in your area, it always support and supervision of CEVECE

5. Monthly virtual meetings: from the creation of the network of encoders has been made virtual holding monthly meetings to develop the work plan, monitor and analyze the work and share experiences and solve problems.

Conclusions

The FCI-WHO should be taught in a dynamic and adapting to modern times, the technological tools allow us to reach distant cities in real time, saving transportation costs, the challenge is to maintain the quality of class attendance in classes virtual.

The formation of networks in the states encoders allows us to further spread CEVECE activities to small areas in the cities, are instrumental in the spread of the FCI-WHO.

Author responsible for correspondence about the original Dra. Cordero, C., Masters in Epidemiology (UDO) and Demographer. (UCAB).
ICF implementation needs personnel with appropriate expertise in the application of the classification and skilled educators to perpetuate the transfer of knowledge to new and potential users.

As the initiatives for introducing the use of ICF in various areas connected with health and disability are growing in all WHO regions, so are the requests for ICF experts and ICF educators. It becomes thus important to agree on a set of criteria for ICF expertise and education ability to provide guidance to potential commissioners enabling them to make the best choice for their specific need.

Table 1 Proposed criteria for ICF experts and educators

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Expert</th>
<th>Educator</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a CV</td>
<td>Yes</td>
<td>Yes</td>
<td>The CV should give all the relevant information concisely</td>
</tr>
<tr>
<td>Being known to a member of the WHO-FIC Network</td>
<td>Yes</td>
<td>Yes</td>
<td>The Network member organisation provides the best liaison to WHO-FIC network allowing timely monitoring</td>
</tr>
<tr>
<td>At least 2 years of current use of ICF in a relevant setting</td>
<td>Yes</td>
<td>Yes</td>
<td>At least 2 years ICF use have been shown to be necessary to attain sufficient knowledge of the classification and its application to transfer knowledge to others.</td>
</tr>
<tr>
<td>References/recommendations</td>
<td>Yes</td>
<td>Yes</td>
<td>The reference/recommendation may clarify the area of expertise</td>
</tr>
<tr>
<td>Bibliography (published work on ICF)</td>
<td>If available</td>
<td>If available</td>
<td>Referenced papers or publications may substantiate the level and area of expertise</td>
</tr>
<tr>
<td>Knowledge about licence/regulations related to ICF use</td>
<td>Yes</td>
<td>Yes</td>
<td>Commissioners might need advise on these issues and the expert should be capable of providing information or address the query to the appropriate agency.</td>
</tr>
<tr>
<td>Experience in teaching in a setting relevant to ICF use (specified)</td>
<td>No</td>
<td>Yes</td>
<td>The pedagogic ability should be well established</td>
</tr>
<tr>
<td>Experience in ICF teaching at National or International level (specified)</td>
<td>No</td>
<td>Desirable</td>
<td>Previous experiences will provide a record of the educator experiences</td>
</tr>
<tr>
<td>Language(s) in which the person has competence to teach about ICF</td>
<td>No</td>
<td>Yes</td>
<td>The information is relevant for commissioners especially in non-English speaking environment.</td>
</tr>
</tbody>
</table>

Introduction

Methods & Materials

During the FDRG-EIC joint meeting on ICF education held in Helsinki on June 7th 2015 a group of members and collaborators discussed how best to provide relevant information on prospective ICF experts and educators. The group included the authors of this poster. The experience from the ICD training programme was taken in account, together with the peculiarities specific to ICF. The discussion of the small group was then shared in plenary session with all the participants from both EIC and FDRG.

Results

The outcome of discussions was the proposal for a set of minimum criteria defining the two profiles:

- ICF expert
- ICF educator

The proposed criteria are listed in table 1 and proposed content for a curriculum vitae below:

Proposed criteria for CV content

- Demographics
- Principle affiliation
- Other relevant affiliation
- Contact details
- Organization through which she/he connects to WHO-FIC
- Highest level of education
- Qualification to teach
- Specialty (clinical use, statistics etc.)
- Work experience relevant to ICF education and ICF implementation
- Past ICF related commissions
- References/recommendations
- Scientific publications on ICF related matters (no more than 5) (optional)
- Language proficiency

Conclusions

- The EIC-FDRG joint group working on ICF expert/educator criteria proposed a list of criteria defining and describing the two profiles.
- The proposed criteria should be seen only as orientation help and guidance to potential commissioners seeking ICF experts for consultation or education.
- These criteria are now shared with the WHO-FIC community for further discussion.
Abstract
This report presents a pilot project of an ICF course for Portuguese-speaking countries, resulting from two training models implemented and tested in Portugal and Brazil, separately. Lessons learned by trainers from their previous experiences were the starting point for the development of a new format course, investing in a functioning and disability model and classification to meet the needs of each country with regard to health, education and social support.

Introduction
The International Classification of Functioning, Disability and Health (ICF) was published in 2001. However, it is not known enough around the world. Using ICF depends on training. Functioning and disability are complex concepts with interest to a wide range of people including professionals from different areas. Education on ICF may start in all professional and scientific undergraduate courses but may also continue as a continuing professional development.

Methods & Materials
A training model was developed and implemented, first, separately:
- in Portugal - a face-to-face course has been used to train professionals from national institutes, hospitals, rehabilitation centers, special education centers and other social and health institutions, since 2003; based in a teaching/learning methodology to enhance results and applicability by context and written education materials, including practical documents to facilitate implementation in particular settings (Figure 1).
- in Brazil - an online course have been offered by the "Grupo CIF Brasil" to Brazilian professionals, since 2013; available in a free internet model for online courses called Moodle Platform, was organized in four sections, each one contained a video-class, an article and a guide text (Figure 2). Additionally, there were queries, exercises and forums for discussing. The students stayed online during two weeks, about two hours by day and the professor shared information, addressed questions and other forms of learning stimulations. The Moodle Platform offers all the features that are necessary for learning and teaching in online courses. Lessons were recorded by a professional team for videos making.

Results
Besides the educational materials from WHO1,2, both courses developed new education and exercise tools to facilitate integration of knowledge3-4 what are now available as a pilot project for Portuguese-speaking countries, mixing the best of the both models as well as the lessons learned by trainers from their previous experiences.

Conclusions
Whereas the ICF is not yet known enough among professionals/institutions in the Portuguese-speaking countries, even after having a first contact with the model and the classification, they often have difficulty applying it, this training model represents a valuable strategy for disseminating the ICF in the Portuguese-speaking countries. Contacts and initial disclosure of the course was done within some social, health and educational agents/institutions and, in a near future, plans include analyze and discuss with them their specific needs and aims to achieve the best results using the more effective strategies.

References

Acknowledgements
The authors gratefully acknowledge all national institutions, professionals and other participants for their interest and contribution on ICF courses content development and implementation.
ICF EDUCATION IN RUSSIA: THE NEXT MILESTONE
Vladimir Shestakov, Alexander Shoshmin, Yanina Besstrashnova, Alexander Svintsov
St. Petersburg Scientific and Practical Center of Medical-Social Expertise, Prosthetics and Rehabilitation of the Disabled named after G.A. Albrecht, Russian WHO-FIC CC, Russia

Abstract
To implement new approaches on dealing with disabled people in practice a special course was developed. Its total duration is 90 hours and it consists of e-learning and 56 hours of traditional ‘face-to-face’ classes. About 2,500 professionals from 15 most populated Russian regions took part in the trainings.

Introduction
The existing state system of health conditions assessment in Russia is based on the International Classification of Impairments, Disabilities, Handicaps (ICIDH). At the suggestion of the Ministry of Labour and Social Protection of the Russian Federation, one of the steps for transition to rehabilitation with the ICF concepts as a framework was development of the Codifier of Disability Categories. It became a tool (dictionary) to provide relationships of body dysfunctions with assistive products and services. A special course was created for training how to use the Codifier of Disability Categories in daily work. This course addressed to professionals from the Federal State Institutes of Medical and Social Expertise (FSI of MSE) responsible for disability assessment of citizens.

Methods & Materials
The goal of the course is to implement new approaches on dealing with disabled people in practice. Its total duration is 90 hours and it consists of e-learning and 56 hours of traditional ‘face-to-face’ classes. The course is considered as a part of necessary trainings for doctors, psychologists, social workers, and professionals in rehabilitation from the FSI of MSE. The following topics are covered: legal and regulatory framework of rehabilitation, the ICF introduction, structure of the Codifier of Disability Categories and principles of its using, development of social, psychological, medical (ophthalmological, neurological, therapeutic, surgical) sections of individual rehabilitation programmes with the help of the Codifier of Disability Categories. Experts with appropriate background and working experience prepare their materials for the course. All trainees have to pass tests after finishing e-learning part and at the end of the course.

Results
The most of trainings were held in 2011-2012 in accordance with the State Program "Accessible Environment". About 2,500 professionals from 15 most populated Russian regions took part in them (Chart 1).

Chart 1: Russian regions where trainings were held.

An educational website was developed on the base of Learning Management System Moodle. Trainers uploaded their course materials in the form of video lectures, slide sets, additional readings, references etc. Each trainee registered at the educational website, communicated with trainers and passed tests. During trainings 10 online lectures in addition to ‘face-to-face’ ones were given (Chart 2). Only trainees who had registered at the educational website got access to the online lectures. Arranging them provided more flexible schedule, to reduce training costs and enable greater scope.

Chart 2: The educational website. The online lecture.

Distribution of tests results per day showed the greatest activities in working hours and definite activities in evenings (Chart 3). In order to pass final test successfully the trainees used less trials than after finishing the e-learning part. Despite the difficulties caused by some questions 90-100% correct answers were given in the most tests (Chart 4).

Conclusions
From the ICF education perspective this course is advanced and focuses on the practical application of the ICF knowledge and skills. The audience is Russian professionals from the public service, responsible for dealing with disabled people. In case of minor changes in the course programme, trainings might be adopted for professionals from the other countries, especially from the former Soviet ones.

Acknowledgements or Notes
Authors thank the heads of FSI of MSE, where trainings were held, for organization and technical support.

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ICF education in Finland

Anttila H¹, Nurmi-Koikkalainen P¹, Sjöblom S¹, Suomela-Markkanen T², Paltamaa J.³

1 National Institute for Health and Welfare (THL), Helsinki, Finland; 2 Social Insurance Institution (SII), Helsinki, Finland; 3 Jyväskylä University of Applied Sciences, Jyväskylä, Finland

Abstract

A knowledge translation strategy was widely executed to promote education and collaborative learning of the ICF for Finnish social and health care professionals: 1) The Swiss two-day ICF workshop model was translated and adapted to nationwide use, 2) a network of ICF teachers was formed, 3) ICF eLearningTool was translated, and 4) an ICF knowledge package was published at the National Institute for Health and Welfare (THL) webservices.

Introduction

ICF was translated into Finnish in 2004, but its uptake has been hampered due to lack of knowledge how to use it. Previous learning possibilities have been disperse and at basic level. First, the National Institute for Health and Welfare (THL) initiated an ICF learning network in 2012 for social and health care professionals in an open innovation environment for health and welfare called Innovillage www.innovillage.fi. Second, THL and the Social Insurance Institution (SII, Kela in Finnish) took a collaborative effort to introduce a new level of ICF education into Finland.

Activities

ICF education was promoted by:

1) Two-day ICF learning workshops. ICF Research Branch, Switzerland provided materials and structure, THL and SII organised three workshops in spring 2014. All workshop lecture presentations and materials were translated into Finnish, and put available in ICF learning network website in a free open access platform in Innovillage. Over 120 professionals from health care, social care, education, and research attended. Table 1 summarizes feedback from 4 workshops in 2014. In each workshop 4-6 tutors participated all educational activities to learn more in order to organise new workshops themselves.


3) JAMK translated ICF eLearning Tool translated into Finnish, funded by SII.

4) THL published an ICF knowledge package Jan 2013, that was integrated in new national Functioning website at www.thl.fi/toimintakyky, opened November 2014 (Table 2).

Results

Table 1: Learners’ feedback from 4 two-day ICF workshops in Helsinki spring-autumn 2014 (n=92).

<table>
<thead>
<tr>
<th>Meeting the objectives, presentation of information, &amp; performance of exercises</th>
<th>Completed yest (n)</th>
<th>Hardly or no (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The content of the workshop met the objectives set at the beginning</td>
<td>46/44</td>
<td>2/0</td>
</tr>
<tr>
<td>The workshop prepared me well for applying the ICF</td>
<td>19/63</td>
<td>10/0</td>
</tr>
<tr>
<td>The structure of the workshop facilitated learning of the ICF</td>
<td>44/43</td>
<td>5/0</td>
</tr>
<tr>
<td>The language of the workshop was easy to understand</td>
<td>45/43</td>
<td>3/0</td>
</tr>
<tr>
<td>The presentation of information (power point slides) was easy to understand and facilitated the learning of the ICF</td>
<td>45/39</td>
<td>7/1</td>
</tr>
<tr>
<td>The exercises related well to the content and objectives of the workshop</td>
<td>54/33</td>
<td>5/0</td>
</tr>
<tr>
<td>The exercises were suitable</td>
<td>48/34</td>
<td>9/0</td>
</tr>
<tr>
<td>The exercises enhanced the ability to apply the ICF</td>
<td>51/36</td>
<td>5/0</td>
</tr>
<tr>
<td>The number of exercises was adequate</td>
<td>44/37</td>
<td>10/1</td>
</tr>
<tr>
<td>The length of the exercises was adequate</td>
<td>39/34</td>
<td>17/0</td>
</tr>
</tbody>
</table>

Table 2: Audience overview of the ICF knowledge package at www.thl.fi/toimintakyky/icf-luokitus by Google Analytics

<table>
<thead>
<tr>
<th>ICF knowledge package at <a href="http://www.thl.fi">www.thl.fi</a></th>
<th># Page Views</th>
<th># Page Views/ Month (except June – July)</th>
<th>Avg. Session Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a separate package: Jan 13 - Sep 24, 2014 (9 months)</td>
<td>36 400, 26 200 unique</td>
<td>3 100 - 6 200</td>
<td>1:30</td>
</tr>
<tr>
<td>As integrated into the Functioning topic pages: Nov 6 2014 - June 21 2015 (8 months)</td>
<td>33 590, 21 774 unique</td>
<td>2 846 - 5 846</td>
<td>1:37</td>
</tr>
</tbody>
</table>

Conclusions

Lessons learnt:

- The theoretical framework of the ICF has now been learnt by key rehabilitation professionals
- In specialized care ICF still remains to be known only by some professionals e.g. in Oulu and Kuopio University hospitals
- Many professionals already share a wide person-centred and contextual perspective, asking: “What is the additional value of the ICF?”

Future needs:

- Practical examples of structured ICF-based documentation, together with a person-centered approach to support interprofessional evaluation.
- Additional incentives to implement ICF in clinical practice for those with already acquired ICF skills, face to face or video tutoring in the ICF learning network.
- Mandatory education and free tutoring, as costs seem to be the major hindrance in attending ICF education.
- More diverse interprofessional education and dialogue to implement ICF into clinical practice.
- Introduction of ICF to other fields, such as primary and specialized care, psychiatry, social care and special education.
- Seamless connection with the national social and health care reform and renewal of information services.

To support ICF education, THL provides two yearly national ICF update seminars, a mailing list and discussion forum in Innovillage.

Nationwide promotion via Innovillage environment was planned to implement the ICF eLearningTool. This was put on hold, until the Tool becomes available for use at WHO website.

Access, quickly, now!
### Introduction

This poster provides more examples about how a Podcast can be developed as an instructional tool for teaching about the ICF, especially ICF coding. A Podcast is a short audio or video-audio clip with entertainment or educational content, presented in modular form. The word “Podcast” is an English “portmanteau”: it is a new combination of two existing words, in this case “Pod” from the Apple iPod music player, and “cast” from “broadcast.”

A Podcast can have any kind of content. Some are all speech or music, some are short movies, and others involve your favorite TV or radio entertainment shows. A Podcast is determined by its electronic file type, not its content. Conventional file types include those with the “.mp4” and “.wmv” (Windows Media Video) file extensions. People learn about ICF coding most efficiently when using graphical examples; coded photographs are good, but moving pictures, such as in Podcasts, are much, much better.

### “ICF in Action”

The North American Collaborating Center (NACC) has developed a modular ICF instructional Podcast series, and a small set of prototype Podcasts under the heading “ICF in Action.” These are short video clips that have the ICF coding superimposed over those portions of the clips that show functional impairments, activity limitations, or participation restrictions. Although not yet approved for public release, we use these “action-oriented” video clips for our own instruction.

### “Kitchen Adaptations”

The word “Kitchen Adaptations” courtesy of American Foundation for the Blind. Here, an Occupational Therapist assists a visually-impaired man with learning new kitchen and meal-preparation techniques.

### “Vision Simulations”

One important question might be “Where would I find suitable video clips that could be ICF-coded for a Podcast?” The best answer is to utilize video clips that you or your agency already own, to avoid copyright problems. Another answer is to find videos in the Public Domain, namely those released by their original owner without copyright. These are often available for free from governments or public agencies, and often are educational documentaries.

### “Police Response to People with Disabilities”

Our North American Collaborating Center owns the rights to a video produced during the 2001 Center Heads’ Meeting in Bethesda, Maryland.

### “A Conversation with Yerker Andersson”

One of the interviewees was Sociology Professor Yerker Andersson (Gallaudet University), who communicates by signing. We ICF-coded the entire 11-minute signed conversation, in which Yerker described the brand-new ICF.

### Software and Podcast Web Link

We used “screen-capturing software” called “Camtasia Studio,” and video-editing software called “Adobe Premiere Elements,” to produce our Podcasts.

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C512

John F. Hough, Dr.P.H., M.P.H., M.B.A., M.C.H.E.S., C.P.H., F.A.C.E.

CDC National Center for Health Statistics, Hyattsville, Maryland, USA; North American Collaborating Center
Use of case reports in clinical management as educational strategy to teach Biopsychosocial model of functioning and disability (ICF)

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Abstract
The International Classification of Functioning, Disability and Health (ICF) gives us a universal and common language with a variety of applications, because it focuses on patient-based profiles of functioning. Its use in clinical management facilitates follow-up, coordination, collaboration, and continuity at many different levels of intervention. In Chile, physical therapists have participated in professional development courses in which they analyze the ICF categories, considering the level of care in which they work, and propose functioning profiles with indicators that strengthen clinical management in order to coordinate interventions at different levels of care, from an inter-professional perspective and according to the biopsychosocial model of functioning and disability (ICF). A survey was carried out 6 months after the courses had been completed, with the goal of discovering the impact of the courses in three dimensions: "Educational Strategy," "Biopsychosocial Model," and "the ICF improved," and the survey results confirmed the necessity of carrying out multi-professional courses. They also concluded that this educational strategy has high approval among participants, and that the use of ICF does improve clinical management.

Key Words: Educational strategies, Biopsychosocial Model, ICF , Clinical Management, Case Report

Introduction
For three years, a two-level educational strategy has been used (in Chile) to help promote 200 health professionals accurately use this common collaborative terminology to facilitate clinical management and professional intervention planning in acute, sub-acute, and chronic processes, as well as hospital intervention, primary care, return-to-work activities, and/or sports and school inclusion. The two-level strategy uses a general course called "Introduction" which uses group work and development of fictitious case reports. The second level is an application course called "Basic," which can be either group or individual-based. (In the first phase, 60 physical therapists in both the public and private health sectors from Region IV to Region IX in Chile have been trained.) In this course, participants work through real case reports. These two courses are based on the functioning and disability model, the bio-psychosocial model, human rights, social inclusion, cross-disciplinary and clinical application centered on patients with varying health conditions and social contexts. As a final project, students must use real or fictitious case reports to generate and present functioning profiles in varying contexts. The comprehension and application of the model is taught using three teaching methods as an educational strategy: 1) Master class; 2) Discussion; and 3) Demonstration of clinical cases (See Images 1 and 2)

Methods & Materials
A qualitative-quantitative study was carried out regarding the diffusion strategies and impact of the "introduction" and "basic" courses, from the clinical management angle using ICF-based case reports. The qualitative analysis consisted of 13 randomly selected reports made by the professionals after their training. The data analysis performed was the Strengths, Weaknesses, Opportunities, and Threats Analysis. (SWOT). For the quantitative study, an Ad-Hoc measuring tool was applied. The first instrument was sent to 54 participants who were then asked by phone one time to send responses, and 17 responded. The respective statistical analyses were applied to this final sample.

Image 1: Course Methodology

Biopsychosocial Model ICF in Clinical Management

Image 2: Activities and products generated in the ICF course. The map indicates where the participating professionals are from, the type of class forum used, masters classes locations, content tests, case defenses, impact activities (presentations in congresses of cases), and group meetings.

Educational Strategy Dimension:
A high percentage of participants believed that the course helped them improve their intervention plans in their workplaces (94%) and their work plans and patterns (88%). An acceptable percentage of participants agreed that the educational strategies allowed them to improve their own work tasks (71%) and those of their institution (77%). Finally, difficulties in strategies for cross-disciplinary communication were noted, with an acceptance rate lower than 50% (47%).

Clinical Management with ICF-based Biopsychosocial Dimensión:
An important acceptance rate of patient problems was observed with respect to course participants’ improved understanding of new clinical paradigms (100%) as well as high comprehension rates of the different clinical perspectives such as biopsychosocial (88%), human rights (77%), cross-disciplinary (82%) and cross-disciplinary coordination (77%).

Clinical Management and Professional Development Dimension:
The ICF-based model of clinical management has led to better professional performance: in evaluation of patients (88%), teaching strategies (82%), clinical performance (88%) and continuity of research (82%). Presentation of data at scientific events is relatively low (65%).

Table 1: Impact v. Strategy "Introduction" and "Basic" Courses with ICF base.

Positive Strategy (+):
- Improve analysis of patient’s problems
- Improve intervention plans according to patient’s context
- Improve use of biopsychosocial model in patient’s context
- Improve development of work plans and patterns
- Improvement in cross-disciplinary perspective
- Facilitate cross-disciplinary coordination

Negative Strategy (-):
- Improve cross-disciplinary communication strategies

Conclusions
FUTURE IMPROVEMENTS:
- Cross-disciplinary communication must be more accessible.
- Teacher methodology for case development (high level of student approval).
- The teaching methodology for case development is well accepted.

Past experiences in clinical management with ICF are part of the current study, as is the full participation of the three dimensions: "Educational Strategy," "Biopsychosocial Model," and "the ICF improved," and the survey results confirmed the necessity of carrying out multi-professional courses. They also concluded that this educational strategy has high approval among participants, and that the use of ICF does improve clinical management.

Conclusion:
- Cross-disciplinary communication is more accessible.
- Teacher methodology for case development (high level of student approval).
- The teaching methodology for case development is well accepted.

Acknowledgements or Notes
We want to thank the professionals that collaborated on this and have been part of this course, the institutions that support this activity and have carried out the training. We also thank the Past President of the school of kinesiologists (Tomás Hernández) for his constant support, as well as Miss Chelsea Dietsche who constantly aids us with translation assistance.

Further information: Daniel Cid P.T. daniel.cid.chile@gmail.com
Abstract
Disability and Case Management is a multidisciplinary and person-centred methodology that, moving from the needs of the person, and in collaboration with health and social systems, links patients to appropriate service providers and resources across the continuum of health and human services. The Italian approach to disability management is based on biopsychosocial model, in which both the individuals and their environment are the target of intervention. The biopsychosocial model at the base of the WHO ICF Classification, represents the theoretical and conceptual basis of the post-graduate education on 'Disability-case manager and ICF', that started in 2006 at Catholic University in collaboration with the Foundation IRCCS Neurological Institute Carlo Besta, of the course, which is organized on annual basis, includes three weeks of intensive lectures with experts on bioethics, on ICF and related instruments’ use, in social and health policies in relation to school, work, environmental accessibility, human rights and legislation. Thus, Disability managers from Catholic University have a complete ICF training as well as a strong policy and bioethics education. This broad educational approach allows people to deal with the full complexity of creating networks for people with disability in fragmented systems. Since 2006 the course trained around 200 professionals from different parts of Italy and from different sectors, providing new skills to operate with greater awareness and effectiveness in the field of participation of all people.

Introduction
Some chronic health conditions, in which different complex symptoms interact with persons’ lives, may raise important difficulties for finding solutions to multifaceted needs. In particular, when dealing with different service providers, persons might find difficult to manage the complex interactions between health, social, transportation, employment and other services and sectors [1]. Case management is a collaborative process that assesses, plans, implements, coordinates, monitors and evaluates the options and services required to meet clients’ needs that refer to health and human services. The Italian approach to Case Management is based on biopsychosocial model and is not specific of a discipline, such as rehabilitation or mental health, or specific for a group of persons such as the elderly. Rather, it is a multidisciplinary and person-centered methodology, which is suitable for different contexts, settings and age groups. This approach is in line with the ICF, in which disability is defined as a difficulty in functioning at the body, person or societal level, in one or more life domains, as experienced by an individual with a health condition in interaction with contextual factors. On the basis of these premises, in 2006 the Bioethics Centre of Catholic University in collaboration with the Foundation IRCCS Neurological Institute Carlo Besta, developed a post-graduate training on Case Manager and ICF, with a complete ICF training as well as a strong policy and bioethics education.

Methods & Materials
The structure of the course, organized on an annual basis, includes three weeks of intensive frontal lectures with experts in Bioethics, in the International Classification of Functioning, Disability and Health (ICF), in UN Convention on the Rights of People with Disability and in social and health policies, education, labour, accessibility, environment, human rights and legislation. The course starts from the definition of disability, then with the evaluation of the rights and needs of person with disability, and provides the knowledge and the cultural tools to coordinate and activate the network of services for people with disabilities. The course is addressed to graduated students and professionals and aims to provide new skills to operate with greater awareness and effectiveness in the relevant areas.

The main topics of the course are:
- Ethics and anthropology
- ICF: theory, methodology and its applications
- UNCRPD and national Disability Action Plan
- Governance, social and health policies and legislation
- The disability & case management in various contexts
- Good practice of disability management
- Environment and architectural barriers
- Aids and Information technology

Conclusions
Over the years, participants expressed a very positive evaluation of the course attended: on a scale ranging from 1 to 4, they considered the course very useful for their profession (average score 3.6) and that lessons, in particular practical exercises, have been very effective (average 3.8). The main strengths of the course identified by participants were:
- Integration between theory and practice;
- Multidisciplinary and comparison with professionals from different backgrounds;
- The network of collaboration established between the students;
- Competence of teachers.

In 2011 a group of professionals who attended the course founded the Italian Society of Disability Manager (SIDI.Ma.) which aims to create an ICF based national network between the various disability managers of the Italian territory in order to promote participation and the rights of persons with disabilities.
Abstract

This paper aims to share the results of the five-year assessment regarding the impact of this course -Periods 2009/2014- according to the objectives of the program, implemented methodology, professional-working student profiles, expectations and the importance of this classification for students from different fields of action, and reflects the importance and necessity of disciplinary and interdisciplinary training in disability through ICF training tool.

Introduction

Beyond awareness raising activities or training in some of the institutions in which we work, there was no systematic training offer for learning this new tool within the academic community of our country, adding the lack of such provision in undergraduate and postgraduate training and the difficulties encountered in professional practices for the use of health classifications.

The approval by The Argentina Health Minister of the Resolution 675/09, stating the "single model certificate of disability and the evaluation protocol DISABILITY AND CERTIFICATION" based on the International Classification of Functioning, Disability and Health - ICF-, motivates the former coordinator of the Department of Graduate School of Social Sciences to summon our participation in field research and propose us to design a course that would allow access to the knowledge of graduates of this specific tool, which falls within the framework of the new paradigm of functioning and disability and in line with the principles enshrined in the Convention on the Rights of Persons with Disabilities.

Methods & Materials

The course was designed in two levels given its procedural and dynamic nature in the construction of knowledge and application of those classifications, with a duration of 20 hours in each level. Directed to advanced students and professionals the course allows the participant to achieve the level required according to their professional interests. The formation of the teaching staff (psychologist, social and medical assistant) offers an interdisciplinary look.

In every course two surveys are applied. The first on the beginning to know the profile and expectations of the students, and other, at the end, that evaluates different aspects of the course and the relevance of knowledge and ICF application in their professional practices in different work areas.

Results

The sample gathered an N=83 students (90% female and 10% male) from 2009 to 2014. About 54% of the participants were social workers, according to the School where this is provided; 46% corresponds to a variety of professions, the most significant corresponding to Psychologists (10%) and Occupational Therapists (10%).

The ages of the students range from 20-69 years, with the most significant group of 30-39 years (42%).

Regarding the occupational activity of the participants, we adopted the proposed categorization in "Policies, Systems and Services" ICF environmental factors.

The following chart highlights the concerning in Social Security Services (27%), Social Security Systems (19%) and Education and Training Services (15%) as well as the concern of professionals working in Social Security to know and apply the evaluation tool ICF since it was approved as a model certification of disability.

In relation to the expectations of the students we identify mainly those related to the acquisition of knowledge about the functionality- disability process from biopsychosocial approach proposed ICF, incorporating this tool in their professional practices and understanding of certificates disability. Share some of them: "Personally I believe this expanded the look on disability itself and will improve my labor. I not only see the person from the limitations but also from the skills and have a view regarding all of the contextual factors and how they influence in each person" (Social Worker) "In my institutional practice, it helped to assess the positive and enabling factors and constraints to detect the supports that promote the individual independence" (Psychologist), "Incorporating environmental and personal factors as items proposed by the CIF its important, these are dimensions that were not taken into account in my training. It would be valuable to assess from this classification in my workplace" (Occupational Therapist), "I work in the Social Service in an Rehabilitation Hospital. ICF was relevant because is an internationally framework that overcomes the frame and is based on medical aspects prevailing in health institutions and allows a glimpse of people as subjects of rights and building joint interventions" (Social Worker), "To my profession it allows me not only to infer about situations in the community work but frame each particular case on a more serious and relevant guidance" (Degree in Social Policies).

Conclusions

- The real need of professionals to incorporate on their practices monitoring and evaluation tools, highlighting those who want to know and understand the disability certificates.
- The implementation of the ICF classification that allows assess needs, design and management of the activities of a holistic approach to a variety of professional fields.
- Training in interdisciplinary skills.

Notes

In 2005, the authors have integrated the Argentine team and MRBCOSUR network to research the vignettes which were used to establish the reliability of the draft BETA 2 of the ICF proposed by WHO. Besides they participated in cross-national studies on the use of ICCM-2 by Dr. Gregorio Gomez, Argentina, Director of the Master's Degree in Disability appraisal- IAM- Spain 2000/01.
The design of the ICF-Lab in Flanders
Authors: Desnerck Greetje & Veys Jolien
Howest University College, Social work, Bruges, Belgium

Abstract
In 2014 the Department of Social work of Howest, University College West Flanders, initiated ICF-Lab as a projected center of expertise. An increasing number of people and organizations in Flanders and Belgium are willing to start working with the ICF. However, as a result of this increasing interest, also many questions about the practical implementation arise. ICF-Lab wants to educate and support future and current professionals in their application of the ICF. In this poster we present the design of our ICF-Lab as well as our vision about education and support, as developed over the last few months.

Introduction
In Belgium, the ICF is a recently emerging framework. More and more sectors and disciplines want to work in a biopsychosocial way, and want to use the ICF to do so. Various organizations recommend the use of the ICF, which includes the Riziv, the federal agency responsible for the financing of outpatient rehabilitation centers. In the field practitioners are actively looking how to implement the ICF. To prepare students for these changes in the field, it is important to explore how the ICF can get a place in the curriculum. The ICF is a comprehensive framework and classification system which only guides little to how it should be used. This offers great possibilities, but on the other hand it also creates a lot of questions and uncertainty for the users. In facing these challenges, there is a great need for mentoring and coaching to implement the ICF. In light of this need, the ICF-Lab was developed by the Social work Department of Howest.

Methods & Materials
The expertise regarding the use of the ICF was built up during the development of the ICF-Lab. This was done on the basis of a literature study, by an exploratory study of the implementation and use of ICF in outpatient rehabilitation centers and by the use of a Train-the-Trainer course ICF. In the Train-the-trainer course ICF the vision of the center of expertise, ICF-Lab, was created. The vision was created by using mind mapping. Some keywords were written on a poster which were considered as essential elements in developing the vision of the ICF-Lab. By grouping and connecting these elements, a structure was formed. From this structure, the vision statement of the ICF-Lab was formulated and presented to both insiders and outsiders of the Social work Department for feedback.

Results
The exploratory research revealed that employees develop resistance if there are too many expectations and if they are overwhelmed with too much information. Therefore the ICF-Lab stresses a bottom-up approach. By taking into account the strengths of a center, we plan to design a possible implementation approach together with the center and their staff, so that the center and their employees co-own the approach. The employees of the ICF-Lab do not assume an expert role. The ICF-Lab will be focusing strongly on visioning. The ICF is a tool for the translation of the biopsychosocial thinking and should not be a goal in itself. The ICF-Lab aims to support centers and staff in their paradigm shift to a more holistic and circular view of functioning. Empowering and encouraging a participatory attitude are essential elements.

Conclusion
The ICF-Lab aims to support practitioners in the field and future professionals by learning-related activities about the ICF. Practitioners and students foremost need to master the vision of the biopsychosocial model. Only then the ICF can be used as a means to translate thoughts into actions. The added value, the purpose of the ICF must be clear. Expectations and knowledge should be made in an accessible and gradual way to avoid resistance from employees. Therefore the challenges that the staff of an organization meet in the use and implementation of the ICF and the strengths of the staff are the building blocks of a participatory, bottom-up approach. The ICF-Lab wants to apply the principles of the conceptual framework, ICF's vision, into the vision of the ICF-Lab. The attitude of posing as a coach instead of an expert, which includes an empowering attitude that supports staff members’ strengths, is central in this vision. By doing so, the ICF-Lab aims to develop an expertise in coaching organizations and their employees in the implementation of the ICF.

Acknowledgements or Notes
We want to thank Huib Ten Napel for the coaching. Developing the center of expertise and writing a vision statement was a commission within the Train-the-trainer course ICF.
Abstract:
A tool to assess and monitor functioning from a bio-psycho-social perspective is needed in manual medicine. We propose to develop an ICF-based tool for Manual Medicine for standardized reporting and assessment of functioning across countries. Building upon the ICF as an international standard will enable comparison of functioning across health conditions and health disciplines and that allow documentation of the effectiveness of interventions across countries. The tool will be developed in three stages: 1) qualitative study in chiropractic care; 2) scoping review of the literature; and 3) consensus conference of expert clinicians and methodologists in manual medicine. The qualitative study will be conducted in Canada, Norway and Botswana. ICF categories from six domains (body structure, body function, activity, participation, environmental and personal factors) will be identified in the qualitative and scoping review and will be linked to ICF-codes using established linking rules. At the consensus conference, an international multidisciplinary panel of experts in manual medicine will be assembled to select the relevant items of functioning within manual medicine by using the brief ICF Core Set for low back pain (LBP) as a starting point and add relevant categories in the ICF framework identified in the scoping review and qualitative study, comprehensive ICF Core Set for LBP, ICF Rehabilitation Set, ICF Core Set for Chronic Widespread Pain and the previously conducted Delphi study on Manual Medicine. The participants will then review and decide which existing tests and instruments are suitable for assessing the categories selected in part 1 of the consensus conference, and determine what new ICF-based instruments need to be developed, if gaps exist.

Methods and materials
The study will be conducted from September 1, 2015 to May 1, 2017. The development of the ICF-based tool for Manual Medicine will be developed in three stages:

1. **Qualitative study** to identify the components of functioning and contextual factors that are most important to patients treated with manual medicine. A multicenter study (focus groups) will be conducted in Canada, Norway and Botswana. Participants (N=25) will be recruited to participate in focus groups with no more than seven participants per focus group.

2. **Scoping review of the literature** will be conducted to identify instruments/assessments/tests to assess functioning and contextual factors in manual medicine. The search strategy will include terms related to 'low back pain' and 'manipulation'/'mobilitation'.

The aspects of functioning and contextual factors identified in the qualitative study and the scoping review will be linked to ICF-codes using established linking rules.

3. **Consensus conference** where participants will be assembled to determine the components of the ICF-based tool. A 3-day consensus conference will be organized in 2017. Participants (N=23) with different professional backgrounds within manual medicine (e.g., chiropractors, physical therapists, osteopaths, physicians) from all WHO world regions will be invited to attend the consensus conference.

Part 1: **Consensus on what to assess and report**

The brief ICF Core Set for LBP will be used as a starting point. Relevant categories will be added from the
- Qualitative study
- Scoping review
- Delphi Study on Manual Medicine*
- Comprehensive ICF Core Set for LBP
- ICF Rehabilitation Set
- ICF Core Set for Chronic Widespread Pain

Part 2: **Consensus on how to assess and report these aspects**

The participants will review existing tests and instruments and decide which instruments are most suitable for assessing the relevant categories of functioning. In addition, they will decide what new ICF-based instruments need to be developed, if required to fill gaps.

To develop a standardized ICF-based reporting and assessment tool for Manual Medicine.

A research grant application has been submitted to the Norwegian Chiropractic Association. Ellen Aartun is funded through Pierre Côté’s Canada Research Chair award from the Canadian Institutes of Health Research.

**Objective**

**Funding**

**Affiliations**

1. UOIT-CMCC Centre for the Study of Disability Prevention and Rehabilitation, University of Ontario Institute of Technology (UOIT), Oshawa, Canada
2. ICF Research Branch, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications in Germany (at DIMDI), Nottwil, Switzerland
3. Canadian Memorial Chiropractic College (CMCC), Toronto, Canada
Reading diseases as described in the literature as an unconventional way to validate ICF

Michela Martinuzzi1, Andrea Martinuzzi2

Scientific Lyceum "Leonardo Da Vinci", Treviso, Italy

E. Medea Scientific Institute, Italian WHO-FIC CC, Conegliano, Italy

Abstract

Diseases and their consequences on individuals and communities have been the object of detailed and passionate description by poets and writers along the centuries, well before any knowledge on the etiopathology of the various conditions were understood. A paradigmatic example is the description of the great plague by Boccaccio, Manzoni and Defoe. These authors provide an etiology neutral lay way to represent the disease. ICF is proposed as a language accessible to non-professionals and capable to describe health conditions independently from etiology. We thus tried to map the literary accounts of the epidemic of plague in Europe onto the ICF domains and categories as an unconventional way to validate its framework.

Introduction

The International Classification of Functioning, disability and health has been proposed to provide a unified and standard language and framework for the description of health and health related states. As such it should be able to capture the fundamental components of health irrespective of the nature of the health condition, the background of the descriptor, the place and time of the description.

The great epidemics of the past, such as the “black death” (plague) caused by Yersinia pestis infection, with its pervasive effects on individuals and society, stimulated many great authors across the centuries to provide an accurate and passionate description of the plague. The masterly description by lay authors of a specific health condition in different times and settings offers the occasion to test ICF capacity to serve as a unifying lens through which to look at health relevant events across time.

Methods & Materials

We analysed the textual description of plague epidemics in Europe from the IV century BC to the XVII century CE offered by five great writers. The elements emerging from the text were mapped onto ICF components and, when possible, onto categories. A categorical analysis was carried out to group and then to compare the results of the mapping across the various authors analysed.

<table>
<thead>
<tr>
<th>Author</th>
<th>Text</th>
<th>Plague Place</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thucydides</td>
<td>History of the Peloponnesian War, 2.7</td>
<td>Athens</td>
<td>430 BC</td>
</tr>
<tr>
<td>Lucretius</td>
<td>De Rerum Natura, VI</td>
<td>Athens</td>
<td>430 BC</td>
</tr>
<tr>
<td>Boccaccio</td>
<td>Decameron, 1st day</td>
<td>Florence</td>
<td>1348 CE</td>
</tr>
<tr>
<td>Manzoni</td>
<td>I Promessi Sposi, XXXI-XXXII</td>
<td>Milan</td>
<td>1629-30</td>
</tr>
<tr>
<td>Defoe</td>
<td>A Journal of the plague year</td>
<td>London</td>
<td>1664-65</td>
</tr>
</tbody>
</table>

The search for all relevant terms of description in the various texts gave 46 items that could be referred to an ICF component. The mapping on ICF components and categories gave the following results:

<table>
<thead>
<tr>
<th>Body Functions</th>
<th>Body Structures</th>
<th>Activities &amp; Participation</th>
<th>Environmental Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
</tbody>
</table>

Recurrent elements found across all descriptors were the following:

- b152 emotional functions
- d750 informal social relationships
- e214 population
- e550 legal services, systems and policies

If we take into account the timing of the 3 epidemics, corresponding to the two major plague cycles in Europe (the ancient starting in Egypt 1320 BC and ending 542 CE with the plague under emperor Justinian, the middle-modern age epidemic beginning in Caffa 1346 and ending in the XIX century) through the different pattern of ICF categories we can pinpoint differences probably related to the pathology itself: the ancient infection involved the gastrointestinal system and caused mutilations, while in the second wave the cardiorespiratory system was more affected.

Differences also clearly emerge in the social consequences of the disease, probably due to the different responses cities and people had in confronting the danger: the organization of the urban space was relevant in the ancient epidemic while limitation of people movement through gating and house closing was essential in modern times.

<table>
<thead>
<tr>
<th>Author</th>
<th>Body Functions</th>
<th>Body Structures</th>
<th>Activity &amp; Participation</th>
<th>Environmental factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thucydides</td>
<td>b310 b410 b525</td>
<td>s320 s420 s750</td>
<td></td>
<td>e640 e470 d450 d560 d850 d870 e110 e150 e445 e460 e570</td>
</tr>
<tr>
<td>Lucretius</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boccaccio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manzoni</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defoe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally specific aspects of the predisposing conditions favouring the outburst of the infection in different times and places also emerge (e.g. e235-war appears in Thucydided and Manzoni but not in Boccaccio or Defoe).

Conclusions

Our test confirms the capability of ICF to represent the consequences of a given health condition in a unifying language across centuries and cultures. The common language provided by ICF can then be used to study and compare events through a single lens magnifying either the pathophysiology or the psychosocial aspects of any disease.
The International Classification of Functioning, Disability and Health (ICF) is intended to describe the functional situation of a person at a given moment and in a given environment. It is not intended to describe the functional consequences of diseases.

In order to describe those functional consequences of rare diseases, Orphanet derived a controlled vocabulary from the ICF. In addition, Orphanet undertook the annotation of the functional consequences of each RD with the Orphanet Functioning Thesaurus, adapted from the “Activities and participation” and “Environmental factors” domains of the International Classification of Functioning, Disability and Health-Children & Youth version (ICF-CY [1]) and including additional terms to describe cognitive abilities, sleep, temperament and behaviour.

More than 900 RDs are already annotated and hundreds more are in progress, thanks to the contribution of hundreds of people and organisations from 46 countries. These RD disability core sets, which can be integrated into information systems, will be freely available in 7 languages. In addition, we will map the “Body structures” and the “Body functions” domains of the ICF-CY to the Human Phenotype Ontology [2], enabling anatomical structures and physiological functions impaired in each RD to be listed.

This information will increase knowledge and aid in better evaluating and managing the daily difficulties and needs experienced by RD patients. It can also help social services in distributing appropriate disability compensation measures with equity and equality. Finally, it will enable decision makers to assess the social burden of RDs and can be used to establish measures that will allow for the better social integration of disabled people with RDs.

The Orphanet Functioning Thesaurus is composed of 113 terms describing activity limitations and participation restrictions plus 15 additional terms concerning environmental factors having an effect on the disease’s course. Based on this Thesaurus, a questionnaire was elaborated in order to collect this information.

Through this questionnaire, sent to medical experts, disability specialists, and patient organisations, the following data are collected for each RD: activity limitations and participation restrictions, their temporality during the course of the disease (permanent or transient difficulty, delay, loss of abilities), their severity and respective frequency in the patient population with current standard management, and environmental factors of importance for the disease. Data are then analysed and standardised to constitute the Orphanet Functioning Database.

Acknowledgements & notes

2. The Human Phenotype Ontology[http://www.human-phenotype-ontology.org]
Advantages of using Expanded ICF-Environmental Factors to describe facilitators and barriers in supporting persons with disabilities

Castelpietra G., Frattura L.
Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC

Abstract

Expanded ICF-Environmental Factors (EFs) were used to describe facilitators and barriers in 490 outpatients from Region Friuli Venezia Giulia (Italy). EFs considered as facilitators were 95%, whereas EFs considered as barriers were only 5%. The widest range of facilitators and barriers was found in males and in outpatients over 18 years. This findings gave information on both the living condition of the persons with disabilities and on the availability and amount of their supports and services, as recommended by the World Report on Disability.

Introduction

Individuals with disabilities, as stated in the World Report on Disability should be provided with a deep description of their care and living environment. The necessity to “improve the availability and quality of data on disability”, through a data collection based on ICF has been further recommended. Since ICF-Environmental Factors (EFs), however, appear too general to fulfill these goals, the authors attempted to overcome ICF lack of granularity and to better assess the role of essential EFs in the definition of disability. Thus, we aimed to describe the advantages of using Expanded ICF-EFs in order to overcome the low descriptive power of the ICF-EF component; to fulfill the recommendations of the World Report on Disability on collecting data on “the availability and sufficiency of supports and services for persons with disabilities”.

Methods & Materials

A total of 490 outpatients were selected from all the six Local Health Authorities of the Friuli Venezia Giulia region (Italy) during the years 2011-2013 and evaluated with the VilmaFABERTM System, an ICF-based assessment tool. Expanded ICF-EF terms were created from different medical/health classifications and terminologies, and then mapped to ICF-EF codes, further grouped in four groups of the Individual Intervention Plan (Table 1). The Expanded ICF-EF terms were then grouped in facilitators and barriers.

Table 3: Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in the total sample.

<table>
<thead>
<tr>
<th></th>
<th>Facilitators (n = 490)</th>
<th>Barriers (n = 490)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>93.3</td>
<td>5.0</td>
</tr>
<tr>
<td>Median</td>
<td>77</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>0-741</td>
<td>0-99</td>
</tr>
<tr>
<td>Total</td>
<td>48676</td>
<td>2465</td>
</tr>
</tbody>
</table>

Conclusions

The Expanded ICF-EFs allowed a better description of the environment in order to identify its influence on functioning and disability. A plethora of different terms, however, corresponded only to 10% of all Expanded ICF-EF terms provided by the VilmaFABERTM thesaurus. Consequently, only the EFs essential to the patient’s care were highlighted. This allowed a detailed description of the care and living environment of each patient, otherwise unfeasible using only the standard ICF terminology. Expanded ICF-EFs, hence, differed significantly from standard ICF-EFs in terms of quality and quantity. This was in agreement with the need of expanding the granularity of ICF. Facilitators were 95% of the Expanded terms. Furthermore, facilitators and barriers were wide-ranging, particularly in males outpatients and in outpatients over 18 years. This gave information on both the living condition of the persons with disabilities and on the availability and amount as well as the efficiency and efficacy, of their supports and services, as recommended by the World Report on Disability.

Table 5: Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in age groups < 18 and ≥ 18 years.

<table>
<thead>
<tr>
<th></th>
<th>Facilitators (n = 265)</th>
<th>Barriers (n = 265)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>126.9</td>
<td>84.1</td>
</tr>
<tr>
<td>Median</td>
<td>77</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>13-496</td>
<td>0-741</td>
</tr>
<tr>
<td>Total</td>
<td>30187</td>
<td>18489</td>
</tr>
</tbody>
</table>

Table 4: Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in males and females.

<table>
<thead>
<tr>
<th></th>
<th>Facilitators (n = 265)</th>
<th>Barriers (n = 265)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>102.6</td>
<td>95.8</td>
</tr>
<tr>
<td>Median</td>
<td>77</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>0-341</td>
<td>0-384</td>
</tr>
<tr>
<td>Total</td>
<td>23077</td>
<td>20499</td>
</tr>
</tbody>
</table>

Results

Expanded ICF-EF terms related to the outpatient sample were more than 400 out of a total of 5224 terms provided by the thesaurus used by the VilmaFABERTM system (9.5%). The ICF categories considered in the sample were almost 20 out of 24 total ICF-EF categories (83%) (Table 1). Consequently, the Expanded ICF-EFs were 20-fold as higher as ICF-EF categories. EFs considered as facilitators were 95%, whereas EFs considered as barriers were only 5%. The immediate family was both the most common facilitator and barrier. The group describing persons close to the patient and professionals taking care of the patient were also the most common facilitators (56.5%) and barriers (57.5%) (Table 2). The range of facilitators and barriers, calculated at individual level, was wide (0-741 and 0-99, respectively) (Table 3). A wider range was found in males compared to females (Table 4), and in the age group ≥ 18 years compared to < 18 years (Table 5).

References


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How Expanded ICF-Environmental Factors can help to describe Individual Intervention Plans among psychiatric outpatient.

Castelpietra G., Frattura L., Simoncello A., Bassi G.
Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC

Abstract: The distribution of the components of Individual Intervention Plans (IIP) was analyzed in a sample of 133 psychiatric outpatients. The Expanded ICF-EF terms describing social interventions and persons who give support to the patient were the most used (30%). Medications showed the highest variability among the studied outpatients (0–27). The IIP was thus useful to analyze how different combinations of EFs may influence the outcomes of mentally-ill outpatients. It may also contribute to the debate on the development of the International Classification of Health Interventions.

Introduction
To describe Individual Intervention Plans (IIP) and their differences among a sample of psychiatric outpatients, using Expanded ICF-Environmental Factors (EFs) terms; to contribute to the development of the International Classification of Health Interventions with a specific target on mental health.

Figure 1 – Distribution of the four components of the Individual Intervention Plan (N=133)

Methods & Materials
Psychiatric outpatients were selected from the Mental Health Departments of the Friuli Venezia Giulia region (Italy) and evaluated with a new web ICF-based assessment tool, named VilmạFABERM System. The system uses different medical/health classifications and terminologies, mapped to ICF-EF codes, to create Expanded ICF-EF terms, further grouped in four groups:

• health care (e580 expanded terms);
• professionals and non-professionals (Chapter e3 expanded terms);
• technology, personal resources and immaterial goods (Chapter e1 expanded terms);
• welfare (e570, e575, e585, e590 expanded terms).

The IIP was described for each patient by grouping the four groups of Expanded EF terms. Professionals and non professionals (i.e. parents, friends, etc.) were distinguished in the relations group. Pharmacological treatments were mapped to e110 Products and substance for personal consumption and distinguished from other items in technology, personal resources and immaterial goods group.

Results
The psychiatric outpatients evaluated during the years 2011–2013 were 133. Sixty-one per cent (N = 81) were males and 39% (N = 52) were females. The mean age was 33.4 years. A total number of 3098 Expanded ICF-EF terms out of 93 ICF codes were obtained (Table 1). The Expanded ICF-EF terms describing social interventions (welfare group) and persons who give support to the patient (relations group) were the most used (29%), with a range per person of 0–16 (mean = 5.6) and 0–19 (mean = 6.8), respectively.

Figure 2 – Distribution of the four components of the Individual Intervention Plan by colors and Patient ID (N=133)

Terms describing health care services (care group) were the less used (19%), with a range per person of 0–15 (mean = 4.4) (Table 1; Figure 1). The relations group was represented by different professionals for 70%, with a range per person of 0–12 (mean = 5.2). Ninety-five per cent of the technology group was represented by different pharmacological treatments, with the highest range per person of the sample (0–27; mean = 3.9).

Table 1 – Mean, median, range and total number of the four components of the 132 Individual Intervention Plan

<table>
<thead>
<tr>
<th>Health Care (e580 expanded terms)</th>
<th>Professionals and non-professionals (chapter e3 expanded terms)</th>
<th>Technology, personal resources and immaterial goods (chapter e1 expanded terms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean: 4.4</td>
<td>Mean: 6.8</td>
<td>Mean: 5.2</td>
</tr>
<tr>
<td>Median: 4</td>
<td>Median: 7</td>
<td>Median: 5</td>
</tr>
<tr>
<td>Range: 0–15</td>
<td>Range: 0–16</td>
<td>Range: 0–27</td>
</tr>
<tr>
<td>Total: 582</td>
<td>Total: 903</td>
<td>Total: 697</td>
</tr>
</tbody>
</table>

Conclusions
Psychiatric outpatients were more likely to be provided social interventions, rather than health care interventions. This was confirmed at the individual level, with regard to the variability of intervention combinations and to the mean use per person. Medications showed the highest variability among the studied outpatients. This specific information permitted to describe the individualized plan of intervention by a larger number of EFs than those defined in ICF, useful to analyze how different combinations of EFs may influence the outcomes of mentally-ill outpatients. Further, it may contribute to the debate on the development of the International Classification of Health Interventions.

References
2. Castelpietra G, Bassi G, Frattura L. To kill two birds with one stone: how to combine standard terminologies and nomenclatures with ICF environmental factors in epidemiological studies. C524
**Abstract**

In the frame of interoperable EHRs, specific coding systems are mandatory to complete healthcare documents, but ICF is not still considered. ICF usability has been criticized since its categories, including EFs, are too broad to be used in clinical settings. On the other hand the ICF update process is still focused on merging ICF-CY into ICF and updates regarding the EF component are very few or absent. The aim is to overcome the low descriptive power of the ICF EF component, providing a foundation thesaurus of terms (with an ICF suffix) having an increased descriptive power.

**Methods & Materials**

The methodology takes into account: i) a preliminary ICF term extraction process, starting from descriptions and inclusions; ii) integration of the extracted glossary of terms with existing international classifications such as ATC and ISO9999; iii) integration of the extracted glossary of terms with existing national standard terminologies such as terms for describing Health or Social systems and services: iv) semantic mapping of all terms to ICF EF second level categories; and v) creation of new “hybrid” terms with an ICF suffix. The thesaurus was developed in Italian.

**Results**

TExIEF, i.e. a Thesaurus of Expanded ICF Environmental Factors, was developed and it comprises:
1. 176 terms in natural language defining subjects that provide support, assistance and relationships to the patients were defined according to the descriptions provided by ICF and each term was mapped to ICF codes in Chapter 3 (Table 1)
2. 20 terms in natural language defining nutrition and dietetics, including products identified by national regulations and then classified by product groups, were mapped to ICF code e110 (Table 2);
3. 3247 drugs, classified according to ATC codes, were mapped to ICF code e110;
4. 841 ISO-9999 coded products were mapped to ICF codes in Chapter 1 (references 1-3).

5. 87 Essential Levels of Health Care terms, delivered by the Italian National Health System were mapped to ICF code e580;
6. 80 regional social services terms from the Social Services Information System were mapped to ICF code e575.

**Conclusions**

TExIEF included 5224 Expanded ICF-EF terms compared to 74 ICF-EF at the second level categories. It might be considered a basis for a common Multilanguage thesaurus. The English version might be incorporated into a new version of ICF.

---

**Table 1 – The expanded e3 terms**

<table>
<thead>
<tr>
<th>ICF code</th>
<th>Lay-language term</th>
<th>Expanded Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>e310</td>
<td>Partner</td>
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<tr>
<td>e311</td>
<td>Father</td>
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<tr>
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<tr>
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<td>e322</td>
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<td>e324</td>
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<td>e325</td>
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<tr>
<td>e327</td>
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<tr>
<td>e330</td>
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<td>e330 - Religious leader (name surname)</td>
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<tr>
<td>e331</td>
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<td>e331 - Leader (name surname)</td>
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<tr>
<td>e332</td>
<td>Substitute decision-maker</td>
<td>e332 - Substitute decision-maker (name surname)</td>
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<td>e333 - Trustee (name surname)</td>
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<tr>
<td>e334</td>
<td>Guardian (name surname)</td>
<td>e334 - Guardian (name surname)</td>
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<tr>
<td>e335</td>
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<td>e336 - Foster/adoptive parent (name surname)</td>
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<td>Father (name surname)</td>
<td>e339 - Father (name surname)</td>
</tr>
<tr>
<td>e340</td>
<td>Partner (name surname)</td>
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**Table 2 – The expanded e110 terms regarding foods for specific health purposes**

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<th>Lay-language term</th>
<th>Expanded Term</th>
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</thead>
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<td>Baby food: infant formula</td>
<td>e110 - Baby food: infant formula (4AA1A)</td>
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<tr>
<td>e111</td>
<td>Baby food: follow up formula</td>
<td>e111 - Baby food: follow up formula (4AA1B)</td>
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<tr>
<td>e112</td>
<td>Baby food: other</td>
<td>e112 - Baby food: other (4AA1C)</td>
</tr>
<tr>
<td>e113</td>
<td>Baby food: low calorie food</td>
<td>e113 - Baby food: low calorie food (4AA4A)</td>
</tr>
<tr>
<td>e114</td>
<td>Baby food: food for special purposes</td>
<td>e114 - Baby food: food for special purposes (4AA4B)</td>
</tr>
<tr>
<td>e115</td>
<td>Dietetic food: low salt/no-salt food</td>
<td>e115 - Dietetic food: low salt/no-salt food (4AA4C)</td>
</tr>
<tr>
<td>e116</td>
<td>Dietetic food: gluten free food</td>
<td>e116 - Dietetic food: gluten free food (4AA4D)</td>
</tr>
<tr>
<td>e117</td>
<td>Dietetic food: diabetes food</td>
<td>e117 - Dietetic food: diabetes food (4AA4E)</td>
</tr>
<tr>
<td>e118</td>
<td>Dietetic food: food supplements</td>
<td>e118 - Dietetic food: food supplements (4AA4F)</td>
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<tr>
<td>e119</td>
<td>Natural supplements</td>
<td>e119 - Natural supplements (4AA5A)</td>
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<tr>
<td>e120</td>
<td>Synthetic supplements</td>
<td>e120 - Synthetic supplements (4AA5B)</td>
</tr>
<tr>
<td>e121</td>
<td>Vitamins</td>
<td>e121 - Vitamins (4AA5C)</td>
</tr>
<tr>
<td>e122</td>
<td>Antioxidants</td>
<td>e122 - Antioxidants (4AA5D)</td>
</tr>
<tr>
<td>e123</td>
<td>Omega-3 Fatty Acids</td>
<td>e123 - Omega-3 Fatty Acids (4AA5E)</td>
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<tr>
<td>e124</td>
<td>Fiber</td>
<td>e124 - Fiber (4AA5F)</td>
</tr>
<tr>
<td>e125</td>
<td>Calcium</td>
<td>e125 - Calcium (4AA5G)</td>
</tr>
<tr>
<td>e126</td>
<td>Iron</td>
<td>e126 - Iron (4AA5H)</td>
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<td>e127</td>
<td>Vitamin A</td>
<td>e127 - Vitamin A (4AA5I)</td>
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<tr>
<td>e128</td>
<td>Vitamin C</td>
<td>e128 - Vitamin C (4AA5J)</td>
</tr>
<tr>
<td>e129</td>
<td>Protein</td>
<td>e129 - Protein (4AA5K)</td>
</tr>
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**References**

Abstract
The aim is to present an electronic tool developed to assess functioning and disability in lay language that combines the assessment modalities of WHODAS 2.0 and ICF, in order to automatically produce WHODAS 2.0 scores and an ICF functioning profile.

Methods & Materials
- identification of the list of activities explored by WHODAS 2.0 questions
- mapping to ICF according to WHODAS 2.0 domains and subdomains and verification of the symmetry level
- integration of the questionnaire with other questions formulated using the same syntactic structure and natural language of WHODAS 2.0, especially about facilitators and barriers, to apply to each activity analysed
- definition of the rules to transcode answers to WHODAS 2.0 into complete ICF AP categories with the performance qualifier and EF categories with the facilitator/barrier qualifier
- updating of the web assessment tool
- realization of a field test in a sample of adult outpatients.

Table 1 – WAPPIn 1.0 synopsis

<table>
<thead>
<tr>
<th>WAPPIn ID</th>
<th>Question ID</th>
<th>Topic</th>
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<tr>
<td>D1.1</td>
<td>D1.2</td>
<td>Concentrating for ten minutes</td>
</tr>
<tr>
<td>D1.2</td>
<td>D1.2</td>
<td>Remembering to do important things</td>
</tr>
<tr>
<td>D1.3</td>
<td>D1.3</td>
<td>Analyzing and finding solutions to problems</td>
</tr>
<tr>
<td>D1.4</td>
<td>D1.4</td>
<td>Learning new tasks</td>
</tr>
<tr>
<td>D1.5</td>
<td>VFI.3</td>
<td>Dealing with and managing tension</td>
</tr>
<tr>
<td>D1.6</td>
<td>VFI.4</td>
<td>Controlling one’s emotions</td>
</tr>
<tr>
<td>D1.7</td>
<td>VFI.2</td>
<td>Listening to what people say</td>
</tr>
<tr>
<td>D1.8</td>
<td>D1.5</td>
<td>Understanding what people say</td>
</tr>
<tr>
<td>D1.9</td>
<td>D1.6</td>
<td>Having a conversation</td>
</tr>
<tr>
<td>D1.10</td>
<td>VFI.1</td>
<td>Looking at moving objects and people</td>
</tr>
<tr>
<td>D1.11</td>
<td>VFI.5</td>
<td>Understanding people’s expressions and gestures</td>
</tr>
<tr>
<td>D1.12</td>
<td>VFI.6</td>
<td>Understanding sign language (*)</td>
</tr>
<tr>
<td>D1.13</td>
<td>VFI.7</td>
<td>Understanding what is written in a newspaper</td>
</tr>
<tr>
<td>D1.14</td>
<td>VFI.8</td>
<td>Speaking</td>
</tr>
<tr>
<td>D1.15</td>
<td>VFI.9</td>
<td>Making oneself understood without speaking</td>
</tr>
<tr>
<td>D1.16</td>
<td>VFI.10</td>
<td>Communicating by using sign language (*)</td>
</tr>
<tr>
<td>D1.17</td>
<td>VFI.11</td>
<td>Writing on one’s own initiative</td>
</tr>
<tr>
<td>D1.18</td>
<td>VFI.12</td>
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<td>D2.3</td>
<td>Moving around inside one’s home</td>
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<td>D2.4</td>
<td>Getting out of one’s home</td>
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<tr>
<td>D2.5</td>
<td>D2.5</td>
<td>Walking a long distance</td>
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<td>VFI.23</td>
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<td>D2.7</td>
<td>VFI.24</td>
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<td>D2.8</td>
<td>VFI.25</td>
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<td>VFI.21</td>
<td>Turning a knob by using one’s hand and fingers</td>
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<td>VFI.22</td>
<td>Turning a door handle by using arms and hands</td>
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<td>VFI.14</td>
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<td>D4.4</td>
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</tr>
<tr>
<td>D7.17</td>
<td>D7.17</td>
<td>Understanding what is written in a newspaper</td>
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</tbody>
</table>

Figure 1 – The WAPPIn 1.0 web interface

Results
A new version of the WAPPIn questionnaire for adults was developed. It includes 52 (+6) questions for the 6 WHODAS 2.0 domains. For each question, EFs are explored. The 35 (+3) questions of WAPPIn correspond to the 36 questions of WHODAS 2.0 and produce the WHODAS 2.0 summary score. These questions map to 31 ICF AP categories and the answers correspond to 31 ICF AP categories qualified with a performance qualifier. The 17 (+3) additional questions that complete WAPPIn come from 20 ICF AP categories that are not considered in the different WHODAS 2.0 domains. During the field test, the tool was used in a sample of adult outpatients.

Conclusions
The tool allows operators to collect information in natural language and in a user-friendly way.

Evaluators do not have to be trained in ICF use since ICF coding is produced automatically by the ad-hoc developed web assessment system.
Personal factors: a challenge for WHO-FIC

Matilde Leonardi, Catherine Sykes, Richard Madden, Judith Hollenweger, Huib Ten Napel, Stefanus Snyman, Rosamond Madden, Olaf Kraus de Camargo, Alberto Raggi, Coen H van Gool, Andrea Martinuzzi, Nicola Fortune

Abstract

Personal factors (PF), unlike Environmental Factors, are contextual factors not classified in ICF. Several commentators have proposed PF lists, and these have been criticised as lacking definitions and not being based on taxonomic principles. There are also arguments that classifying personal factors may encourage blaming the individual and may result in classifying the person. WHO-FIC needs to develop considered and clearly expressed views in the debate about PF. In the meantime clarifying updates to the ICF PF references should be considered.

Introduction

A general description of Personal Factors (PF) is given in the ICF (Box 1). It is stated that, although they are ‘not currently classified in ICF’, users may incorporate them in their applications of the classification (p.214); PF are noted as a ‘possible future direction for development and application of ICF’ (p.251).

What are the benefits and risks of developing a classification of personal factors in the ICF?

In 2008 the Functioning and Disability Reference Group (FDRG) discussed the possibility of developing a classification of PF. Participants stressed the importance of clarifying the rationale for such a development, articulating why PFs are important in understanding functioning and disability, and weighing concerns that a classification of PF within the ICF could lead to ‘blaming’ the person for their functioning limitations.

Geyh et al. (2011) examine conceptualisations of PF in the scientific literature, and report a broad range of ideas about PF and their potential applications, with PF seen as both affecting and being affected by disease and disability. In light of their findings the authors argue that developing PF within the ICF could be an important step in the direction of implementing person-centeredness, strengthening the individual’s perspective and the rights of people with disabilities’. However, they also point out that often statements made about PF in the literature are not argued for or supported by research evidence.

Drawing on this paper and other literature, Heerken et al. (2012) propose a provisional list of personal factors, consisting of 5 groups, and raise a number of issues for discussion within the WHO-FIC Network.

A further paper (Müller & Geyh 2014) reviews eight categorisations of PF. While they differ in background and structure, they all contain in the content areas covered. Twelve broad content areas are identified. The authors note that none of the categorisation schemes provide a clear conceptualisation of PF, and that the schemes illustrate the potential for overlap between PF and other ICF components. While they see PF as a tool that could increase transparency in documentation and thus guard against discrimination and stigmatisation, the risk of PF ‘burdening the responsibility of disability on the individual’ is again mentioned as an ethical consideration.

Box 1: Statement about Personal Factors (ICF p.19)

‘Personal factors are the particular background of an individual’s life and living, and comprise features of the individual that are not part of a health condition or health states. These factors may include gender, race, age, other health conditions, fitness, lifestyle, habits, upbringing, coping styles, social background, education, profession, past and current experience (past life events and concurrent events), overall behaviour pattern and character style, individual psychological assets and other characteristics, all or any of which may play a role in disability at any level.

Simeonsson et al. (2014) examine the construct of PF against conceptual and taxonomic criteria based on the statement made in the ICF itself that a classification ‘... should be clear about what it classifies: its universe, its scope, its units of classification, its organization, and how these elements are structured in terms of their relation to each other’ (p.7). They note that there is:

- no formal definition of the component
- no inclusion or exclusion criteria
- no taxonomy of codes
- no stated purpose for documentation of PF, and
- overlap of personal factors with other ICF components.

The authors express concern that current ‘uncontrolled applications’ of PF pose ‘significant risks for the status of ICF/ICF-CY as the WHO reference classification’, including potential for misuse in documenting personal attributes, e.g., ‘blaming the victim’.

The PF component was again discussed at the 2015 mid-year FDRG meeting. Participants wrote a joint letter to the journal ‘Disability and Rehabilitation’. Key points included:

- Some PF (e.g., gender, education) are important in explaining functioning, but this does not imply that there is a need to produce a taxonomy.
- Many of the concepts listed in various formulations of PF are contained in other classifications (including the ICD).
- Any future development of the PF component should be guided by the principles of the UN Convention on the Rights of Persons with Disabilities, in particular, that the purpose of data collected should be to assess the implementation of the Convention and to identify and address barriers faced by persons with disabilities in exercising their rights (Article 31, Statistics and Data Collection). (Leonardi et al. 2015)

References

Leonardi M, Sykes. CR, Madden RC, et al. 2015. Do we really need to open a box of personal factors in ICF? Dis & Rehab (submitted)
Abstract

This work is a documentary research on the treatment of the gender and ethnicity perspectives in the ICF instruments and the importance of incorporating these dimensions as dynamic constructions of collective identities and self-identification processes that impact differently in the processes of functioning - disability - of an individual from the practices, relationships and group interactions where social categories should be designed from the biopsychosocial approach.

Introduction

Personal factors are a component of contextual factors but are not classified in ICF or ICF-CY due to the large social and cultural diversity associated with them. Although in both classifications a number of personal factors can be identified, including race and gender that are the subject of this investigation because of its predominantly biological or historical burden and also a source of persecution and discrimination. International Classification of Functioning, Disability and Health is based on the integration of two opposing models and in order to achieve integration of the different dimensions of functioning, the classification uses a biopsychosocial approach. Considering it seems important to rethink the inclusion and scope of these two terms proposed in the present research; as it denotes a kind of conflict between the medical and the social model, and a failure in the attempt to "integrate different dimensions of health from a biological, individual and social perspective" regarding personal factors. We are committed with the vision that the ICF proposes and exposes as "...the legitimate concern of systematic labelling of people, the categories of ICF are expressed in a neutral way, in order to avoid depreciation, stigmatization and inappropriate connotations" and continues "WHO is committed to continuing efforts to ensure that people with disabilities are empowered by classification and assessment and are not overlooked or discriminated". All this motivates us to make this contribution for your consideration.

Methods & Materials

This particular exploratory study seeks to identify within the CIF classifications and instruments the inclusion or exclusion of personal factors such as gender and ethnicity affecting functioning and the disability. Also observing what are the relationships established with the dimensions described as sex, race or population (this last dimension referred to as a category within the contextual environmental factors). The strategy used was the documentary research of ICF (2001), ICF-CY (2006) and ICF instruments (Check list, WHODAS 2.0 and Core Sets) and the triangulation of information sources so that they could be compared in order to find differences in treating the concepts (Navarette, 2006).

Results

Although personal factors are not classified in the ICF (2001) or the ICF-CY (2006), the race and sex categories are listed among others, showing a conflict between biological concepts and self-ascriptions regarding each person. This "evaluation, if necessary, is left to the initiative of the user. Personal factors may include sex, race, age(...)Therefore all together as well as some of them individually may play a role in disability at any level" (pag.27-ICF/2001) In the ICF-CY no longer mentions the concept of race, (pag.44, ICF-CY /2007) Personal factors are contextual factors that deal with the individual such as age, sex, social status, life experiences, etc., which are not currently classified in ICF but which users may incorporate in applying the classification ("Annex I-taxonomic issues and terminology -pag.257 ICF-CY) In the WHODAS 2.0 in Section 2.A1 as in the ICF Check list, demographic information is requested to note sex through two options, female or male. Also, the "population" is not covered by the contextual factors on short list. In Part 4.2 about Personal factors (2.1a version) that impact on functioning it is important to note that sexual orientation and race/ethnicity are listed for the first time together.

While we found raised the difference between sex and gender in WHO pages, we note that in the list of personal factors of the ICF figure "sex" but not "gender". In this matter it is noteworthy that the use of these terms can not be undiscriminated and has implications regarding its implementation and consideration. As a sex concept, referring to biological factors, establishes a biological difference between men and women; instead, the term gender provides a social construction that exceeds the binary system of sexual differences and provides multiple meanings in identity terms spanning subjects and collectives sensibile to these variables in their daily lives, and also -of course- having an impact in the functioning and disability of each individual.

In relation to the race category, and due to the lack of genetic variability; the social sciences and biology have shown that this account categories for only certain observable characteristics at a glance – phenotype-and brings a sense of social history and most negative connotation-as belonging to a socially recognized stereotype. Sometimes the race concept is used as ethnicity like if both would be the same. The concept of ethnicity defines a human group sharing the same culture, history and customs, whose members are united by a sense of identity. The ethnic category cannot escape essentialisms, which is why it may be more advantageous to describe social groups sociologically but may involve the same risk of being a presupposed classification, which may be as prejudiced as the race category and not describing an empirical reality. From this perspective we think that all social classification based on a biopsychosocial approach should be based on self-ascriptions in which the subjects themselves are classified -whether Afroamerican, Qom or Argentine- considering whether these self -ascriptions are rigid with specific practices or associated groups. It is in the idea of a group and as this involves us in certain ways of acting to the world in which we focus, being the group a tangible elementary unit to which we refer.

Conclusions

Considering the comprehensive approach supported by the bio-psychosocial model adopted by ICF and taking into account the contribution that gives us a social anthropological perspective on health, we note the importance of mainstreaming gender and ethnicity as dynamic constructions of collective identities in the processes of self-ascriptions, which may impact -more or less- in the individual's functioning-disability process through practices, relationships and group interactions where social categories should be designed.

Acknowledgements

We thank Dra. Patricia Soliz Nuñez and Fga. Javier Vivanco for their contribution in this work.
**Title**

ICF - Body Structure - Second Qualifier Confliction

**Abstract**

In ICF coding, the second qualifier regarding body structure is used to indicate the nature of the change in the respective body structure. However, in certain clinical conditions, it is possible to apply more than one second qualifier to explain/justify the health condition. Each individual second qualifier may vary with its co-relation to its activity and participation concerns. Coding guidelines for ICF are silent about any such status to how to proceed.

**Introduction**

The ICF has been developed for use in describing functioning and disability. It is reference member of the WHO family of international classifications (WHO-FIC), and complementary to the International Classification of Diseases and Related Health Problems (ICD-10).

The structure of ICF consists of components and constructs while the qualifiers are numeric measures coded after the relevant category code providing meaningful use of the classification because the domains and codes are expressed in neutral language. The qualifier denotes a magnitude of the level of health (e.g., severity of the problem). Without qualifiers codes have no inherent meaning (WHO 2001:222).

Prefix s denotes the domains within the component of body structures and it is supported by three qualifiers. The first qualifier indicates the extent or magnitude of impairment, the second qualifier indicates the nature of the change/impairment, while the third denotes the location of the impairment.

In certain clinical conditions while applying ICF codes for body structure, the application of more than one second qualifier appears to be justifiable as per the clinical condition, observation and findings. There is no rules or guidance provided how to proceed in such conflation of assigning codes in taxonomic and terminological issues in ICF as there are rules, guidelines and conventions that helps to assign codes for morbidity and mortality coding in ICD-10.

**Case Detail**

A 31 year male had a closed fracture shaft of right femur following a motor vehicle accident. He was admitted to emergency with severe pain and unable to bear weight on right lower limb. Tenderness mid shaft right femur with right limb deviated laterally & is shorter than the left lower limb is observed in clinical examination.

The AP & Lateral radiographs confirmed a displaced, oblique right femoral mid shaft fracture. He was put on a long leg splint for three days followed by a intra medullary nailing & bed rest for 4 wks.

**Second Qualifier**

(Nature of Impairment)

<table>
<thead>
<tr>
<th>Second Qualifier</th>
<th>Nature of Impairment</th>
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<tr>
<td>s7</td>
<td>Structures related to movement</td>
</tr>
<tr>
<td>s750</td>
<td>Structure of the lower extremity</td>
</tr>
<tr>
<td>s7500</td>
<td>Structure of thigh</td>
</tr>
<tr>
<td>s75000</td>
<td>Bones of thigh</td>
</tr>
</tbody>
</table>

**Discussion**

Generally in such cases of mid shaft fracture of the femur the bone is completely divided and the fragments of broken bone are pulled by the muscles attached to each of them causing a deviated position of the bone ultimately resulting in aberrant dimensions which is clinically evident by shortening of limb.

Thus while assigning code for body structure and their second qualifier, all the three 4, 5 & 6 are applicable to support the clinical condition.

It is relevant to note that all the clinical features ie pain, inability to bear weight are secondary to fracture (discontinuity) of the bone. The clinical observation of shortening of limb is also secondary to deviated position of the fractured fragments of femur, which are confirmed by radiograph which them self are a squeal of the fracture (discontinuity) of the bone.

Also the priority of restoration of function reducing the resultant disability will also start with alignment of fractured fragments of femur and tying them together with either an internal or external fixator. Later the support by providing physiotherapy of unused muscles will help to restore the normality of activity & participation of the individual.

**Conclusion & Suggestions**

It is suggested that:

1. In absence of any rules or guidelines in ICF for the application of qualifier code in such conditions, it is suggested that the condition should justify the prioritization of clinical relevance (like in this case it is the fracture of bone ie discontinuity that leads to all other)
2. It is further suggested that prioritization of qualifier code may also indicate/relate the interventions helpful in improving functioning (alignment of fractured fragments)
3. Prioritization of qualifier code should enhance data quality for medical purposes related to understanding human functioning.
4. Considering such conflicts it is suggested to formulate rules and guiding principles (like -condition of more clinical relevance, rule of reselection or sequelae) to select appropriate qualifier code.
The ICF Rehabilitation Set: Inspiration for the development of standardised record headings that capture the perspectives of patients with chronic health conditions

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Abstract

Patients are increasingly empowered to take control of their care, and service delivery is seen as a collaborative process. This study aimed to identify the most relevant headings for inclusion in electronic health record based on the perspectives of patients. The World Health Organization’s International Classification of Functioning, Disability and Health (ICF) has served as a starting point to identify meaningful record headings. At the same time, diagramming upon standardised classification systems will facilitate semantic interoperability once information is collected following the implementation of the identified record headings.

Introduction

Shared electronic health records have the potential to empower patients through easier access to their health information, facilitating shared decision-making and responsibility. Specifying the content in health records through standardised headings is valuable and linking it with international reference classifications will facilitate their semantic interoperability.

Methods

A multi-stage, mixed-method approach was performed (first Table on the right). The ICF Rehabilitation Set, proposed as a minimum standard for reporting functioning, served as a starting point.

Results

This study resulted in 16 potential record headings listed in the second Table on the right. All categories of the ICF Rehabilitation Set were considered relevant, with the recommendation to group some categories together into larger information domains. For example, the ICF categories related to walking, moving around, moving using equipment and using transportation from the ICF Chapter d4 Mobility were all subsumed under the heading ‘Mobility and movement’. Additional domains were identified as highlighted in italics.

Discussion

Richer, patient-focused clinical information will
- facilitate the delivery of personalised care planning
- be valuable for secondary uses in audit, public health planning and research fields.

This study complements work to standardise the content and structure of patient clinical records such as the Clinical Documentation and Generic Record Standards programme endorsed by the Academy of Medical Royal Colleges (UK).

Acknowledgements & Reference

This project has been conducted within the scope of the SemanticHealthNet (http://www.semantichealthnet.eu), a European project partly funded by the European Commission. The project team acknowledges the participants of the patients and carers’ workshop and survey, as well as the patient and professional bodies providing feedback in the third and final stage of the project: British Cardiovascular Society, British Kidney Patient Association, British Psychological Society, British Society of Rehabilitation Medicine, College of Occupational Therapists, Croydon Health Services NHS Trust, Lancashire Care NHS Foundation Trust, North Devonshire Clinical Commissioning Group, Nottingham University Hospitals NHS Trust, Renal Association, Royal College of General Practitioners, Royal College of Physicians Patient and Carer Network, Royal Devon and Exeter Foundation NHS Trust, Royal Free London NHS Foundation Trust, Sussex Partnership NHS Foundation Trust, University Hospitals Birmingham NHS Foundation Trust, Yorkshire & Humber Academic Health Science Network.

With the ICF Hand, an ICF-based assessment for hand conditions, data of functioning and environmental factors of patients with hand conditions can systematically be collected and documented in clinical practice using an electronic tool (e-tool). The e-tool also generates structured reports in a standardized way specifying patients’ current functioning status and considering additional information, such as ICD-10 diagnoses, treatments performed and patients’ future needs. The standardized reports facilitate the sharing of information among key healthcare actors and along the continuum of care of patients with any kind of hand condition.

**Introduction**

The Lighthouse Project Hand aims to operationalize and implement the Brief ICF Core Set for hand conditions as a monitoring tool in the treatment and rehabilitation of persons with hand conditions in the institutions of the German Statutory Accident Insurance. As a result, ICF Hand, an ICF-based assessment for hand conditions covering all the categories included in the Brief ICF Core Set, has been established and implemented in clinical routine practice. By means of an electronic tool (e-tool), standardized data of patients’ functioning and environmental factors is systematically collected in the collaborating hospitals. This poster highlights one main feature of the e-tool – the standardized reporting procedure that takes into account the data collected with ICF Hand and other information provided to key healthcare actors on patients with hand conditions along the continuum of care.

**Methods & Materials**

Case history, clinical and data based on the ICF Hand are collected using the e-tool integrated in the Clinical Information System (CIS) of the collaborating hospitals. Data collection is performed along the continuum of care, from the acute phase to rehabilitation. The data collected is systematically compiled and supplemented by text modules to generate the standardized reports.

**Results**

With the information provided in the standardized reports, patients’ current status of functioning as well as changes along the continuum of care can be specified and easily handed out to key healthcare actors, such as residents, therapists as well as insurers, who are involved in the patients’ care process.

All reports are generated automatically and structured in a standardized way. Free-text boxes allow the user to add special annotations for the individual patient. First, general data and case history are reported, such as personal data, profession, diagnosis and surgical interventions (Fig. 2). Second, patients’ actual functioning status is specified based on data collected with the ICF Hand (Fig. 3).

**Graphical processing using symbols, such as colored arrows and smileys, facilitates the reading of functioning data, for example to indicate current functioning status as well as changes over the course of care (Fig. 3).**

**Conclusions**

Using this automatically generated and standardized report assures an overview on functioning aspects and environmental factors assessed with ICF Hand, and facilitates the sharing of information among key healthcare actors and along the continuum of care of patients with any kind of hand condition.

**Acknowledgements**

The Lighthouse Project Hand is a collaborative effort between the Department of Hand Surgery, Plastic- and Microsurgery, BG Trauma Hospital Hamburg (Germany), nine additional hospitals and the Chair for Public Health and Health Services Research, Ludwig-Maximilians-University (LMU) Munich (Germany). The project is funded by the German Social Accident Insurance (DGUV). The responsibility for the content of this poster lies with the authors.

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**Figure 2:** General data and case history comprised in the standardized reports.

**Figure 3:** Reporting of functioning status by graphical processing.
Abstract

This poster presents and discusses alternatives for the ICF-scheme based on an overview of the criticism on the ICF and two discussion meetings with Dutch experts working with the ICF. The alternatives do not jeopardize the application of the ICF, they support the use of the biopsychosocial model, and are more in line with current ideas about health.

Method and materials

The arguments are based on the criticism in the literature on the ICF, the conviction that a change in the ICF-scheme might take away some of the unintended impressions, and the efforts to bring together new ideas about health in the ICF-framework.

The first frequent criticism in the literature is focussed on the position of ‘health condition’ in the ICF-scheme. Furthermore the perception is that the medical perspective is still dominant in the ICF instead of the biopsychosocial perspective. Finally the current ideas regarding health (Huber et al., 2011) need to be incorporated into the scheme.

The possibilities for an adapted scheme have been discussed in two meetings in the Netherlands, where people working with the ICF were brought together to exchange ideas. This has resulted in several alternative schemes; three alternatives are presented in this poster.

Discussion

The alternatives presented on this poster do not jeopardize the application of the ICF, but reduce the importance of diseases / disorders in the scheme, support the use of the biopsychosocial model, and are more in line with current ideas about health.

This study has some limitations, related to its set-up. Although we have used the international literature to look for criticism and alternative schemes, the study only included Dutch experts.

It is challenging to discuss the alternative schemes with experts from other countries.

A strength of the study is that the group of experts was diverse, representing different sectors and backgrounds, but all with expertise in the actual use of the ICF.

Acknowledgements

We wish to express our gratitude to the Dutch experts involved in this study.

Contact & Information

For information and discussion please contact: Yvonne Heerkens / yvonne.heerkens@npi.nl

Figure 1 The present ICF-scheme (WHO, 2001)

Figure 2 the first alternative

Figure 3 the second alternative

Figure 4 the third alternative
Time for an Integrative Measure of Functioning (IMF)

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2 National Centre for Classification in Health, University of Sydney

Abstract

International trends towards person-centred, integrative care and support require any measurement of functioning and disability to meet multiple aims. We recently analysed the information requirements of two major Australian programs – for disability and rehabilitation – and the related unsuccessful searches for measures of functioning and disability. Neither found a measure of functioning suitable for these multibillion dollar programs: one which is relevant to a wide range of people, and capable of indicating support needs, associated costs, progress and outcomes. This dearth of measures has implications internationally, particularly for large service programs. An Integrative Measure of Functioning (IMF) is needed, based on the concepts of functioning and environmental factors in the ICF, and applicable across diverse health conditions, settings and purposes. We illustrate further use cases in public health and mental health.

Introduction

Functioning and disability are measured in the context of complex relationships and interactions among people, communities, services and systems. A result has been the development of a growing array of specialised measurement instruments, specific to purpose, health condition, setting or service provider. An alternative approach, particularly relevant for large national programs, is an integrative, generic measure, relevant to diverse populations and purposes (Madden et al. 2015).

Two Australian searches for measurement tools

Two major national programs in Australia have searched unsuccessfully for a suitable, generic measure of functioning.

Australia’s National Disability Insurance Scheme (NDIS) aims to “support the independence and social and economic participation of people with disability”, provide funding for “reasonable and necessary supports”, and enable them to exercise choice and control in the pursuit of their goals (NDIS Act ss.3, 34, 35). Recording and measurement instrument(s) were required: for understanding the support and environmental changes needed, the methods and costs of meeting them, and to monitor progress.

The second, and equally unsuccessful, search for measures related to activity-based funding for sub-acute hospital patients. The review acknowledged the difficulty of balancing the competing demands of instrument sensitivity, avoiding ceiling and floor effects, clinical utility, ease of completion, and the need for the instrument to be usable across settings.

Results

Analysis of these two searches in Australia revealed common challenges and pointed to apparently similar solutions. In both fields it was concluded that the desired tool should be ICF based, cover the full range of Activities and Participation chapters, take account of environmental factors, and measure “support” or “assistance with functioning”. Given the breadth of the programs and the diverse populations served, instruments specific to health conditions or settings could not be used in either national program. The findings demonstrate the need for a generic, integrative measure of functioning (IMF), applicable in rehabilitation, disability support, and related fields.

Mental health and disability

Measures of functioning have been difficult to use in the context of mental health. Partners in Recovery (PIR) is a national Australian intervention which puts in place support facilitators who link up or buy in services for people experiencing severe and complex mental ill-health. PIR functions in a similar fashion to the NDIS and the two schemes have worked in tandem in the NDIS trial sites. However the lack of a standard IMF has limited cooperation across programs for the benefit of clients who need both services.

Neither scheme has been able to find a suitable measure of functioning which adequately addresses the functioning of people whose needs cross multiple support sectors. The measures used currently are either sector-specific or site-specific, the latter having been developed in an ad-hoc fashion to facilitate cooperation between the two programs. An IMF intervention ‘need for support’ would simplify the service sector interface.

Discussion & Conclusion

These findings have international relevance. An ICF-based IMF that uses measures of “need for support or assistance” would provide a partner instrument to the WHODAS which uses “difficulty” as its measure. Such an IMF could deliver a range of benefits, including supporting person-centred care by providing comprehensive information on functioning across all life domains, facilitating data sharing and communication across service interfaces to promote continuity of care, and reducing the burden and cost associated with repeated assessment.

It could also help harmonise the conceptual approach to and measurement of functioning in chronic disease, aged care and public health where successful functioning is a core aim of the service system.

IMF and public health

At both individual and population levels a broad view of health includes functioning, and demands attention to environmental effects on functioning.

Equity is a fundamental principle of public health. People with disability are typically disadvantaged in their health outcomes due to various structural factors. Information on environmental facilitators or barriers to functioning is needed to inform public health policy that is relevant for people with disabilities. More broadly, documenting aspects of the physical, social, and organisational environment in which public health interventions are implemented is key to understanding how and why they are effective, and the factors likely to be important in scaling up or replicating interventions.

The ICF model has many points of resonance with public health. An ICF-based IMF, incorporating environmental factors, would have utility in a variety of public health applications, and support progress towards a unified epidemiology of health and disability.

References

**Abstract**

At the May meeting members of the Functioning and Disability Group discussed Activity and Participation (A&P) in the light of activity theory with a view to informing ontology development for ICF. This poster outlines the ideas discussed.

**Multiple ontologies**

Is the conceptual difference between A&P adequately represented by the separate definitions? Could ontological distinctions better capture the difference? We hypothesise that there are several underlying concepts, that could benefit from exploration. We also suggest that “functioning and disability” as an “umbrella concept” needs to be based on consistent ontological properties; this is currently not the case. The “body component” splits into function and structure, but represents only one perspective (body). The “A&P component” is split in two perspectives (individual, society), but remains silent on function and structure (WHO 2001, 11, Table 1). Why do we not consider functions and structures of activities as relevant distinctions? And why not consider activities of the brain as entities with potential differences between capacity and performance?

**Function and structure**

The ICF uses “function” and “structure” as categories for the body component. Is it feasible to think of psychological structures and social structures? The answer is yes. Piaget and subsequent cognitive psychologists use concepts like schemes, mental models, etc. to describe cognitive structures used to make sense of experiences. Language and other human-made artefacts (e.g. maps, computers) are seen as cognitive tools mediating and supporting human cognition. Humans also structure their environment to facilitate cognition (e.g. spatial organisation of libraries). Also environments – especially specific social contexts – have an impact on cognition (situated cognition) and human actions. Social structures are stable systems of social relations and social arrangements in society. Social structures regulate and are regulated by actions of individuals, in other words, they emerge from human action and determine human action at the same time. So there may be an important difference between natural environments and social settings. Micro, meso, and macro structures in societies are the “structured” results of human (inter-)action (Bronfenbrenner 1979, Giddens 1984). Elements of the environment become visible and relevant as contexts or tools of human action (Nardi 1997). Biological, psychological and social structures are created through activity and organise human activity (Sannino et al. 2009).

**Involvement in life situations**

So far, we suggested that “activity” (in this broader sense and not ICF’s A) could be an umbrella term at the level of “functioning and disability”. In that case: What brings the biological, psychological and social meaningfully together? According to the ICF (ibid, 3), “domain” is “a practical and meaningful set of related physiological functions, anatomical structures, actions, tasks, or areas of life”. What is meaningful and practical depends on application (use cases), but what does “related” mean? As “functioning and disability is the dynamic interaction between health conditions and contextual factors” (ibid, 8), “related” could be understood as related to a health condition, related to the context of a person’s life or simply related to each other.

We would like to propose that “involvement in a life situation” (P) should be the starting point, in other words the “lived experience” (Ross & Nisbett 2011). Being involved in a life situation brings together biopsychosocial functioning in the context of personal and social factors. Such an approach would be consistent with the concept of health as put forth in WHO’s Ottawa Charter (“extent to which an individual or group is able to realise aspirations and satisfy needs, and to change or cope with the environment”).

**Activity in context**

Is there a way of understanding “activity” that could help clarify issues around the A and P domains? Human activities are composed of a subject (person or group engaged in activity), an object (objective) held by the subject, motivating the activity and giving it a specific direction (purpose), actions, and operations (Nardi 1996). Several operations make up actions, several actions make up activities. Activities are moderated by and mediated by (physical and cognitive) tools, artefacts or habits used as well lived by the (physical and social) context.

**The basic structure of an activity**

The “function of the activity” is defined by its directionality, i.e. by its objective, purpose or motivation. Activities are made up of different coordinated actions, and actions rely on a bundle of routinised operations. For example “writing” is an activity for you and for your audience; for them, writing means involvement in a life situation (school) motivated by the objective of becoming literate and being part of a community. “Writing” is also an activity of professional writers but motives no longer relate to “Learning and Applying Knowledge”, but possibly to “Employment”. For most people, writing is an action with operational aspects in it. Writing as an action can be motivated by different goals, to support memory function (e.g. shopping list), to relate to others (e.g. maintaining a romantic relationship), to communicate (e.g. writing a message), or to solve a problem. Writing words may be so routinised that it becomes an operation. The operational aspects of writing gain importance if changing conditions impede an action’s execution: due to changes in context (e.g. using a computer rather than pen & paper) or functioning (e.g. restricted fine hand use, pain sensation).

**Conclusion**

Introducing “function” and “structure” to the notion of “Activities and Participation” along with the idea of hierarchies (activities, actions, operations) may help clarify the associated concepts of the ICF. Human activity has been introduced here as an umbrella concept involving biological, psychological and social functioning embedded in a personal and social context (Cole 1996). The idea of hierarchies could help delineate the ICF’s “activities” and “participation”. Further discussion is needed here, but thinking along these lines may contribute to the ICF content model.

**References**

**Abstract.** This poster outlines the architecture for a standardized reporting system of health information collected with various existing data collection tools. The architecture rests on a conceptual framework – the structure and content of WHO’s International Classification of Functioning, Disability and Health (ICF), and a measurement framework – the requirements of fundamental measurement satisfied by the Rasch model.

Being able to harmonize existing information allows practitioners and researchers to continue using their existing methods for data collection while being able to report in a standardized manner, thus, enabling comparability. Comparability of various information will benefit evidence-based decision-making across all levels of the health system.

**Introduction.** Health systems are challenged to respond to increasing demands while balancing constrained resources. All decision-makers in the health system, including stakeholders involved in the patient-provider interaction, in the allocation of resources, and in the development of policies and programs, require meaningful and reliable information. Technical advancements in eHealth underline the foundational to the sharing of data. However, the challenge remains – how to harmonize information.

A standardized reporting system that enables harmonization of health information generated through various sources and different tools for data collection is needed to facilitate comparability and aggregation of existing health and related information.

**Methods & Materials.** In this poster, we propose an architecture to harmonize health information by outlining its requirements and relevant methods, and illustrating those with an example.

As illustrated in the Table below, the requirements for an architecture to harmonize existing health information require a conceptual and measurement framework. The ICF, including the ICF linking rules, guide the process of identifying the meaningful concepts and their assignment to the most appropriate ICF categories. Subsequently, fundamental measurement supports the development of a metric to be utilized for invariant comparisons of individuals and populations.

**Requirements.**

<table>
<thead>
<tr>
<th>Common conceptual framework</th>
<th>WHO’s ICF provides the structure of components and their relationships</th>
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<tbody>
<tr>
<td>Measurement framework to enable metric comparability of existing information</td>
<td>Fundamental measurement reveals interval scaled data and enables invariant comparisons of different groups of people</td>
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**Methods.**

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</thead>
</table>

The following Tables and Figure provide a worked example illustrating how a subset of items linked to d4 Mobility from:

- a generic scale (SF-36 Physical function sub-scale),
- a disability specific scale (Health Assessment Questionnaire; HAQ),
- a disease specific scale (Lequesne Index of Severity of Osteoarthritis in the Hip; LEQ),

Chair can be made comparable.

We have conducted a secondary analysis of the North Yorkshire Survey.$^4$

<table>
<thead>
<tr>
<th>Example</th>
<th>Inst. Item</th>
</tr>
</thead>
</table>

**Conclusions.**

The methods toward developing a standardized reporting system by harmonizing existing health information collected with various data collection tools, will enhance the utility of existing health information by making it available in a consistent manner to any stakeholder in the health system. The need for a standardized reporting system is consistent with ISO’s eHealth architecture roadmap.$^5$

**Notes.**

The realization of a standardized reporting system as outlined in this poster is currently pursued within ICF INFO, a collaborative, international network. If you want to follow the project or have further questions, please visit http://www.icf-research-branch.org/icf-info

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**References.**
Schlage vor, dass diese Referenz nicht mehr angegeben ist, um Verwirrung zu vermeiden.

selb_m, 31/07/2015
This poster reintroduces the Unified Medical Language System (UMLS) for ICF users. It is an electronic compendium of more than 100 biomedical vocabularies and classifications. All ICF and ICF-CY codes and labels are now in the UMLS, along with ICD and SNOMED-CT codes. Having WHO Classifications in the UMLS allows matching terms from any source to one or more alternate sources. Upgrades in 2015 now make it easier for ICF users to begin mapping in the UMLS.

**Abstract**

Have you ever needed to “map” or match a specific ICF concept to similar concepts in another biomedical vocabulary, such as SNOMED-CT? If so, you can use the Unified Medical Language System® (UMLS), a product of the U.S. National Library of Medicine (NLM), to work on that. The UMLS facilitates computerized outputs that “understand” the inherent meanings within biomedical terms and concepts. NLM distributes the free UMLS as a product. Although UMLS is free-of-charge, there are some restrictions according to the user’s location.

**Introduction**

Start at the UMLS home page. Many training resources are available. All UMLS users must register and accept the terms of use to download UMLS, its associated software tools (programs) for different, multiple purposes. This poster reintroduces the UMLS, referring to the UMLS Metathesaurus, and the “MetaMap Interactive Mode” in the “Semantic Knowledge Representation” product. Although UMLS is free-of-charge, there are some restrictions according to the user’s location.

**The UMLS’s New “Raw View”**

Click on the tab “Raw View” to expand your search beyond the Metathesaurus. In 2015, the former “Source View” became the “Raw View.” It reveals the Sources from which similar concepts are derived. We entered the term “Toileting” and selected the CUI for “Toileting activity” (C0150810). There are matching concepts in ICF, ICF-CY, SNOMED-CT (in English and its Spanish counterpart “SCTSPA”), the ICNP, the NOC (Nursing Outcomes Classification), and LOINC (Logical Observation Identifiers Names and Codes). You can then easily map ICF code d530, “Toileting,” to exact and closely-related concepts in other Sources, using CUI “C0150810,” instead of the text words “Toileting activity” to search UMLS.

**Improvements to the UMLS “MetaMap”**

“Semantic Knowledge Representation” resources are known as “The Rosetta Stone” tools in UMLS. MetaMap is one such tool, for recognizing UMLS concepts in text. MetaMap visually combines concepts from ICF and your selected Sources, enabling you to determine the quantified degree of matching between concepts. From the UMLS home page, click “Applications,” then “MetaMap.” Enter your ICF text string; we chose “Preparing meals” (d630) and restricted the MetaMap Sources to only ICF and SNOMED-CT. The results gave us the quantitative clue that UMLS CUI C1290962 is an exact match between ICF and SNOMED on the concept of preparing meals.

**New IHTSDO SNOMED-CT Browser**

Raw View outputs the “native” code from each original Source, e.g., above for both ICF & ICF-CY, the native code for “Toileting” is d530. The native code in SNOMED is 129004006, called its “ConceptID.” Having a SNOMED-CT browser open simultaneously with UMLS is helpful, to obtain descriptions of SNOMED concepts using the ConceptID, expressed as “observable entities” or “clinical findings.” Many SNOMED browsers exist. Formerly, the “on-board” SNOMED browser within UMLS had been difficult to use. In 2015, through the courtesy of IHTSDO, UMLS added an improved, user-friendly SNOMED browser. On the new UMLS browser, enter “Toileting.” The browser outputs 11 SNOMED ConceptIDs; 129004006 is only the first. It is an observable entity. Then, select the SNOMED ConceptID that is most closely related to the concept you are trying to map from your ICF-related instrument, survey, or questionnaire over to SNOMED.

**Website Links**

5. SNOMED-CT Browsers: http://ichts.org/fileadmin/user_upload/doc∥browsers/browsers.html

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**Getting Started**

Start at the UMLS home page. Many training resources are available. All UMLS users must register and accept the terms of use to download the UMLS Knowledge Source (UMLSKS) resources, because they are enormous files; instead use “Interactive Mode” on the Internet. Software developers can operate in “batch mode,” but for this demonstration, we are operating in Interactive Mode using single terms at a time. Your goal is to use your eye and brain to make connections between concepts in the ICF and similar concepts in the more than 100 other classifications, terminologies and vocabularies in the UMLS. Pick a term either directly from ICF or about any human function; we selected “Hearing.” Start in “Metathesaurus” and type the word “Hearing.” UMLS returns many similar strings. We selected “hearing impairment,” Each UMLS term has a “Concept Unique Identifier” (CUI).

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**UML Enhances a set of commonly used text strings for your best selection.**
**Introduction**

One of the main problems in functioning/disability description using ICF is to compare persons that are described using different code subsets and different ways for operationalizing the ICF functioning/disability constructs. The aim is to introduce the Family of Functioning Indicators (FaFI), useful to compare individual functioning profiles, and to show the functioning-disability continuum using numbers and colours.

**Methods & Materials**

The functioning/disability distinction is made on the basis of the first ICF qualifier value. The BF, BS, and AP components. Qualifier values 0 and 1, whereas disability is related to the qualifier values 2, 3, and 4. BF categories were grouped into five domains. AP categories were grouped as the ICF does. Different weights were attributed to different categories, referring to a weight table used in another Italian Region that has been implementing ICF (Table 1). The weighted categories were summed up considering the distinction between functioning and disability in order to calculate indicators individually. All the indicators describing Functioning are shown in shades of green, all those describing Disability are shown in red and yellow (Figure 1).

**Table 1 – ICF Components and weights**

<table>
<thead>
<tr>
<th>ICF Component</th>
<th>Groups</th>
<th>Selection of ICF codes</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Functions</td>
<td>Movement and posture-related functions (MF1)</td>
<td>b110, b122, b130, b139</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Sensory Functions (SF)</td>
<td>b139, b154, b160, b165</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Mental Functions 1 (MF2)</td>
<td>b135, b137, b144, b167</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Mental Functions 2 (MF2)</td>
<td>b111, b113, b137, b167</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Other Functions (OF)</td>
<td>b135, b137, b144, b167</td>
<td>0.2</td>
</tr>
<tr>
<td>Social Sciences and Participation</td>
<td>Learning and applying knowledge and information</td>
<td>b20, b21</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>General tasks and demands</td>
<td>b22</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Mobility</td>
<td>b23</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Self-care</td>
<td>b25</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td>b26</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Other Functions (OF)</td>
<td>b27, b28, b29, b30</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Work and leisure</td>
<td>b31, b32, b33</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Community, social and civic life</td>
<td>b34</td>
<td>0.025</td>
</tr>
</tbody>
</table>

**Table 2 – Comparison between groups by disability certification, FR and VilmaFABER EcoLabel (N=173, age < 18 years)**

**Conclusions**

The FaFI allows to compare individuals and their functioning profiles.

**Table 2 – Comparison between groups by disability certification, FR and VilmaFABER EcoLabel (N=316, age = 18-65 years)**

**Results**

The infographic FaFI is composed of:
- Cumulative Functioning Ratio (CFR) in shades of red and green;
- Index of Functioning (IoF) in shades of green, comprising Index of Functioning, environment related (IoFEn) in dark green; Index of functioning, environment free (IoF) in light green;
- Index of Disability (IoD) in shades of red, comprising Index of Disability, environment related (IoDEn) in red; and Index of Disability, environment free (IoDF) in yellow.

**Table 3 – The VilmaFABER EcoLabel (N=316, age = 18-65 years)**

**Table 4 – The VilmaFABER EcoLabel (N=173, age < 18 years)**

**Figure 2** – Functioning Ratio and Disability Ratio for ICF Body Function component

**Figure 3** – Functioning Ratio and Disability Ratio for ICF Activities and Participation component

**Figure 4** – CFR and CDR calculation: example

**Table 4** – The VilmaFABER EcoLabel
**Abstract**
ICF has been used in Italy for more than a decade, without any specific case use. Despite clinical and research uses, its use for eligibility purposes is not clearly recognized. The Italian WHO-FIC CC coordinates a first recognition of how ICF is regulated by laws, in order to verify the consistency of its use in reforming the disability determination in Italy.

**Introduction**
ICF has been used in Italy for more than a decade, without any specific case use. Despite clinical and research uses, its use for eligibility purposes is not clearly recognized. The few national regulations state that Regions are responsible for implementation in certain policies, but they do not provide implementation guidelines. The current Italian Action Plan in favor of persons with disabilities asks to reform the disability assessment criteria. ICF is considered a standard but few data from the Regions are available to reach a consensus on how to proceed.

**Methods & Materials**
In March 2015, a national project funded by the Italian Ministry of Health started in order to: define a technical national group of regional representatives in charge of introducing for the first time a specific mid-term evaluation; collect data on how the Italian regions are using ICF in health, social, education and labor policies; review the way to collect ICF-based data and report on them; study the advantages of introducing a common data set to uniform data collection for national purposes; study if and how an ICF data collection and analysis might be at the basis of new modes to determine disability in Italy.

The Italian WHO-FIC CC is the project coordinator. A preliminary study was carried out before involving specific regions.

**Results**
Data were collected on laws, regulations, assessment tools and projects in which ICF was the conceptual framework and the basis for the collection of coded information at individual level (Figure 1).

Only two regions had collected data through informatic systems and were able to analyze them in order to publish reports (Friuli Venezia Giulia and Veneto).

Some of the regions had chosen to use ICF to individuate target populations for different purposes:
- to distribute social services or social benefits (using different eligibility criteria);
- to assess the functioning status for school inclusion of children with "handicap grave" or special educational needs;
- to support work inclusion for adults certificated as "invalidi civil"
- Only one region had developed a method to use ICF at the basis of a new informatic system, to open individual biopsychosocial records and assess the outcomes of integrated care plans (Friuli Venezia Giulia).
- Different national initiatives had been planned to introduce ICF, without any interministerial coordination.

The role of the Italian WHOFIC collaborating centre was growing.

**Conclusions**
First recommendations for an effective ICF implementation are:
- a task force is necessary to monitor ICF implementation;
- the task force needs to be coordinated by the Italian WHOFIC CC;
- a minimum data set should be defined to minimize the interregional differences, starting from those available;
- a large amount of solid data are necessary to reform any policy.
Towards the system-wide implementation of the ICF in routine clinical practice in China

Jianan Li1,2, Birgit Prodinger1,3,5, Xia Zhang1,2, Melissa Selb1,2, Shouguo Liu1, Jan Reinhardt3,4,6, Gerold Stucki1,3,5

1 The first affiliated hospital of Nanjing Medical University, Nanjing, China; 2 Chinese Association of Rehabilitation Medicine, Beijing, China; 3 Swiss Paraplegic Research, Nottwil, Switzerland; 4 Department of Health Sciences & Health Policy, University of Lucerne, Switzerland; 5 ICF Research Branch, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications in Germany (at DIMDI), Nottwil, Switzerland; 6 Institute for Disaster Management and Reconstruction, Sichuan University; 7 Hong Kong Polytechnic University, Chengdu, Sichuan, China

Abstract China has taken a leadership role in the system-wide implementation of ICF in routine clinical practice. In the past 5 years, implementation efforts that have paved the way toward system-wide implementation include training healthcare professionals in the ICF, pilot-testing of the ICF Generic Set in clinical and nursing settings, development of data collection tools derived from the ICF Generic Set and development of a reference manual on how to apply the ICF Generic Set in patient assessments. This poster aims to introduce the experience and the lessons learned from the last 5 years and present a brief outlook efforts to come.

Introduction

The Global Disability Action plan 2014-2021 identifies as one of its key objectives the collection of appropriate and international comparable data on disability to strengthen rehabilitation in health care systems worldwide. The recognized standard for the collection of disability data and for rehabilitation management is the International Classification of Functioning, Disability and Health (ICF). Currently, the main challenge is to promote the system-wide implementation of the ICF and ICF-based tools, such as the ICF Core Sets, in health systems.

Leaders of Chinese rehabilitation medicine have been instrumental in the efforts to implement the ICF in the rehabilitation system all over China, and ultimately across the entire health care system. This serves as a model case of ICF implementation in progress.

Methods

At the core of the Chinese initiative is a step-by-step implementation process that responds to the realities of changing systems incrementally for smooth and effective transition:

Step 1 - ICF training sessions held by national societies to promote the knowledge of the ICF and ICF-based tools.

Step 2 - Application of the ICF Generic Set in a pilot study covering a wide range of rehabilitation services across China. Careful analysis of the lessons learned from this pilot phase led to step 3.

Step 3 - Development of a data collection tool with so-called ‘simple intuitive descriptions’ of the ICF Generic Set categories. For this data collection tool a reference manual is currently being developed to foster consistent use of the tool.

Results

Step 1: Approx. 10 workshops supported by Chinese national societies were held in the past 5 years. More than 500 rehabilitation doctors, 1000 therapists and 720 nurses were trained.

Step 2: In 2013, a pilot study that included 761 patients from 21 hospitals showed that the ICF Generic Set is feasible for gathering information on functioning during the routine clinical practice, can serve as the basis for a metric score of functioning that is sensitive to change. The pilot study also showed that although the descriptions of the ICF categories define the concept designated by a category and its essential attributes comprehensively, the multidisciplinary staff understood the categories inconsistently.

Step 3: In response, a consensus conference with 21 rehabilitation professionals was held August 2014 in China to develop simple and intuitive descriptions for the categories of the ICF Generic and Rehabilitation Sets.

Discussion

The steps described above are part of a larger effort towards the system-wide implementation of the ICF in routine clinical and rehabilitation practice that would also enable the regular and comprehensive evaluation of health outcomes most relevant for monitoring quality of care.

On a national level, the system-wide implementation in rehabilitation may serve as a future model for the whole health care system. On an international level, the Chinese approach can serve as a model to facilitate ICF implementation in rehabilitation and ultimately in the health care system at large.

Acknowledgements

We would like to thank the participating hospitals and their committed staff who gathered data and provided valuable input during the pilot studies. We especially thank the Chinese health departments at the national and provincial level, and rehabilitation medicine societies who continue to support the efforts in implementing the ICF in routine clinical practice in China.
Mapping COOP/WONCA charts to the ICF

C.H. van Gool\textsuperscript{1}, H. ten Napel\textsuperscript{1}, Y.F. Heerkens\textsuperscript{2}

\textsuperscript{1} WHO Collaborating Centre for the Family of International Classifications in the Netherlands, National Institute for Public Health and the Environment, Bilthoven, The Netherlands, \textsuperscript{2} Dutch Institute of Allied Health Care, Amersfoort, the Netherlands

Abstract

For mapping the COOP/WONCA charts to the ICF, Cieza et al.'s ‘linking rules’ were used, added with some personal observations. The linking rules indicate which principles should be observed when mapping a measurement instrument to the ICF. Based on the results it is concluded that the COOP / WONCA charts do not properly reflect the framework, principles and terminology of the ICF.

Introduction

Since the early 1990’s general practitioners all over the world use the COOP/WONCA Functional Assessment Charts to get an overall impression of patients’ functioning status (WONCA Classification Committee, 1990).

The COOP/WONCA charts (Figure 1) fulfill the need in primary care of a short and straightforward instrument to be used in face-to-face contact with the patient to get an overall impression of his or her performance and or capacity in the areas of self-care and task completion.

As this objective correlates strongly with some of the principles underlying the International Classification of Functioning, Disability, and Health (ICF; WHO, 2007) it is important to know whether the COOP/WONCA charts can be linked to the ICF in terms of content. To date, a mapping between the COOP/WONCA charts and the ICF had not been done.

Methods & Materials

For mapping the COOP/WONCA charts to ICF, we used both the original and updated linking rules by Cieza et al. (2002, 2005), results of which were laid down in a linking table, completed with some systematic observations.

Analyses of the linking table and the observations answered the following three questions:

I Is the Meaningful Concept (MC) from the COOP/WONCA charts being covered by the ICF?

II How well do the MC on the one hand and the chosen ICF category on the other hand correspond in terms of specificity?

III Has the ICF framework been applied? Are all ICF components present? Is there a balance between general versus granular concepts?

Results

Table 1: Results of linking meaningful concepts from COOP/WONCA charts to ICF.

<table>
<thead>
<tr>
<th>Meaningful concepts in ...</th>
<th>#</th>
<th>Covered by ICF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item titles</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Item text</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Item answering categories</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

Results (cont’d)

I In total 36 MCs were identified. Thirty (30) could be linked to ICF. In Table 1 the results from the linking process are shown at different levels. In six cases the MC referred to a non-definable concept; either physical health or general health.

II In terms of specificity of the linked meaningful concepts, in 14 cases it was evaluated that the MCs as identified in the COOP/WONCA charts were more specific than the linked concept from ICF. For example, ‘anxious’ from the COOP/WONCA chart item 4 is linked to ICF code b1522 ‘range of emotions’, which is less specific than anxious alone. Alternatively, in 16 cases it was evaluated that the MCs as identified in the COOP/WONCA charts and the linked concepts from ICF had approximately equal specificity. For example, COOP/WONCA chart item 4 is titled ‘social activities’ which is linked to ICF code d9205 ‘socializing’ with equal specificity.

III The COOP/WONCA charts could only be linked to the ICF components body functions and activities and participation. No MCs could be linked to body structures, nor to personal or external factors. COOP/WONCA chart items 3, 4, 5, and 6 contain cardinal, non-definable MCs which are being causally related to other MCs that can be linked to ICF. This compromises good linkage to ICF of those other MCs.

Conclusions

At present, the COOP / WONCA charts are not ICF-proof, meaning that they do not reflect the framework, principles and terminology of the ICF in a sufficient and satisfactorily way.

Literature


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Figure 1. Dutch COOP / WONCA Charts: they respectively cover the domains of Physical Fitness (1), Feelings (2), Daily Activities (3), Social Activities (4), Change in Health (5) and General Health (6) and Pain (7).
Introduction

The SMBA (in Dutch sociaal medische beoordeling van arbeidswaardegen, in English social medical assessment of work ability) has been developed to help the SSI professionals (social insurance physicians [SIP] and labor experts [LE]) to evaluate a clients’ work ability and to provide indications and/or advise for reintegration support to optimize the use of available work potential. The SMBA incorporates not only a medical/physical perspective, but also a mental and social perspective (biopsychosocial perspective).

An essential element of the method SMBA is a supportive instrument professionals can use in the ability assessment, the MOI (in Dutch methodisch ondersteunend instrument, in English methodical supportive instrument). The SIP and LE can use this instrument in cooperation to determine limitations in activities and restrictions in participation. In the MOI the ICF categories that are considered important for determining the work ability of the individual are included based on expert-based decisions.

Table 1. Methods & Materials

<table>
<thead>
<tr>
<th>Database</th>
<th>Number of Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine (EMbase)</td>
<td>1549</td>
</tr>
<tr>
<td>PsychINFO</td>
<td>73</td>
</tr>
<tr>
<td>Web of Science</td>
<td>459</td>
</tr>
<tr>
<td>Total</td>
<td>1861</td>
</tr>
<tr>
<td>Duplicates</td>
<td>422</td>
</tr>
<tr>
<td>Exclusion on abstracts</td>
<td>325</td>
</tr>
<tr>
<td>Exclusion on article</td>
<td>622</td>
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<tr>
<td>Inclusion on article</td>
<td></td>
</tr>
<tr>
<td>Reference list search</td>
<td></td>
</tr>
<tr>
<td>Included articles</td>
<td></td>
</tr>
</tbody>
</table>

Results and conclusions

The included studies were described in terms of aim of the study, included core set, methods and target population. Finally, the content of the core sets were described. For each included core set the ICF items were marked and listed in a table. Hereby it became clear which of the ICF items were most frequently used.

The overview of ICF core sets and their content will be compared with the content of the SMBA/MOI allowing examination of the SMBA’s construct validity and providing suggestions for further development of the method and instrument. In the next months, the overview of ICF core sets will be described in a scientific paper.

Abstract

Recently, the Dutch SSI (Social Security Institute) has developed a new method based on the ICF framework, so-called SMBA. SMBA is a comprehensive assessment of the individual’s ability to actively participate in the labor market. The first step in this study is a systematic review to identify and describe ICF core sets (existing and in development) to provide evidence-based input for further development of an evidence-based SMBA method.
As many people develop disabilities later in life (United Nations Population Fund & HelpAge (2012), there has been an increasing attention on the relation between disability and ageing (Leonardi et al., 2014) and this also concerns persons with Down Syndrome (DS). The majority of the studies that evaluated elderly persons with DS used a combination of disease-specific instruments and general health profile measures for the evaluation of clinical profiles (Danés, 2012). Other studies investigated the quality of life of people with DS and their families (e.g. Brown et al. 2001; Brown & Brown, 2009), highlighting the impact of the presence/absence of social service provided in the functional decline among people with DS (Brown et al., 2010; Bertoli et al. 2011). For better planning the current and future life of old people with DS, few attempts have been made to investigate their needs through the biopsychosocial approach, accounting for the joint interaction between health condition and the environmental factors.

**Methods & Materials**

A national study, coordinating by Neurological Institute C. Besta (Milan) in collaboration with the main leading Italian associations of people with DS (ANFFAS and AIPD) were realized.

**Design.** A cross-sectional design study was adopted. We convened four focus groups (one in Milan, one in Rome and two in Catania) with health or social professionals, and family members of elderly persons with DS (over 45 years old).

**Sample.** In order to gather information on the profile of functioning and disability in older people with DS, with particular attention to the social context in which they interact daily, 13 family members (Chart 1) and 15 health/social professionals (Chart 2) were involved.

**Analysis.** All focus groups were audio-recorded and transcribed verbatim. The transcripts were analyzed and content were linked to ICF classification codes using the standardised linking rules (Cieza et al., 2005).

**Results**

Problems in **Body Functions** and **Body Structures** were reported and confirmed previous data on the presence of impairment dealing with mental functions, sensory and endocrine systems, and in ear, eye structures, cardiovascular, endocrine and digestive system. In particular:

**Body Functions:** b117 – Intellectual functions; b144 – Memory functions; b152 – Emotional functions; b210 – Seeing functions; b230 – Hearing functions; b410 Heart functions; b515 – Digestive functions; b555 – Endocrine glands functions.

**Body Structures:** s2 – Eye structures; s2 – Ear structures; s4 – Cardiovascular system; s5 – Endocrine system; s8 – Digestive system; s8 – Skin and related structures.

ICF categories within **Activity and Participation** domain emphasized the facilitating effect of environmental factors on activities related to domestic life (d640 – Doing housework; d630 – Preparing meals), self-care (d510 – Washing oneself; d540 – Dressing; d550 – Eating), learning and applying knowledge (d166 – Reading; d170 – Writing; d177 – Making Decisions).

Within **Environmental Factors** domain were reported few barriers, mainly refer to labour services (e590 Labour and employment services, systems and policies) and transportation (e540 – Transportation services, systems and policies), and facilitating factors, particularly related to product of technology (e120 – For personal indoor and outdoor mobility and transportation) and the support of family members (e310 – Immediate family) and health professionals (e340 – Personal care providers and personal assistants; e355 – Health Professionals).

**Conclusions**

The study stresses the importance of introducing for clinical, social and public health policies a comprehensive assessment in order to plan the current and future life of ageing people with DS; such assessment should include a joint analysis of their clinical profile and its interaction with environmental factors.

The study was realized within the "DOSAGE Project: Functioning and disability measure of AGEing people with Down Syndrome: the creation of an instrument for a national and European implementation" that received the financial support of the Foundation Jerome Lejeune.
ICF based Patient Reported Outcome measures for Neurological patients


Abstract
Introduction. Patient-reported outcome measures (PROM) couple information derived from disease severity measures. Disease-specific disability measures can be developed using the ICF. Here we describe the stages of development of three different ICF-based PROMs: a measure of disability specific for Myasthenia Gravis (the MG-DIS), and two measures of work-related problems in Multiple Sclerosis (MSQ-Job) and in headache disorders (HeadWork). Methods. Items are developed on the basis of: ICF-based description of disability for specific diseases; a literature review; qualitative patients’ report. Selected themes are then tested with specific research protocols aimed to address their factor structure and psychometric properties. Results. The MSQ-Job, composed of 42 items, is already published; MG-DIS items have been identified, and the questionnaire is in course of validation; the HeadWork is at the stage of items development. Discussion. ICF-based functioning and disability evaluations enable to understand how much of patients’ difficulties are due to their disease, and how much to hindering contextual factors.

Methods & Materials

The use of patient-reported outcome measures (PROM), such as disability or quality of life questionnaires, allows to capture some facets of the lived experience of a disease that would not be identified by disease severity measures only. Generic disability PROMs enable to get a broad description of the impact of a group of disease, e.g. neurological ones, but they do not capture disease-specific issues. To get to this, disease-specific disability measures are needed, and they can be developed using the ICF. Here we describe the stages of development of three different ICF-based PROMs: a measure of disability specific for Myasthenia Gravis (the MG-DIS), and two measures of work-related problems in Multiple Sclerosis (MSQ-Job) and in headache disorders (HeadWork).

Items are developed on the basis of:

1. ICF-based description of disability for specific diseases, i.e. the results of the application of the ICF checklist to a group of patients with the target condition;
2. A literature review;
3. Qualitative patients’ report, i.e. individual interviews or focus groups.

Selected themes are then converted into candidate items to be tested with specific validation studies, aimed at:

1. Addressing the factor structure,
2. Deleting non-essential items,
3. Testing the psychometric properties of the questionnaires.

Results

The MSQ-Job is composed of 42 items and of six subscales and a general work-problem index scale [1]. The six scales measure difficulties in work activities that are either due to MS symptoms – namely ‘tactile perception and fine movement’, ‘fatigue-related mental functions and symptoms’, ‘movement and fatigue-related body functions’, and ‘psychological and relational aspects’ – and difficulties due to features of the workplace – namely ‘time and organization flexibility in the workplace’ and ‘company’s attitudes and policies’. Therefore, it enables to measure the impact of the characteristics of both respondents and workplace on work activities and, thus, to assess the different impact of clinical interventions and occupational ones carried out in the workplace, such as change in work tasks or reduction of worked hours.

The MG-DIS is in course of validation: 44 candidate items have been identified [2] and the validation study was concluded on May 2015. 18 items form a four-factor structure and an overall disability index: the questionnaire has good properties and proved to be sensitive to different clinical severity groups as well as to clinical improvement and worsening over time.

The HeadWork is at items development stage. Based on the literature review [3] we found strong evidence for a negative effect of migraine on solving problems, speaking and driving, and a poor evidence for watching, reading, focusing attention, handling stress, lifting and carrying objects and using the PC. Qualitative patients’ reports were recently presented at an international conference on headaches [4]. The most relevant 27 themes reported by patients refer to: activities (e.g. reading, writing, speaking), personal factors (e.g. attention, stress), correlated symptoms (e.g. pain, being numb), contextual elements (e.g. office, colleagues, noise, light). It is interesting to note the presence of several self-centeredness themes (e.g. me/for me; home/from home): these were found to be of a superior relevance than relational themes (e.g. relationships or support from colleagues). Figures 1.a and 1.b show the themes associated to “work” and “working”.

Conclusions

A person’s disability is partly due to his/her health state and partly due to contextual factors. ICF-based disability assessment tools are able to understand how much of patients’ difficulties are due to their disease, and how much to hindering contextual factors. This has clinical, rehabilitative, as well as service delivery and organization implications.

References

Sick leave prescription is a frequent medical process in general practice, which is poorly evaluated, albeit increasingly monitored. Previous studies have shown that the “ATCIF questionnaire”, derived from the International Classification of Functioning, Disability and Health (ICF), is a tool adapted for identifying patients’ functional limitations and contextual barriers in general practice, with a mean duration of three minutes for its administration.

The objective of this study, entitled LombATCIF, was to assess, based on the ATCIF questionnaire, the influence of the type and intensity of functional limitations and contextual barriers on sick leave prescription in patients consulting for low back pain in French general practice.

Methods & Materials

Ten interns in training in a general practice surgery filled in a questionnaire for each patient having a professional activity and complaining of low back pain. It consisted of a socio-demographic section, a medical section, and a section dedicated to functional limitations and contextual barriers. This latter section corresponded to the ATCIF questionnaire and included 83 items distributed across three components: body function deficiencies, activity limitations, and environmental barriers. For each included patient, the main limitation in each component was selected and rated using a semi-quantitative scale (1=light, 2=fair, 3=moderate, 4=high).

Results

Sixty patients have been included, among whom 33 (55.0 %) have benefited from a sick leave prescription. A sick leave was less frequently prescribed to the patients with a high education level or being managers. It was more frequently prescribed when an environmental barrier existed or when the limitations in the three components were more intense (Table 1).

Discussion

The functional and contextual approach used in this study represents a paradigm shift compared to the usual mere diagnostic approach, based on classifications such as the ICPC-2 or the ICD-10. Although including a limited number of items, it enables a more in-depth and less stigmatizing analysis than a approach limited to the attribution of the mere diagnosis of low back pain. The “ATCIF questionnaire” is quick to administer, with a mean duration of 3 minutes in consultations involving a sick leave prescription. Functional and contextual evaluation can constitute a communication support between the general practitioner, the patient and the other stockholders in primary (physiotherapists and occupational physicians) and secondary care (rheumatologists and rehabilitation physicians).

This study is the first, to our knowledge, to explicit the functional and contextual elements considered by French GPs in their practice of sick leave prescription (or not) for low back pain. The range of its results is limited by the sample size (60 patients). Whereas the frequency of low back pain complaints is estimated at around 5 % of consultations, it turned out indeed that only a fraction of the eligible patients were in professional activity.

The low contribution of the body function deficiencies component represents a limitation of the functional approach in the particular case of low back pain, as far as 85 % of these deficiencies concern the category of the sensory functions and pain. But the ATCIF tool is intended to be used in a generic framework, i.e. in clinical situations associated with various symptoms.

Acknowledgements or Notes

We are grateful to the interns, who collected data, i.e. B. Bahar, C. Drubay, F. Frost, G. Gabez, J. Ghez, M. Mayrand, A. Parcellier, A. Robin, C. Stanko, Zirari Meriem, and to their respective trainers.
Measuring functioning, disability, quality of life and well-being in Ageing population in Italy: the IDAGIT study.

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Abstract

Aging of Italian population is one of the most rapid in the world and between 2000 and 2025, the percentage of Italian citizen aged 60+ will rise from 24% to 34%. The IDAGIT Project (Identification of Determinants of Healthy Aging in Italy) aims to provide valid and reliable information on determinant of health and disability in the ageing Italian population. To achieve this IDAGIT researchers will use tailored instruments to acknowledge the role of environmental factors on health status of ageing people and in particular the role of built environment and social networks.

Introduction

Population’s aging is influenced by medical, economic and social changes, which make people to live longer, in particular in European Countries where the percentage of citizen aged 60+ will rise from 20.3% to 28.8% between 2000 and 2015. Aging of Italian population is one of the most rapid and between 2000 and 2025, the percentage of citizen aged 60+ will rise from 24% to 34%.

At population level, individuals’ health state is hardly modifiable, but disability, intended as the interaction of health condition with environmental factors, can be decreased acting on more changeable environmental factors such as built environment and social networks. Preliminary results from COURAGE in Europe project showed that it is possible to calculate a general Social Network Index and specific indexes for all the different features of the (built) environment. Our hypothesis is that social networks and features of built environment may be determinants of disability and predict outcomes such as quality of life and well being, and also independent of the presence of non-modifiable factors such as comorbidities, age, gender and educational level.

The national IDAGIT Project (Identification of Determinants of Healthy Aging in Italy) aims are: 1-To provide valid and reliable information on ageing and on determinants of health and disability in an Italian population aged 18-49 and 50+ enrolled in Nord, Centre and Sud Italia areas. 2- To validate a research protocol, derived from WHO studies, useful for Italian research on ageing. 3-To produce comparative analysis of health and disability trajectories, by linking-up IDAGIT data with other international information derived from other international projects.

Study design: Cross-sectional study. Duration:36 months (from November 2014 to November 2017) Study population: individuals aged 18+ Sampling design: probabilistic sampling design, stratified by age and gender

Methodology: The validation process of the research protocol in the Italian context will be based on two different approaches. Classical Test Theory including: test-retest to evaluate protocol stability; Cronbach’s Alpha coefficient to evaluate its reliability; Split-half and Cograduation coefficient to evaluate its internal consistency and to assess the capacity of the protocol in predicting the evolution of the phenomenon being measured. Moreover, Item Response Theory approach will be taken to assess item equivalence across population.

The project will also incorporate methods to calibrate and to adjust self report responses for reporting biases: in particular the IRT approach and the Hierarchical Ordered Probit Models (HOPIT) will be used to correct for biases in cut-points in rating scales.

Conclusion

Understanding future ageing scenarios and its determinants is particularly important for planning health and social policies. To pursue this objective, reliable outcome measures and procedures for cross-population comparative analysis are needed. These measures will increase our capacity to produce valuable information on non fatal health outcomes, and to address the relationship between disability, quality of life and well being which is poorly addressed in ageing studies due to a conflation of subjective and objective perspectives. IDAGIT is expected to identify on a significant Italian sample the determinants of healthy and disability in ageing, related to health state and contextual factors, that can be modified through public health interventions. In addiction, IDAGIT data will be compared with data from other international projects, such as EU COURAGE in Europe (Collaborative Research on Aging in Europe) and WHO SAGE (Study on Global Ageing and Adult Health) researches. Results will also be shared and discussed with relevant stakeholders in the field of policy development for disability as well as for active and healthy ageing.

Results

The study is expected to provide information on determinants of health, QoL and Disability in Italian aging population, distinguishing those connected to the inner health state from those connected to the features of the Built environment and Social networks. Moreover, a validated protocol for the

Acknowledgements or Notes

The IDAGIT Project is funded by the Italian Ministry of Health and is coordinated by Neurological Institute C. Besta IRCCS Foundation of Milan (Italy).
ICF a way to build Functional Health Policies

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Abstract
Since 2007, the Brazilian system of social control is trying to make true the Functional Health National Policy. It has been a difficult work because the Brazilian government is still lost into the biomedial model. But, there are some cities that are focusing on this policy independently. They are: Barueri and Santana de Parnaíba. There are other cities starting the ICF using, just like, Jandira, Santo André, Santos, Curitiba, Aracajú, Fortaleza and other cities which can develop local functioning policy.

Introduction
The SUS, the Unified Health System in Brazil, in each sphere of government, has health collegiate bodies such as Conference and Council since 1990 by the 8,142 law. The Health Conference is a meeting of company representatives to assess the health situation and propose guidelines for the formulation of health policy. The Health Council is permanent and deliberative, composed of the government, service providers, health professionals and users to formulate strategies and control the implementation of health policies starting from resolutions or recommendations.

At the 13th National Health Conference (CNS) in 2007, and ratified at the 14th CNS in 2011, has approved the National Functional Health Policy. A health information policy focused on Human Functioning, interdisciplinary and multidisciplinary, cross-health policies at all levels involving gender, generations in all stages of the life cycle of the worker and disabled person that uses the International Classification of Functionality and Disability and Health (ICF) as a tool for its operation.

Methods & Materials

In this Experience Report, in 2012, the National Health Council approved the Resolution 452 for the use of ICF as a tool for clinical information, generating functionality indicators, sizing and resizing services, research, planning, evaluation and control, pedagogical and standardization health communication and should be inserted in the SUS information system, the DATASUS.

Historical and legal facts conceptualized the functional health as: “the functional status and well being of the individual and communities at all stages of the life cycle, the performance of activities and social participation, promoting quality of life and autonomy for the full exercise of citizenship”.

With the support of its Federal and Regional Councils of of Physiotherapy, Occupational Therapy and Speech Therapy, these professionals try to implement throughout the health Brazil Functional policies, which its principles are: comprehensive care, visibility of processes and results of work on health and the sustainability of social security.

Results

With experiences already developed in São Paulo state (Barueri, Jandira and Santana do Parnaíba, Santos and Santo André), Paraná (Curitiba), Sergipe (Aracaju) and Ceará (Fortaleza), this one with the approval in the City Council's in 28/2015 statement design recommending guidelines for preparing the Municipal Policy of Functional Health and the use of ICF in Fortaleza.

In an objective way the implementation of information about the functionality and Inability by the use of the ICF in SUS, Brazilian Public Health System, occurred specifically in the city of Barueri in São Paulo state, by Ordinance nº26 of the City Department of Health being established Municipal Health Functional policy, approved by the Municipal Council of health of Barueri and opened the 1st Functional health center of Brazil.

Based on this fact it was drafted and approved a draft statement for the city of Fortaleza in Ceará state with guidelines for the creation of a Municipal Policy of Functional Health and to the use of the international classification of functioning, disability and health management tool for generating information on health for the planning, monitoring, control and evaluation of the health situation.

The guidelines of public policy should prioritize functionality and comply with the following principles: mainstreaming; results and processes visibility; and sustainability.

A policy like this brings, among all the advantages of its results, the reduction of damages to social security, arising from these disabilities, as well as an improvement in quality of life, with a low aggregate cost, since the actions require basically the performance of specific professionals, light technology inputs and the utmost possibility of its emphasis on primary care.

It becomes evident, then, the need to ensure actions in the promotion of functional health, prevention of structural changes and dysfunctions/disabilities, with or without an underlying disease, and effective recovery of dysfunction, to overcome the limitations and/or restrictions imposed by such condition that affects the functional health.

Conclusions

So, we need a change of direction in the ways of public health policies in Brazil, missing the disease just as biological aspect, but as health problems produced by society. Therefore, it is necessary to develop information for the management of health services to register not only the disease, but also other aspects of the health of individuals.

For this reason in Brazil, by the initiatives of health professionals, of organized civil society institutions, with the support of the Social Control represented by the National Health Council based on Resolution 452 of 2012, of the 13th and 14th National Conference of Health and Municipal Health Councils, if have built new proposals of public services policies and actions based on the information that can be generated in the bio psychosocial model of WHO and of human functionality recommended at ICF.

It was not possible yet globally deploy this policy for Brazil continues with its welfare policies. But fighting continues until the guidelines and standards already officially approved are met.

Acknowledgements or Notes

Special thanks to: Nacional Health Council (CNS), Federal and Regional Councils of of Physiotherapy, Occupational Therapy (COFFITO/CREFITO), City Hall of Santana do Parnaiba, City Council of Fortaleza e Association of Celiac in Brazil - ACELBRA-CE
Abstract
The UNICEF Regional Office for CEECIS in Geneva has been actively promoting the use of ICF and ICF-CY as part of its initiative to advocate a rights-based approach to inclusive education. The ICF/ICF-CY has been introduced as a tool for compliance with the UNCRPD to provide country-level support for policy development and capacity building and has developed a number of knowledge products that highlight the principles and application of the ICF/ICF-CY.

Introduction
As a member of the United Nations Development Group, UNICEF is committed to the international agenda on strengthening the rights of children in general and of vulnerable children in particular. While vulnerability may be linked to a range of economic, social and cultural factors across different countries, disability is one of the constants associated with exclusion and marginalization of children. Since the adoption of the Convention on the Rights of Persons with Disabilities (CRPD), UNICEF has been actively promoting inclusive education and supporting governments to build the necessary capacity in their education systems. In 2012, UNICEF CEECIS published the position paper “The Right of Children with Disabilities to Education: A Rights-Based Approach to Inclusive Education” (1) which amongst others, initiated regional and local activities to use the ICF as a tool and common language.

ICF and Inclusive Education
Inclusive Education can be understood as a process to respond to diversity and to bring about the presence, participation and achievement of all learners. Disability is seen as one dimension of diversity, but certainly not the only one leading to exclusion and marginalization. Inclusive education is about creating learning environments that are accessible for all children, establishing a culture of mutual respect and acceptance, and enabling all children to participate in the curriculum. Until a few years ago, the CEECIS region has known for a strong tradition of institutionalization of children with disabilities, thus systematically excluding children from regular schools. Disability was mainly understood as a medical condition that required special treatment implying that children with disabilities could not be cared for by their parents or taught by regular teachers. The ICF/ICF-CY brings together medical and social perspectives and is therefore seen as an ideal tool to introduce the human rights-based approach to inclusive education in the region. It also helps to re-assemble knowledge spread across professionals and institutions and makes knowledge gaps visible.

Participation as Key Concept
Deinstitutionalization was an important first step for children with disabilities gaining access to education in the CEECIS region. Once children gain access to education, the focus shifts to participation. In the ICF, participation means involvement in life situations. This definition was expanded (2) for applications in education systems to highlight that involvement is about being engaged in what other children do in situations where children are typically expected to participate. When using the ICF in education systems, it is important to appreciate the fact that not all participation restrictions are due to functional limitations or health problems. Participation problems can also arise from diversity due to differing developmental trajectories or developmental delays leading to problems in getting involved in life situations at the expected point in time (e.g. starting school, graduating). Or they can be linked to difficulties in accessing the curriculum or performing at expected levels. Also problems in the relationship between a student and a teacher will most likely result in participation restrictions of the student. All four perspectives (functional, developmental, curricular, relational) need to be taken into account to avoid a reductionist understanding of participation restrictions in education.

Knowledge Products
UNICEF has developed a number of knowledge products that highlight the principles and application of the ICF relevant to Inclusive Education. Amongst these are a series of 14 webinars and their companion technical booklets, each introducing one topic relevant to inclusive education of which two are providing information on the ICF. The webinar on “Definition and Classification of Disability” provides an overview of the ICF and gives the rationale for its application in education systems. The Webinar “Disability Data Collection” introduces the new Survey Module on Child Functioning and Disability, based on the ICF and developed by UNICEF and the Washington Group. For more information on this activity, see UNICEF information on statistics (3).

UNICEF CEECIS has also developed three “Train the Trainer” Modules and an Introductory Booklet on Inclusive Education. The Modules use a set of key concepts, including participation as “involvement in life situations”. While emphasizing on the importance of all four perspectives on participation, it does include a short introduction to the ICF to exemplify the health perspective on participation restrictions. The publication of the modules is planned for later this year.

Country-level Activities
UNICEF CEECIS has provided technical support to many countries in the region who are interested in using the ICF for children and youth. Introductory workshops were held in several countries, generally with participants from all sectors and representatives of civil society. Many countries have systems in place where children with disabilities are identified by the social sector using medically trained personnel to provide recommendations for education settings. Cross-sectoral collaboration and coordination of services is therefore a major issue and the ICF is seen as part of the solution (4). In the Former Yugoslav Republic of Macedonia, a new ICF-based procedure does include a short introduction to the ICF.

References

Webinars: https://vimeo.com/channels/842958
Introduction

According to the 2013 report of the Center for Research on the Epidemiology of Disasters, the Haiyan/Yolanda typhoon that struck the Philippines on November 8, 2013 was the single event that caused the highest number of people killed (7354) and victims (16.1 million). After six months, the WHO Regional Office for the Western Pacific, in consultation with the UN Humanitarian Inter-Cluster Coordination Group, decided to conduct a survey on post-typhoon disability and health functioning profiles of adult people affected.

This survey was a response to the Strategic Objective 4 of the Yolanda Humanitarian Plan Monitoring Framework that aimed to identify outcome indicators and the percentage of the population that is functioning poorly and is likely to be in need of services, including those with severe or extreme disability.

Methods & Materials

The protocol included a household questionnaire and an individual questionnaire, derived from the WHO Study on Global Ageing and Adult Health (SAGE) with the addition of some specific questions relating to what happened as a consequence of the typhoon (e.g. were there some loss of lives in the household, the type of damage to the household, receipt of help or support to rebuild/restore the household, etc.), information on context of life (e.g. urban vs. rural) and summary descriptions of health state. The WHO Disability Assessment Schedule (WHODAS 2.0) was used to measure functioning and disability.

A logistic regression was used to address the degree to which demographic variables, variables connected to the effect of the typhoon, to health state and to the living context were associated with a worse disability score (i.e. WHODAS 2.0 score higher than the mean and one standard deviation).

We used -2 log likelihood difference and Nagelkerke Pseudo R² to evaluate model goodness of fit. Data were analyzed with PASW Statistics 19.0.

Results

1982 persons were interviewed, mostly females (80.6%), married or cohabitating (68%) and currently not employed (66%); mean age was 42.9. Mean WHODAS 2.0 score was 17.1 (SD 13.8): significant disability was therefore defined by WHODAS 2.0 score higher than 30.9 (16% of the population).

Higher odds of severe disability were observed in those aged >65 (OR: 2.17, 95% CI: 1.44-3.29), those reporting worse health condition (OR: 0.58, 95% CI: 0.31-0.90), those not living in their households (OR: 1.50), those with a self-reported health condition (OR: 5.69) and those reporting worse overall health, either moderate, bad or very bad (OR: 3.81). Lower odds were instead found in those living in rural contexts (OR: 0.57) and in those that received tools or materials to repair their houses (OR: 0.68).

Self-rated health, education, age, gender, urban residence, work status, marital status, receipt of help or support to rebuild/restore the household, and damage to the household were significant predictors of disability. Similarly, age, gender, urban residence, work status, marital status, receipt of help or support to rebuild/restore the household, and damage to the household were significant predictors of disability.

Conclusions

Addressing health and disability in the most vulnerable groups after a disaster is important to guide policies, health and social interventions. These interventions are largely focused on the immediate response to a humanitarian crisis; however, the sequelae of health conditions suffered at the time of the disaster might determine long-term disability and thus affect health (e.g. mental health problems (e.g. PTSD), and post-injury outcomes (e.g. TBI or SCI).

Collecting data on disability and functioning in emergencies adds information that goes beyond known medical conditions and sheds light on other context-based issues: for example, the fact that respondents from rural regions and those receiving tools or material to repair their houses had lower levels of disability that those who received money and lived in towns. These are the kind of data needed to identify people with functioning problems who are most likely to be in need of services.

<table>
<thead>
<tr>
<th>Prevalence in sample</th>
<th>B (SE)</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender – Male</td>
<td>19.7%</td>
<td>ref –</td>
</tr>
<tr>
<td>Age &gt; 18-44</td>
<td>57.8%</td>
<td>ref –</td>
</tr>
<tr>
<td>Education – Below primary school</td>
<td>18.3%</td>
<td>ref –</td>
</tr>
<tr>
<td>Education – Primary school</td>
<td>34.3%</td>
<td>.04 (18) 1.04 (0.72-1.48)</td>
</tr>
<tr>
<td>Education – Secondary school</td>
<td>47.3%</td>
<td>-.10 (.14) 0.90 (0.62-1.31)</td>
</tr>
<tr>
<td>Marital Status – Never Married</td>
<td>16.7%</td>
<td>ref –</td>
</tr>
<tr>
<td>Marital Status – Married/Cohabiting</td>
<td>68.2%</td>
<td>.19 (22) 1.21 (0.79-1.86)</td>
</tr>
<tr>
<td>Marital Status – Widowed/Divorced/Separated</td>
<td>15.1%</td>
<td>-.22 (27) 1.24 (0.73-2.11)</td>
</tr>
<tr>
<td>Work status – Other</td>
<td>8.8%</td>
<td>ref –</td>
</tr>
<tr>
<td>Support to repair/rebuild house – No</td>
<td>28.7%</td>
<td>ref –</td>
</tr>
<tr>
<td>Current living place – In own house</td>
<td>38.0%</td>
<td>ref –</td>
</tr>
<tr>
<td>Home damage – Partial</td>
<td>49.9%</td>
<td>ref –</td>
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<tr>
<td>Support to repair/rebuild house – No</td>
<td>28.7%</td>
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</tr>
<tr>
<td>Home damage – Partial</td>
<td>49.9%</td>
<td>ref –</td>
</tr>
</tbody>
</table>

Notes: Work status other is: student, retired, non-paid work. Living place out of house is: tent, bank house, temporary house, hostel. +P<.05; **P<.001.

Acknowledgements

Authors thanks colleagues from the Philippines that collected data.
Abstract The aim of this poster is to present the implementation of the International Classification of Functioning, Disability and Health (ICF) through training courses to promote inclusion of children with disability in the schools of Djibouti. In Djibouti the ICF course was organized in April 2015 by Mediterranean without handicap Onlus in collaboration with the Neurological Institute Carlo Besta IRCCS Foundation.

Methods & Materials

The training on the ICF was prepared according to the Disability Italian Network (DIN) rules and with adapting the material of the ICF training course under development by WHO. The ICF courses are inspired by the principles of the UN Convention on the Rights of Persons with Disabilities. An analysis of the articles of the UN Convention was done in particular art 24 on EDUCATION.

Introduction

The aim of this poster is to present the implementation of the International Classification of Functioning, Disability and Health (ICF) through training courses by Italian WHO FIC CC and to report on strategies for ICF dissemination and use in Djibouti. The course was organized in April 2015, in collaboration with the Neurological Institute Carlo Besta IRCCS Foundation and Mediterranean without handicap Onlus.

Results

Djibouti is a republic with an estimated population of 818,000. Significant human rights abuses in the country included restrictions on freedoms of assembly, and association; discrimination against women; female genital mutilation (FGM); discrimination against persons with disabilities. In particular the constitution does not prohibit discrimination against persons with disabilities. There is societal discrimination against persons with disabilities and still no government agency is specifically charged with protecting the rights of such persons. NGOs organize seminars and other events that drew attention to the need for enhancing rights of persons with disabilities in respect of the UN Convention for the rights of people with disability.

Mediterraneo without Handicap is an NGO that is supporting the network of private schools of the country to promote inclusion in all the schools so as to allow participation of children with disabilities.

This course involved 13 directors of the private schools in Djibouti and over 200 teachers of the same schools. The course was organized at the French Institute Djibouti Saline Ouest. This training is a step of the “School for All” project. The aim of this project is the inclusion of children with disabilities in Djibouti schools.

Acknowledgements or Notes

We would like to thank the Neurological Institute Carlo Besta IRCCS Foundation and Mediterranean without handicap Onlus.

Acknowledgements or Notes

We would like to thank the Neurological Institute Carlo Besta IRCCS Foundation and Mediterranean without handicap Onlus.

Conclusions

Ibragimova et al. (2009) performed a field trial of ICF-CY questionnaires and concluded that they are useful for collection and interpretation of data based on ICF-CY.

The organization of the A&P section of our ICF PEI schedule is a first step towards a more feasible disability data collection.

During the ICF training we presented the ICF-PEI Schedule (Fig. 1 Example of English adaptation of the ICF-PEI Schedule), a system to collect functioning and disability data in an education setting that teachers can fruitfully employ to guide the definition of educational objectives and verify them longitudinally and that describes the educational actions planned. PEI is an acronym for the ‘Individualized Education Plan’.

Based on our experience the most relevant difficulties in using ICF-CY questionnaires were as follows: obtaining reliable information on body impairments; using capacity in activities and participation; using questionnaires in ‘borderline situations’; and identifying systems and policies as barriers or facilitators. The ICF-PEI Schedule is composed of 62 items, with a simplified rating scale. Teachers are asked to rate performance, which is directly observed, and to address which environmental factors impact it; thus, environmental factor rating is simplified. The ICF-PEI Schedule was drafted as a feasible instrument for school settings to collect and exploit functioning and disability data.

Teachers are asked to rate only performance, thus reducing possible misunderstanding of constructs; for each activity they have to focus on the presence of facilitating/hindering factors, fostering attention to child-environment interaction. The presence of examples in questions makes the instrument user-friendly: a minimal knowledge of the terms is needed, but extensive ICF training is not necessary.

Items were developed to reflect real-life situations at school, as questions were created that are linked to daily school situations. At present, it is an instrument of clear value to organize data collection and exploitation. We believe that ICF PEI use in the School for all project will allow better planning of tailored intervention.

References


Abstract: A Brazilian city called Barueri decided to use ICF in a large scale due a Municipal Policy of Functional Health. The process started in 2013 with occupational therapists, physiotherapists and speech therapists. Three stages were fulfilled: data provide ways to develop strategies for functioning promotion and disability prevention. Doctors will be the next users.

Introduction

The ICF provides a model to understand the functioning and disability meaning. A biopsychosocial approach is used to obtain an integration of these various dimensions of health, so it can be seen as an integrative model. After a quick presentation in 2013, the Public Health System of Barueri City (Brazil) decided to include ICF into the formal health information approach. Three professionals categories was selected to start the using: occupational therapists, physiotherapist and speak therapists. They began to act truly as a team inside the service called Functional Health Center, opened in October, 2013.

Methods & Materials

The first step was to provide a continuing training about the ICF application during ten months. Initially, we used an online course and after that, face meetings. So, the team selected a categories set from ICF for using in clinical practice. The regular forms were changed to include the ICF categories and qualifiers. Considering the high complexity involved the use of ICF, we believe that a concise form is available and they are used in two stages: first appointment and end of treatment. So we can know the magnitude of the improvement in the patient functioning.

The qualifiers 0, 1, 2, 3, 4 and 8 are available and they are used in two moments on the second level categories: first appointment and end of treatment. The qualifiers include ICF categories and ICD codes.

The ICF using is changing the health information systems and helping the strategies for public policies. However, the information system can collect data from different sources, not only by OT, PT and ST, but also through population surveys, through school forms, periodic examinations of workers. In the future, Barueri City managers think about using the ICF by the community health agent (all the population) and medical doctors (aged people).

Results

After training, the professionals selected 36 categories from ICF for using in clinical practice. But, the form allows the inclusion of more ICF categories and ICD codes.

Acknowledgements

We thank the Secretary of Health from Barueri City, Dr. Antonio Carlos Marques and coordinator of the Planning Sector, Dr. Fernando Antonio Tambelini Juliani, as well as to all other professionals involved in this project, especially those who give theoretical support on the topic in Brazil, Dr. Ana Cristina de Oliveira Brazil and Dr. Rivaldo Rodrigues Novaes Junior.

Additionally, we notify the participation of the private enterprise CIF Brasil (Company name: TATIANA TANAKA REICHERT).

Conclusions

The ICF has approached the clinical practices to the health managers, so they can improve public policies for all the population.

References:

- Araujo ES. Uso da CIF no SUS: a experiência do Municipio de Barueri/SP. Ver. CIF Brasil. 2014;1(1):10-17
Introduction

The prevalence of mental disorders such as depression, schizophrenia and substance dependence, and neurological disorders such as dementia, migraine and epilepsy – together called brain disorders – is extremely high. Recently, evidence for the hypothesis of horizontal epidemiology, namely that impairments of mental functions, activity limitations and participation restrictions, and their determinants experienced by persons with brain disorders in daily life are common across brain disorders, was shown in the EC-funded project Psychosocial fActors Relevant to BrAin DISorders in Europe (PARADISE*). The objective of our work is thus twofold.

To understand the true impact of brain disorders on a person’s life it is essential to collect information directly from people with such disorders. Direct information on this impact gives clinicians insight into the outcomes of treatment provided and help them decide whether the information they need to monitor disease processes and treatment management is available. For clinical and epidemiological researches, this information is also indispensable as it is necessary to follow population trends and make cost-effectiveness evaluations, since treatments are only effective if they actually make a difference to the people affected. There is, however, no direct measure or metric that captures the impact of brain disorders on people’s lives and is based on which comparisons across brain disorders are possible.

Methods & Materials

Data from a cross-sectional study carried out with a convenience sample of 722 persons with dementia (n=80), stroke (n=80), multiple sclerosis (n=80), epilepsy (n=80), migraine (n=80), Parkinson’s Disease (n=80), depression (n=81), schizophrenia (n=81) or substance dependency (n=80) was used. Questions addressing 64 functioning domains were first reduced based on statistical considerations, patient’s perspective and clinical expertise. Rasch analyses for polytomous data were applied to construct a metric scale of functioning. Random forest regression and classical linear regression were used to identify a brief set of determinants with the highest impact on this metric. Results: A valid and reliable metric with 24 functioning items was created and ranges from zero (best level of functioning) to 100 (worst level of functioning). The brief set of determinants encompasses presence of comorbidities, stressful life events, self-esteem, self-worth, built environment and weather besides others.

Results

The created metrical scale includes 24 functioning questions and was therefore called PARADISE24. It ranges from zero (no functioning problems) to 100 (extreme problems), and has high reliability (PSI=0.92). A table for the assignment of raw scores to this scale ranging from 0 to 100 was prepared. Eleven contextual factors were considered the most important across disorders: presence of comorbidities, personal appraisal of health status and experience of stressful life events, changes in personality, adaptation on the part of the persons and of others, self-esteem and self-confidence and three environmental factors, namely built environment, weather or climate, and health problems of members of the family. Figure 2 summarizes the health conditions, functioning items included in the PARADISE24 metric, and the identified environmental and personal factors that complement the metric.

Conclusions

The ICF-based scale called PARADISE 24 is based on the hypothesis that people with brain disorders commonly experience impairments of mental functions, activity limitations and participation restrictions. It is a useful tool to carry out cardinal comparisons over time of the magnitude of the burden of brain disorders and between persons and groups in clinical practice and research.

The identified brief set of common determinants can be used to support the implementation of cross-cutting interventions, social actions and policy tools to lower disability experienced by persons with brain disorders.

Abstract

Background: The prevalence of mental disorders such as depression, schizophrenia and substance dependence, and neurological disorders such as dementia, migraine and epilepsy – together called brain disorders – is extremely high. Recently, evidence for the hypothesis of horizontal epidemiology, namely that impairments of mental functions, activity limitations and participation restrictions, and their determinants experienced by persons with brain disorders in daily life are common across brain disorders, was shown in the EC-funded project Psychosocial fActors Relevant to BrAin DISorders in Europe (PARADISE*). Objectives: To construct a metric scale of the impact of brain disorders on people’s lives and to identify a brief set of environmental and personal factors that are shared determinants. Methods: Data from a cross-sectional study with a convenience sample of 722 persons with 9 different brain disorders were reviewed in four European countries. Results: Statistically significant, meaningful and consistent across brain disorders were identified with brain disorders. Direct information on this impact gives clinicians insight into the outcomes of treatment provided and help them decide whether the information they need to monitor disease processes and treatment management is available. For clinical and epidemiological researches, this information is also indispensable as it is necessary to follow population trends and make cost-effectiveness evaluations, since treatments are only effective if they actually make a difference to the people affected. There is, however, no direct measure or metric that captures the impact of brain disorders on people’s lives and is based on which comparisons across brain disorders are possible.

The objective of our work is thus twofold. First, we aim to construct a scale of the impact of brain disorders on people’s lives, based on the functioning problems that are common across brain disorders; Second, since the description and assessment of functioning is only meaningful if done in the context of its determinants, we aim to identify a set of determinants relevant across brain disorders that will complement the metrical scale.
Standardized assessment of functioning in Head and Neck Cancer (HNC) incorporating patient and physician perspectives – Results from a longitudinal feasibility study

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2 IC-Forschungszentrum, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications (smartSurvey) (Germany)
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Abstract
With the smartSurvey, an electronic screening tool based on the ICF Core Sets for HNC, functioning data of patients with HNC can systematically be collected and documented in clinical practice, incorporating patient and physician perspectives. This tool was pilot tested over a two year period of post-treatment tumor follow-up. The pilot study presented here looked specifically at the feasibility of conducting a functional screening using smartSurvey in this patient group. A second aim was to collect functioning data during tumor follow-up and to analyze its change over time based on various parameters.

Introduction
To date functional impairments in patients with HNC are recognized in the tumor follow-up, but not recorded in a standardized way in daily clinical practice. As part of the project “Development of an ICF-based Clinical Practice Guideline for the Assessment of Function in Head and Neck Cancer” (2010 – 2013) a web-based data collection system (smartSurvey) has been developed for screening functional impairments in HNC follow up.

Methods
A pilot study (multicenter, longitudinal) using the smartSurvey system was conducted between Feb 2012 and Aug 2014 in three German university hospitals. Study participants were patients with HNC in tumor aftercare who had to fulfil the following inclusion criteria: (1) at least 18 years of age, (2) has any of the following ICD-10 diagnoses: malignant neoplasms of oral cavity or pharynx (C01-C14), nasopharynx or accessory sinuses (C30-C31), or larynx (C32) and (3) primary therapy has been completed the last 6 months.

Patients were assessed up to seven times within two years after inclusion using the screening-tool smartSurvey including a patient questionnaire (pq) and an assessment by the doctor (ad). Patients completed the questionnaire in a standardized way using a tablet PC during the waiting period in the ear-nose-throat polyclinic.

The results of the assessment were immediately available to the physicians and could then be completed by clinical findings and measures, where appropriate.

A) To assess the practicability of employing smartSurvey under real everyday clinical conditions as well as its acceptance by attending physicians, a questionnaire was developed. The results were analyzed descriptively.

B) To investigate individual change over time and different patterns of change in several aspects of functioning, multi-level models for change were specified. Different predictors (e.g. type of therapy) were added to test their effects. Results were displayed using prototypical fitted line plots.

A total of 130 patients (70% male; mean age 59.6) completed 431 questionnaires. The tablet-based survey was well-received by the patients.

The survey of doctors about the practicability and acceptance of smartSurvey yielded responses from 13 individuals from two study centers. The majority of the clinicians involved assessed the information gathered with smartSurvey-pq as relevant and understandable. In their view, relevant functional impairments are fully covered. The questions contained in smartSurvey-ad were mostly considered to be relevant for decision-making in clinical practice. However, the scope of the smartSurvey-ad and the amount of time required to complete the questionnaire (mean 9 min.; range 2-15; median 10) were viewed critically. The overall assessment on application of the smartSurvey as a functioning screening tool in tumor aftercare was mainly positive (Fig. 1).

Conclusions
The web-based screening tool smartSurvey has shown to be suitable for carrying out functional screening of patients with HNC during tumor follow-up. The collected data is particularly well-suited for evaluating short-, medium-, and long-term functional effects of different therapies with different acute post-treatment outcomes in patients with HNC. To date only a relatively small number of patient data has been collected using smartSurvey. In the scope of a large multicenter cohort study corresponding data could be generated to a sufficient extent.

Acknowledgements
We wish to offer our sincere thanks to all our study participants, both patients and physicians, for their commitment. The study was funded by the Deutsche Krebshilfe e.V.
ICF networking in a big country: National network and webinars

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Abstract
Australia is a large country geographically with a relatively small population. Population is concentrated in coastal cities thousands of kilometres apart, with sparsely populated areas between. The 'tyranny of distance’ is a recognised feature of Australian social and economic life. The University of Sydney and the Australian Collaborating Centre have fostered two new initiatives that are being undertaken in recognition of this environment. We hope to promote collaboration on ICF learning and use via new practices of communication, initially by the formation of a new national ICF network and the launch of a webinar series.

On 6 June 2014 an Inaugural Forum of a proposed Australian ICF Network was held at the University of Sydney, co-hosted by the University and the Australian Collaborating Centre (CC) for the WHO-FIC. This has been previously suggested by people attending an ICF updates workshop in 2013.

During the day there was discussion of a range of topics and areas of application of ICF – mental health, cultural variation, education, and (briefly) statistics, legal settings and other clinical settings; these topics had been previously voted on by intending participants. Participants were asked also to reflect on what the purposes of a network might be (if they had an interest in it); their ideas on post-it notes throughout the day were assembled and discussed in the final session.

The ICF Australia Network

The objective of the Network is to contribute to:
• Knowledge and understanding of and education about the ICF and its use
• The development of practical tools based on the ICF, designed to generate knowledge of disability and improve policy, practice, services and the lives of people with disability
• Improvements in the ICF itself, including its cross-cultural relevance and applicability.

The network will be guided by the values embodied in the UN Convention on the Rights of Persons with Disabilities.

Key methods of the Network will include:

Information:
• Creating a web presence to make ‘ICF in Australia’ easier to find
• Website with information updates and links to relevant sites including WHO work

Communication and collaboration:
• A core group of people communicating effectively about ICF, and connecting people, ideas and methods
• Establishing links within Australia to share ideas and resources and build potential collaborations, including collaborations with people with disability
• Annual forum on selected topics; use of webinars to engage people all around Australia; focus on practical applications (see objectives)
• Contributing to international work and deepening links to the international network (WHO-FIC).

Enhanced web resources

Both Collaborating Centres (along with the National Centre for Classification in Health) are working to improve the ‘ICF Australia’ web presence, with links to and from each others’ websites.

The vision is that this learning community serves Australians with an active interest in increasing their knowledge about the ICF and developing skill in its application. It is our local hub in a growing global network of ICF educators, researchers, and practitioners dedicated to the dissemination and use of this important tool.

The webpage serves as an archive of educational materials, a platform for network-sponsored events, a forum to encourage local discussion and collaboration, and portal to centres and resources in Australia and around the world.
The values of well-collected ICF data are so infinite. To do that, the data must be accurate, well-categorized, and easy-extractible. Furthermore, because the medical records increase geometrically, the codes should be automatically generated and saved. As a necessity, it is required to have computerized processes. Our medical center is preparing a new electronic medical records (EMR) system with patient-centered concept in concert with Samsung SDS Co. Ltd. since 2014. We introduce ICF-encoded EMR design to WHO-FIC.
Rationale for ICanFunction (mICF) mobile health application based on ICF

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on behalf of the International mICF Partnership

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Abstract

We are developing the ICanFunction (mICF) mobile health solution, a state-of-the-art application and paradigm shifting platform for personalised health and social services. It is based on the WHO’s International Classification of Functioning, Disability and Health.

Introduction

The International mICF partnership consisting of service users, service providers, specialists in ICF and health informatics are developing a user-friendly mobile application to assist people at point of service delivery to be able to enter what is important to them about their functioning and context so that health services can respond more appropriately. In the background ICF-related data (including patient-reported outcomes) will be amalgamated. This will enable individualised, predictive service provision by utilising big data models. mICF can be a game changer in addressing health inequity by facilitating the necessary institutional reform as well as the transformation of health professions education by utilising person-driven and person-owned data to optimise individualised service provision and to strengthen systems for health.

This poster, presenting the rationale for mICF, is the first of a series of six posters presenting the progress made in the development of this solution.

This mICF project is driven by the global priority to achieve

transforming health service provider education1

by

HEALTH EQUITY

reforming systems for health6

by

focus on community-based practice1,6,7

interdependence in health-education harmonisation, breaking down silo’s and professional tribalism, embracing interprofessional collaborative practice, and decreasing power relations1,4,6

through

universal health coverage, reducing institutionalised care and focusing on preventative healthcare7,8

ultimately resulting in predictive health care9

made possible by

PERSON-DRIVEN DATA1

obtained by utilising

BIG DATA9

which is dependent on

References

http://apps.who.int/iris/handle/10665/93635
Abstract

We present an innovation and research work program for the mobile ICanFunction (mICF) solution. The work plan is divided into six interrelated work packages. This work plan is shared among the International mICF Partnership. Partners can exploit it to develop specific research plans in seeking funding from to realise the global mICF vision.

Introduction

At the annual meeting of the Functioning and Disability Reference Group (FDRG) of the World Health Organization's Family of International Classifications Network (WHO-FIC) in 2013, it was agreed to encourage the development of a collaborative to investigate the development of a mobile application for ICF. Currently the International mICF Partnership includes 284 partners from 39 countries. In 2015, a transprofessional mICF consortium of 19 partners from Europe, Africa, Americas and Asia designed a detailed work plan and applied for Horizon 2020 funding to develop the user-friendly ICanFunction (mICF) health service platform.

Aims

The mICF will:

- Facilitate person-centred, interprofessional holistic service provision
- Address needs of service users through shared decision-making and service user reported outcomes
- Empower service users, their carers and servers providers (including community and home-based care)
- Personal health data will be processed securely, informing a service user empowering bio-psycho-social-spiritual approach.
- Big data analytics will enable personalised, predictive care

Methods

We developed a work plan divided into six work packages (WP) (Chart 1):

WP1: Collaborative leadership and partnership facilitation using innovation management principles

WP2: Develop ICF content specification as well as person-centered outcome measures

WP3: Design and technical implementation of a state-of-the art solution using a lean minimum viable product development approach

WP4: Iterative and disciplined in-market experimentation in every aspect of the design process, informed by the feedback of older people, as well as children and adults with chronic diseases, their proxies and service providers. This will also facilitate change management, allowing new patient pathways and interprofessional collaboration

WP5: Proof-of-concept validation, as well as impact and economic evaluation include low- and middle income countries

WP6: An extensive dissemination strategy in collaboration with the International mICF Partnership includes peer-reviewed publications and agile commercialisation.
Content Specifications

This poster describes the evidence-based ICF-related content specification of mICF.
The goal is to provide content based on a bio-psycho-social-spiritual approach in the context of an ethical, human rights and legal framework.
The first service user journeys to be tested are: older persons, adults with chronic diseases, children and youth with vulnerable conditions.

Objectives

The objectives of the content specifications are to:

- Ensure the content to be aligned with the best ethics and human rights practices
- Ensure that content complies with legislation
- Develop and refine questions (i.e. what to ask and how to ask it)
- Identify appropriate responses to the potential answers to questions
- Select relevant person-reported outcome measures (PROMs)
- Determine ways to use ICF and PROMs in optimising a service user’s assessment, enabling shared decision-making and interprofessional goal setting.
- Utilise technology to link the use of natural language to ICF
- Translate the content
- Refine the content specifications based on iterative development cycles and feedback from the in-market experimentation.

Task 1: Ethics, Human Rights, Legislation and Training

Stakeholders must face a new reality of service user-driven data, responding in ways that address questions of ethics, human rights and legislative discourse. The task includes the following steps:
- Ensure content is aligned with ethical and human right practices
- Investigate how mICF could strengthen clinical practice, especially how mICF will move ethics, human rights and legislative boundaries as the concept of service user-driven data becomes reality
- Address ethical dilemmas relating to the linking between the mICF and traditional records systems
- Explore ethical and human right issues relating to data security, data sharing, big data, research, policy development, continuity of service provision and interprofessional practice.

Task 2: Defining the relevant ICF content for patient journeys

- The starting point is existing ICF code sets; relevant sets are to be selected (i.e. what to describe)
- Develop and refine questions for the selected codes
- Identify appropriate qualifiers (i.e. how to answer)
- An iterative process of repeated testing and assessments will ensure relevance and quality
- Content is refined based on results from “Disciplined in-market experimentation”

Task 3: Selection of PROMs for the mICF to facilitate outcome monitoring over time

- Identify relevant valid, reliable and responsive PROMs
- Negotiate regarding use agreements
- Link PROMs to ICF
- Refine PROM use based on results of the disciplined in-market experimentation - link to WP4

Task 4: Utilise technology linking natural language to ICF

- Set up the natural language collection system and market it to users and professionals to get their input of words, terms, synonyms
- Link natural language to ICF - link to WP5
- Enable continuous natural language collection and analysis to enhance the mICF

Task 5: Translation into other languages

- Translate content using international guidelines
- Cognitive debriefing and pilot testing - link to WP4
- Refine the final version
- Translations will ensure implementation of the mICF in Impact and in economic evaluation - link to WP5

Abstract

We present the development of the content for the mobile ICanFunction (mICF) solution. This is the second work package (WP2) in the mICF innovation and research work program. WP2 entails close interaction between professionals and service user representatives for research-informed and ethical content development for all consortium languages.
mICF Work Package 3
Lean minimum viable product design and technical implementation

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Abstract
This poster presents the transprofessional, lean and agile software development process for the mobile ICanFunction (mICF) solution by describing the Minimum Viable Product (MVP) development methods including the mobile end user application, as well as the Big Data and computer modelling platform that will be used to process and analyse the structurised, service user-oriented ICF assessment data.

Introduction
The objective of this biomedical informatics work package is to enable and create the technical service design and implementation for the mICF service platform including the mobile application on selected terminals as well as the backend Big Data analytics software by applying lean, agile, iterative and continuous person-centered service design methods in close collaboration in iterative cycles with WP2. In lean development we prefer doing things as small as possible, including using small cross-functional, collocated development teams and continuous user involvement.

Methods & Materials
A Minimum Viable Product (MVP) is a version of a new product or service that allows a team to collect the maximum amount of validated data about customers use of the product with the least effort.1 A MVP product implements just the core features that allow the product to be deployed, and no more. The product is typically deployed to a subset of possible customers, such as early adopters that are thought to be more forgiving, more likely to give feedback, and able to grasp a product vision from an early prototype or marketing information.2 In order to maximize the speed and efficiency of the global co-creative teamwork in the mICF service design process, a digital toolchain of cloud-based product development tools will be used in all the development cycles. The N4S@JAMK project team of the JAMK University of Applied Sciences (Finland) has designed and implemented a holistic production line chain for the design of novel digital services as illustrated in Figure 1.

The WP3 aims to incorporate this service design philosophy and tools to embed the ICF content (specified by the WP2) into the software so that the users will be able to operate the mobile device interface (e.g. graphic, speech output, voice command) and make their choices using plain language.

Results
The outcomes of the technical service design and implementation for the MVP service platform include the mobile frontend solution on selected terminals as well as the backend Big Data analytics software and support systems that will receive data on a server and perform big data analysis for enhanced shared decision-making. (Figure 2)

Conclusion
The agile software development methods presented in this poster enable us to continuously learn from the end-user features for inclusion in the design. The aim is to minimize the risks, and strengthen service user engagement throughout the software development cycle. As an outcome WP3 will result in a scalable and localised, easy-to-use mobile ICF solution and backend platform (MVP) that has been iteratively designed, tested, and documented with real service users and service providers.

Another important technological aim is to develop software solution using natural language processing (NLP) so that the service users can input their status of functioning and contextual factors using a mobile device with either spoken or typed interaction depending on the user group. The developed software solution will link the person’s input to the structural ICF, creating a functioning profile with big data analytics implemented in the backend service. A person-report outcome measure (PROM), e.g. PROMIS, will be incorporated into mICF to objectively evaluate outcomes.

References

www.icfmobile.org

Figure 1: A reference production development environment for the MVP

Figure 2: Visualization of the mobile ICanFunction (mICF) ICT architecture and data flow
**Abstract**

We present the methodology for a multi-site evaluation process of minimum viable products to inform the development and dissemination of a patient-centred and patient-driven mobile application of the ICF to improve care and management for people with disabilities and chronic health conditions.

**Methods & Materials**

This work will occur in close collaboration with both content specification (WP2) and lean MVP design (WP3) teams, which run as parallel processes. This work package addresses the question, if the application is not only usable but also if it describes the person’s level of functioning in a valid way. To inform the development team in a timely fashion, the test sites will work with relatively small user groups of about 30 service users and 2 to 4 service providers. This allows for a quick collection of relevant data, feedback to the software designers and rapid updating and bug fixing. Each iteration of the product will be tested in a new group of users without previous exposure to the application. This allows for capturing relevant data from first-time users and avoids a masking effect of potential issues through learning from subsequent exposures. The captured results will then be sent back to the content (WP2) and software design (WP3) working groups. It is estimated that in a period of 6 months, 5 iterations can be concluded at each testing site (see table for testing sites). Evaluations will be conducted in different parts of the world focusing specifically on 3 important and interrelated aspects: information quality, system quality and service quality that will be measured separately. Both formative and summative evaluations will be used to gather opinions of service user and service provider groups to enhance further development and dissemination. Their opinions are important in the further development and dissemination of the mICF.

**Countries & Partners**

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<tr>
<th>Countries</th>
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<tbody>
<tr>
<td>Finland</td>
<td>THL, North Karelia District, Barona Hoiva Oy, JAMK &amp; PT centre (low back pain), JAMK &amp; Onerva Centre for Learning and Consulting</td>
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<tr>
<td>Denmark</td>
<td>MC &amp; Spine Centre</td>
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<td>Portugal</td>
<td>EStESc – Coimbra Health School</td>
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<td>Italy</td>
<td>AAS2 (adults), FINCB (children)</td>
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<td>Germany</td>
<td>MSH &amp; Early Intervention Centres</td>
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| South Africa | SU – Rural sites: Cape Winelands Health Districts, Ukwanda Rural Clinical School  
SU – Urban sites: Developmental and Community-based healthcare centres |
| Canada    | MCM Children’s Hospital, ASD Services |
| Brazil    | CIF & Functional Health Centres from Municipality of Barueri |
| India     | DFI and Community Health Settings (elderly) |
| Korea     | Silla University Hospital (low back pain) |

**Introduction**

We demonstrate the methodology to evaluate a minimum viable software product (MVP) to facilitate the use of the ICF by the population. This requires careful assessment of needs and usability before a product can be rolled out to a larger group of users.

**Conclusions**

The evaluation results will contribute to a strengthened evidence base on health outcomes, quality of life and care efficiency gains from the use of the ICT (mICF solution) in integrated service provision. This will reinforce knowledge with respect to management of co-morbidities.

**References**


**Figure**

The figure shows the flowchart of the methodology used in the evaluation process. The figure includes stages such as data collection, data interpretation, and outcome evaluation. The flowchart is designed to illustrate the steps involved in the evaluation process, highlighting key points such as the importance of user feedback and the iterative nature of the development process.
mICF work package 5
Impact and economic evaluation

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Abstract

We present the content of work package 5 which focuses on the Impact and economic evaluation of the project. This work will occur after content specification (WP2), lean MVP design (WP3) and disciplined in-market experimentation (WP4). These activities will be the basis for analysis of the use of the mICF solution in integrated care.

Introduction

This work package of the International mICF Partnership focuses on the impact and economic evaluation through various research methods.

These methods will provide information about the use of the mICF with specific persons.

mICF can be a game changer in addressing health inequality by utilising service provider-driven and service provider-owned data to optimise individualised health service provision and to strengthen systems for health.

Methods & Materials

This work will occur after content specification (WP2), lean MVP design (WP3) and disciplined in-market experimentation (WP4).

The goal of WP5 is to start with the baseline analysis and primarily focus on the cost and effect analysis post-6 months of usage of the mICF by user group individuals (e.g. older persons, adults, and children or their caregivers) and health personnel in various countries.

- Through quantitative and qualitative methods measure the impact of the mICF on user groups (e.g. older persons, adults and children or their caregivers)
- Compare the satisfaction of health personnel with their use of the mICF product with current products used in their practice
- Demonstrate the interoperability of the mICF with other electronic health record products
- Share the findings of the impact and cost evaluation as soon as data is analysed (linkage to dissemination and agile commercialisation (WP6))
- Conduct economic evaluation, benefits, effectiveness and costs of mICF use

Benefits

1. Net benefits include both positive and negative impacts of the product (e.g. time and cost savings, and expanded markets)
2. System quality includes measures of adaptability, availability, reliability, and response time, as well as usability
3. With regard to information quality the data produced with the mICF solution will be assessed in regards to its trustworthiness, validity, completeness, relevance, and ease of understanding
4. Data exchange will be assessed
   - between caregivers
   - between service users and service providers
   - between clinical settings and other service providers
   - practices and workflows
   - and especially data reuse
5. Perceived usefulness, acceptance and use of information technology. The perceived usefulness: “people tend to use or not use an application to the extent they believe it will help perform their job better”
6. Perceived ease of use: refers to "the degree to which a person believes that using a particular system would be free of effort”1,2
7. To guarantee the validation of the results, the evaluation will use data triangulation with regard to time, space, or persons, investigator triangulation, theory triangulation, and methods triangulation3

Economic evaluation

1. The aim of the economic evaluation is to establish the cost-effectiveness in intervention settings4
2. The focus of this evaluation will be the perception of receiving personalised care by the users, the quality of the shared decision process between the service users and service providers, the knowledge and satisfaction of service users or proxies with the chosen intervention goals and the degree of person-centeredness of the processes of services delivered.
3. From an economic standpoint the evaluation will assess the amount of time spent by service providers with service users and the interventions chosen for the service users.
4. Healthcare professionals that use the mICF solution will assess the time, service, and quality aspects by comparing use to non-use of the solution. The assessed difference will show the NET costs and NET benefits of the intervention (use of mICF).

References

The International Spinal Cord Injury Survey (InSCI): ICF in use in a national disability

Jerome Bickenbach
on behalf of the InSCI Steering and Scientific Committees
Swiss Paraplegic Research, Nottwil, Switzerland

Hosted by Swiss Paraplegic Research and in collaboration with the International Spinal Cord Society (ISCoS) and the International Society of Physical and Rehabilitation Medicine (ISPRM), both of which are international organizations in official relationship with WHO, the development of an international survey on the lived experience of spinal cord injury (SCI) – the International Spinal Cord Injury Survey (InSCI) – is well underway.

**Objectives**

To identify the factors that explain functioning and well-being of people living with SCI
- within and across countries, in relation to health and related systems, policies, services and care provision
- accounting for differences in health condition and personal factor characteristics.

**Methods**

InSCI is fully grounded in the ICF, both in terms of dimensions of the experience of SCI covered and the domains upon which the questions are based. As a result, InSCI will likely be the first national-level, health condition-specific survey entirely structured by and linked to the ICF.

The survey is designed to provide vital data for a portrait of the lived experience of the SCI population in each country as well as the societal response to the needs of people with SCI. Because of the survey’s ICF basis, all data from the survey can be compared with other national surveys and between countries.

In addition, data from this survey will be an important source of information for monitoring the implementation of the recommendations of the International Perspectives on SCI (IPSCI) as well as relevant Articles of the United Nations Convention on the Rights of Persons with Disabilities (CRPD).

With the full support and participation of WHO, InSCI is consistent with the three objectives of the WHO Global Disability Action Plan and in particular the ICF-based Model Disability Survey (MDS), questions of which have been incorporated into InSCI.

**Framework**

InSCI is being carried out within the larger framework of the Learning Health System for SCI, a model for progressively improving health systems towards the goals of the IPSCI recommendations.

In this model, INSCI data is linked to an investigation into policy and research capacity for SCI and national stakeholder dialogues to enhance the implementation of recommendations of IPSCI at the national level.

**Milestones**

* A special issue of the American Journal of Physical Medicine and Rehabilitation will be published by early 2016 and contain foundational articles describing the survey and its role in the ongoing Swiss SCI cohort study and the proposed Learning Health System for SCI project, as well as country-level reports.

**Countries Involved**

* Chart 3: InSCI participating countries covering three WHO regions; additional countries from other WHO regions are currently in discussion

**Acknowledgements**

We would like to thank the Swiss SCI cohort study team at Swiss Paraplegic Research for providing their expertise in SCI survey development and valuable organizational support.
Neuro-oncological patients and their caregivers have specific needs related to the different phases of disease and treatment. Aim of our ongoing study is to identify patients and caregivers’ needs during the hospitalization at Neurological Institute C.Besta of Milan and after the discharge through ad hoc questionnaires. We expect to improve our knowledge about patients and caregivers’ needs in order to identify potential strategies and actions of disability management to meet the reported needs. Furthermore, we are investigating the health professionals’ point of view on care pathways of neuro-oncological patients within the Institute in order to improve the communication among departments and different professionals and between health professionals and patients.

### Introduction

Neuro-oncological patients and their caregivers have specific needs related to the different phases of disease and treatment and that can develop and change during the hospitalization and the transition from hospital to home. A professional able to support patients and their caregivers and act as an interlocutor between patient and local institutions facilitating the hospital-to-home transition could be very important.

**The Disability Manager is able to play this role using a bio-psychosocial approach to health and disability.**

Aim of this ongoing study is to identify neuro-oncological patients’ needs and their caregivers’ burden and needs during the hospitalization at the Neurological Institute C. Besta of Milan and after discharge.

The knowledge of these needs will allow us to identify possible actions of disability management to meet the reported needs. Furthermore, this study aims to investigate the health professionals’ point of view on care pathways of neuro-oncological patients within the Institute.

### Methods & Materials

This is an observational longitudinal study. We are enrolling Italian patients aged ≥ 18 years with neuro-oncological diseases and their caregivers. They undergo brain or spinal surgery and have cancer therapy for different periods after surgery. They complete questionnaires about their needs before the discharge (T0), after 4/6 months (T1) and 8/10 months (T2) from the discharge. We will enroll about 100 patients and respective caregivers for a period of approximately 16 months including the three time points.

**Questionnaires:**
- Patients’ Questionnaire T0: questions on the knowledge of Institute’s services; Need Evaluation Questionnaire (NEQ).
- Caregivers’ Questionnaire T0: questions on assistance, economical situation, the knowledge of Institute’s services; Family Strain Questionnaire (FSQ); Caregiver Needs Assessment (CNA).
- Health professionals’ Questionnaire: questions on their daily job and the care pathways of patients.
- Patients’ Questionnaire T1: questions on further treatments and territorial services; NEQ.
- Caregivers’ Questionnaire T1: questions on assistance, further treatments and territorial services; FSQ; CNA.
- Patients’ Questionnaire T2: questions on further treatments and territorial services; NEQ.
- Caregivers’ Questionnaire T2: questions on assistance, further treatments and territorial services; FSQ; CNA.

**Data analyses:**

Descriptive statistics is going to be performed to illustrate the prevalence of patients and their caregivers’ needs at T0, T1 and T2. Furthermore, the caregivers’ burden will be analysed in the three time points and the frequencies of health professionals’ responses on their daily job and care pathways of patients will be reported.

### Results

**Expected results:**

We expect to improve our knowledge on patients and caregivers’ needs using the bio-psychosocial approach, thus considering not only diseases severity but also the hindering of facilitating role of environmental factors. On the basis of these results, it will be possible to identify possible strategies and actions to meet the needs and improve services of the Institute describing the potential role of the Disability Manager.

Moreover, the information on health professionals’ point of view could improve the communication among departments and different professionals, between health professionals and patients and between our Institute and territory.

### Future perspective:

It will be possible to implement corrective actions in the following areas:
- Improvement of the admission process of neuro-oncological patients;
- Facilitation of the hospital-to-home transition;
- Psychological support for weak patients and their caregivers;
- Structuring of a network between hospital and territory.

### Conclusions

As showed in previous studies, neuro-oncological patients usually report unmet supportive care and information needs during the different phases of disease and treatment. Unmet needs were also observed in neuro-oncological patients’ caregivers since they suddenly have to play this role after the diagnosis. Our ongoing study will allow identification of patients and caregivers’ needs both during the hospitalization in our Institute and after discharge. In this way, it will be possible to develop specific actions and strategies to meet their needs. The Disability Manager could play this role: he/she is a professional able to facilitate the interaction between patients and Institute and the patient’s transition from hospital to home. In addition, the Disability Manager could support health care worker and medical staff who usually receive a lot of requests from patients and caregivers. This approach is based on the bio-psychosocial model since the interventions involve both the individuals and their environment.

### Acknowledgements or Notes

We are grateful to all the patients, caregivers and health professionals who are participating in our study.

**References:**
The Relationship between Levels of ADL and Development in Children with Disability
– An Attempt to promote the Use of the ICF in Japan

Satoshi Tamai1, Emiko Oikawa2, Mika Watari2, Keiji Hashimoto1
1 National Center for Child Health and Development, 2 Ministry of Health, Labour and Welfare, Tokyo, Japan

Abstract
We examined relationship between developmental age and the levels of activity of daily living (ADL) in thirteen young children with disabilities. There was a statistically significant correlation between chronological age and the developmental age by KSPD-2001. On the other hand, no association was found between chronological age and the total ABPS-C total score. We need to achieve a social world where chronological age and the ABPS-C score would highly correlate.

Introduction
- Planning ways to improve the QOL and to support the development of a child with disabilities involves not only assessment of the child’s function and abilities but also his or her levels of activities and social participation.
- The International Classification of Functioning, Disability and Health: Children and Youth Version (ICF-CY) provides a framework for assessing the social participation of children from birth to age 18 years.
- The ICF-CY assesses various aspects of health. However, the large number of items in the ICF-CY and the complex classification system have been criticized.
- We developed a new scale, the Ability for Basic Physical Scale for Children (ABPS-C), that easily evaluates children’s levels of activities in the ICF-CY domains. The relationships between activity levels, developmental age, and chronological age were examined.

Methods & Materials
Participants: 13 children who were randomly selected out of all children who were seen at the A Hospital Developmental Evaluation Center between 12/201X – 12/201X+2 (average age 30.5±7.0 months, 7 boys and 6 girls).
Variables: Chronological age, developmental age based on the Kyoto Scale of Psychological Development 2001 (KSPD-2001), and the total ABPS-C score.
Analysis: The correlations between (1) KSPD-2001 developmental age and chronological age, and (2) the ABPS-C total score and chronological age, were analyzed.

Results
1) Correlation between KSPD-2001 developmental age (Y-axis) and chronological age (X-axis)
(2) Correlation between ABPS-C total score (Y) and chronological age (X)

Discussion
- The current sample of children demonstrated overall development as measured by the KSPD-2001 that was in parallel with their chronological growth, with relatively poor growth in levels of activities of daily living (as measured by the ABPS-C).
- The levels of activity and social participation of a child may also be affected by factors other than the functional development of the child, such as his/her social and physical environment including family and caretakers.
- Early to middle childhood is a critical period for a child’s development that influences the individual’s life beyond childhood. The child’s experience during this period forms an important foundation for subsequent learning and social participation (WHO, 2012). Therefore, when supporting the development of a child, it is important not only to focus on the child’s functional development, but also to evaluate the child’s environment and to assist with the child’s social participation, as pointed out by Kamide (2015).

Conclusions
- The ABPS-C is a scale currently under development that can easily assess the physical abilities and levels of activity and social participation of children.
- The ABPS-C consists of 5 basic items regarding a child’s activity and social participation, based on level 1 of the ICF-CY’s “Activity and Participation.” Each item is assessed on a scale with 4 levels (0 to 3).
- The 5 basic items (ICF-CY codes) of the ABPS-C are: Basic Movement (d4: mobility), Self-Care (d2: general tasks and demands), Activity (d5: self-care, d6: domestic life), Education (d8: major life areas), and Leisure Activity (d9: community, social and civic life).
- It is essential to qualitatively examine factors that affect the levels of daily activities of children with disabilities in order to understand problems with the current state of social support provided to children with disabilities.
- It is also important to disseminate the concept of ICF-CY and to encourage its use. Additional studies on the usefulness of the ABPS-C are necessary.
The International Paralympic Games provide competitive sporting opportunities for persons with varying impairments around the world. Classification is an integral component of Paralympic sport. This poster will provide an overview of ICF implementation in the IPC system, describe impairment categories, discuss issues with selective classification versus performance classification systems, and make recommendations in addressing various ongoing implementation issues.

Abstract

The International Paralympic Committee (IPC) Classification: Opportunities and Challenges

Authors: Patricia Welch Saleeby, PhD, MSSA
Southern Illinois University-Carbondale, USA

Introduction to Paralympics

The Paralympics refers to organized competitive sporting activities as part of the global Paralympic movement. Summer and Winter Paralympic Games include a total of 27 sports and nearly 60 medal events currently. The IPC, or International Paralympic Committee is the global governing body.

ICF and Paralympic Classification

Classification is an important element of Paralympic sport and the overall Paralympic Movement. Effective classification is imperative because it reduces the likelihood of one-sided competition, ensures fairness, and promotes participation among athletes. In 2003, the IPC Governing Board approved a Classification Strategy, which recommended the development of a universal Classification Code. Subsequently, the IPC adopted ICF language and definitions into its Classification Code and recommended all Paralympic classification systems to conform to ICF language and structure.

Use of Classification in Paralympics

Classification has a significant impact on athlete success. Each Paralympic sport has a different classification system because each sport requires different abilities. Thus, it is recognized that impairments do not affect activity in different sports to the same extent.

In fact, the degree of function affected by impairment is not the only factor considered. Similarly to how the ICF recognizes the impact of personal and environmental factors on functioning, the IPC has identified factors that affect how well a person functions including age, fitness, motivation, and training.

Besides ICF, Paralympic sports use another system, called Selective Classification, to ensure athletes who improve their performance through training will not be moved to a class with athletes who have less activity limitation, as in a Performance-based Classification system.

Impairment Categories/Types

<table>
<thead>
<tr>
<th>Impairment Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired muscle power</td>
<td>Impairments in this category have in common that there is reduced force generated by the contraction of a muscle or muscle groups (e.g. muscles of one limb, one side of the body, the lower half of the body).</td>
</tr>
<tr>
<td>Impaired passive range of movement</td>
<td>Range of movement in one or more joints is reduced in a systematical way. Note that hypermobility of joints, joint instability (e.g. shoulder dislocation), and acute conditions of reduced range of movement (e.g. arthritis types of impairment) typically will be excluded.</td>
</tr>
<tr>
<td>Limb deficiency</td>
<td>There is a total or partial absence of the bones or joints as a consequence of trauma or illness or congenital limb deficiency.</td>
</tr>
<tr>
<td>Leg-length difference</td>
<td>Due to congenital deficiency or trauma, bone shortening occurs in one leg.</td>
</tr>
<tr>
<td>Short stature</td>
<td>Standing height is reduced due to aberrant dimensions of bones of upper and lower limbs or trunk.</td>
</tr>
<tr>
<td>Hypertonia</td>
<td>A condition marked by an abnormal increase in muscle tension and a reduced ability of a muscle to stretch. Hypertonia may result from injury, disease, or conditions that involve damage to the central nervous system.</td>
</tr>
<tr>
<td>Ataxia</td>
<td>Ataxia is a neurological sign and symptom that consists of a lack of co-ordination of muscle movements.</td>
</tr>
<tr>
<td>Athetosis</td>
<td>Athetosis can vary from mild to severe motor dysfunction. It is generally characterized by unbalanced, involuntary movements of muscle tone and a difficulty maintaining a symmetrical posture.</td>
</tr>
<tr>
<td>Vision impairment</td>
<td>Vision is impacted by either an impairment of the eye structure, optical nerves or optical pathways, or visual cortex of the central brain.</td>
</tr>
<tr>
<td>Intellectual impairment</td>
<td>A disability characterized by significant limitation both in intellectual functioning and in adaptive behavior as expressed in conceptual, social and practical adaptive skills. This disability originates before the age of 18.</td>
</tr>
</tbody>
</table>

As a result of the Classification system certain Paralympic sports are open to multiple impairment categories such as Swimming; others are restricted to only one impairment such as Boccia or several impairments such as Cycling.

Note: Paralympic Games are organized in parallel with the Olympic Games while the IOC-recognized Special Olympics World Games include athletes with intellectual disabilities, and the Deaflympics include deaf athletes.

Notes and References

Note: Paralympic Games are organized in parallel with the Olympic Games while the IOC-recognized Special Olympics World Games include athletes with intellectual disabilities, and the Deaflympics include deaf athletes.

For further information see Tweedy, S.M. (2009), Appendix C - Assessing Extent of Activity Limitation Resulting from Impairment: In IPC Athletics Classification Project for Physical Impairments: Final Report – Stage 1, Tweedy, S.M., and Bourke, J. (Ed.) IPC Athletics, Bonn (pp. 74-6).

* Eligibility for serving as classification experts should be opened to other professionals such as social workers who also possess the necessary knowledge, skills, and competencies to do the job.
<table>
<thead>
<tr>
<th>WHO ID</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C601</td>
<td>ICHI-Alpha2 Updated 2015 - Feedback on functioning interventions</td>
<td>Almborg; Cumerlato; Sykes; Fortune; et al.</td>
</tr>
<tr>
<td>C602</td>
<td>Evaluating the public health component of ICHI</td>
<td>Fortune; Short; Madden</td>
</tr>
<tr>
<td>C603</td>
<td>Early Field Testing of ICHI Nursing Content</td>
<td>Hardiker; Fortune</td>
</tr>
<tr>
<td>C604</td>
<td>The Swedish Classification of Social Care Interventions and Activities – based on the ICHI structure</td>
<td>Almborg; Bratt; Berg</td>
</tr>
</tbody>
</table>
ICHII-Alphai2 Updated 2015

Feedback on functioning interventions

1 National Board of Health and Welfare, Sweden, 2 University of Sydney, Australia, 3 World Confederation for Physical Therapy, United Kingdom, 4 Sordic WHO-FICH Collaborating Centre, Norway, 5 E. Medea Institute, Research Branch of the Italian CC, Italy

Abstract Since the annual WHO-FIC meeting in Barcelona 2014 the Technical Working Group for functioning interventions (FTWG) has sent out requests for feedback on ICHII Alpha2 Updated 2014 to relevant stakeholders who had provided comments on the previous Alpha version. Responses from 19 stakeholders from 11 countries were received. The comments have resulted in a refinement of the definition of an intervention, as well as revisions to definitions, inclusion and exclusion notes to improve the descriptions of some intervention categories. Approximately 240 new interventions have been included, which now equates to more than 2020 functioning interventions.

Methods & Materials

In February 2015 the FTWG sent out requests for feedback on ICHII Alpha2 Updated 2014 to relevant stakeholders who had provided comments on the previous Alpha version.

Responses from 19 stakeholders from specialties including physiotherapy, occupational therapy, speech pathology, public health, rehabilitation medicine, psychology, mental health, clinical epidemiology, evidence based practice and neurology were received.

The stakeholders were from 11 countries; Australia, Germany, Iceland, Israel, Netherlands, Philippines, Spain, Sweden, Taiwan, UK and USA.

Introduction

The International Classification of Health Interventions (ICHI) is the third WHO reference classification. It is intended to provide a framework to describe health interventions systematically to enable:
• comparisons in the provision of health interventions;
• assist in the development of health policies; and
• contribute to evaluation of health effectiveness.

The interventions aimed at body functions, activities or environmental factors (functioning interventions) typically delivered in, e.g., rehabilitation and mental health services, are growing in weight and complexity worldwide but, paradoxically, are represented in a very sketchy and non-systematic way in the intervention list of ICD9CM and in intervention classifications used in some countries.

The ICHII Alpha2 Updated 2014 included a total of 5648 interventions of which ≈1790 related to functioning interventions. These interventions were distributed across three sections:
1. Interventions on Body systems and functions (n=4346)
2. Interventions on Activities and Participation Domains (n=707)
3. Interventions to Improve the Environment and Health Behaviour (n=595)

The results of the feedback were grouped into: new proposals, future work or no further action.

Results

Listed below are examples of responses to the questions:

1. Are the interventions performed in your area of practice present in ICHII?

ICHII includes most of the interventions in their area of practice and the reviewers have identified interventions that appeared to be missing from ICHII.

2. Are ICHII intervention titles and definitions clear and easy to understand?

The titles and definitions are clear and easy to understand. The definitions, inclusion and exclusion terms have been improved since the previous version. It was difficult to understand at first, but clearer after reading the introduction and coding guidelines.

3. Is the level of detail in ICHII appropriate?

The level of detail in ICHII is appropriate. One reviewer commented that the level of detail seems adequate for statistics but possibly inadequate for cost/payment.

4. Is it easy to find the intervention codes you need in ICHII?

It is easy to find the intervention codes although you need to be familiar with the structure. The hierarchical structure of the targets and interventions is not easy to discern as compared to the ICF. The software is user friendly.

5. Is it easy to choose the right ICHII code to describe a given intervention?

Some reviewers indicated that it was easy to choose the right ICHII code and others said that it was not.

6. Are the axis categories meaningful and useful?

“Great improvement since last version”, “together they complete the information on the intervention”, “they have a logical outlook”, “target and action are good – targets make good use of the ICF”.

No changes have been made to the axes in this updated version of ICHII.

Conclusions

As a result of the consultation and feedback the ICHII Alpha2 Updated 2014 has been enhanced by:
• a revised definition of a health intervention
• an increase in the number of functioning interventions, now ≈2020
• improved definitions for some interventions
• inclusion and exclusion notes to improve clarity.

The feedback obtained by various stakeholders confirms the soundness of the present framework while indicating possible future avenues for further improvement which should move the ICHII development to the next development phase.

Acknowledgements

The contributions of all collaborating experts are gratefully acknowledged.

Contacts: Andrea Martinuzzi (Chair of FTWG) andrea.martinuzzi@cnr.it
Ann-Helene Almborg (Coordinator of FTWG) ann-helene.nordic.cc@almborg.se

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The stakeholders were from 11 countries; Australia, Germany, Iceland, Israel, Netherlands, Philippines, Spain, Sweden, Taiwan, UK and USA.
Abstract
What kinds of public health interventions are being delivered in countries around the world? This is not an easy question to answer — it is hard to find summary data on public health activity at local, national or international levels. The International Classification of Health Interventions (ICHI) includes over 350 public health intervention codes in its current Alpha version. This poster reports plans for pilot testing the public health component of ICHI and proposes a preliminary list of criteria which may have broader application for evaluating statistical classifications.

Introduction
The development of a classification of public health interventions within ICHI promises to deliver a standard tool for collecting data on population-level prevention and health promotion interventions. This is something quite novel. No such tool has previously existed. But how do we know whether this draft classification is any good? In the words of Bowker and Star (2000):¹

All classification systems face a bootstrapping problem. Any classificatory principle might be good, valid, useful: you will not know until you have built up a body of knowledge that relies, for its units of data, on the classification scheme that you have not yet developed.

In this way classifications tend to be ‘self-validating’. To really test whether a classification is any good it is necessary to seek alternative frames through which to approach it. Implied and expressed information needs of different users can potentially yield varied perspectives from which to view, and evaluate, the classification.

Evaluation methods and framework
Three types of information will be used to evaluate the classification of public health interventions within ICHI:

- Data on public health interventions — e.g., program data, intervention inventories, expenditure data
- Views of public health practitioners, researchers and policy makers
- Existing classifications and frameworks relevant to public health

From each source information needs will be identified, against which ICHI can be tested. Pilot coding of public health intervention descriptions, and subsequent analysis of coded data, will be a crucial element of the evaluation.

An analytical framework is needed to provide a structure within which to systematically evaluate key aspects of the classification. There is an apparent lack of established methodology for evaluating statistical classifications in the published literature. We have developed a preliminary list of evaluation criteria (Table 1) with reference to a range of materials, including the ‘Principles for including classifications in the WHO-FIC’,² criteria for evaluating assessment tools,³ performance indicator criteria,⁴ and Bramley’s evaluation framework for health classifications.⁵

These criteria focus on structure, content and usability. Aspects not included here, but relevant to a broader evaluation, include custodianship, updating and maintenance mechanisms, structural flexibility to allow expansion over time, version control, indexes, instructional notes and training materials, and factors bearing on the cost and practicality of implementation.²,⁵

Questions or tests will be formulated to address each criterion, in light of the specific information sources to be used for the evaluation.

Table 1: A preliminary list of evaluation criteria

<table>
<thead>
<tr>
<th>Purpose</th>
<th>(This should include a statement about who the anticipated users are)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>The structure of the classification, and its organisational principles, should be clearly explained. (Includes explanation of relationships between components or axes within the classification, as may be specified in the content model)</td>
</tr>
<tr>
<td>Relevance and utility</td>
<td>The classification should be capable of describing aspects of the domain that are of importance to stakeholders</td>
</tr>
<tr>
<td>Comprehensiveness and coverage</td>
<td>The classification should cover the full scope of the domain it serves</td>
</tr>
<tr>
<td>Mutually exclusivity</td>
<td>Categories should be available to allow all instances that fall within the domain to be classified (including by providing residual categories)</td>
</tr>
<tr>
<td>Unambiguous descriptors</td>
<td>Category titles and definitions should be clear, meaningful and unambiguous</td>
</tr>
<tr>
<td>Level of detail / specificity</td>
<td>Category titles and definitions should use language that is accepted and in common usage among stakeholders in the relevant domain</td>
</tr>
<tr>
<td>User-friendliness</td>
<td>Any variation in specificity across the scope of the classification should reflect the information needs of stakeholders</td>
</tr>
<tr>
<td>Reliability</td>
<td>Concepts of particular importance should have their own unique category</td>
</tr>
<tr>
<td>Compatibility with other classifications</td>
<td>Different users of the classification, or users in different settings, should choose the same code/s to represent a given concept or instance</td>
</tr>
<tr>
<td>Operationalising these criteria to evaluate the classification of public health interventions in ICHI will provide an opportunity to assess their utility. It is hoped that this work will contribute to the development of a body of practice and the establishment of agreed methods for evaluating statistical classifications. Comments are welcomed.</td>
<td></td>
</tr>
</tbody>
</table>

References
5 Bramley M 2006. A framework for evaluating health classifications. HIMJ 34, 71-83
Abstract

Previous collaborative work with the International Council of Nurses has resulted in significant new nursing content for ICHI. Field testing will involve, among other activities, a series of content comparisons and gap analyses with existing tried-and-tested terminological resources that are used to support nursing practice. This poster a) describes a mapping exercise between ICHI and the Belgian Nursing Minimum Data Set, b) provides examples of the key findings and c) explains how the results may be used to contribute to the enhancement of both resources.

Introduction

The International Council of Nurses (ICN) has been contributing to the development of ICHI, using the International Classification for Nursing Practice (ICNP), a Related Classification within the WHO Family of International Classifications, as a resource for new nursing content. As a contribution to early field testing of the enhanced ICHI content, a comparison of content and a gap analysis was conducted using the Belgian Nursing Minimum Data Set (B-NMDS). The B-NMDS currently comprises 79 items, sub-divided into 91 care descriptions. It is mandated by the Belgian Ministry of Public Health and is used to support staffing decisions locally and to allocate hospital budgets nationally (around 6.5% of the total).

Material & Methods

Taking a published collection of B-NMDS care descriptions as the source ‘terminology’ and ICHI concepts as the target terminology, two members of the project team (NRH, NF) independently attempted to identify equivalent concepts within ICHI. Where no equivalent concepts were found, the reviewers attempted to find possible nearest matches, either narrower concepts or broader concepts within ICHI. The reviewers met to compare findings and to resolve disagreements.

Results

Prior to the consensus meeting, the reviewers agreed on mappings for 24 source concepts (26%) and on no mappings for 21 source concepts (23%). They disagreed on mappings for 46 source concepts (51%). After the consensus meeting the reviewers agreed on mappings for 56 source concepts and agreed on no mappings for 35 source concepts, i.e. content coverage of 62% — 10 exact ICHI matches, 35 broader, 2 narrower, 2 both broader and narrower on different axes, 7 exact on Target, Action and Means, but B-NMDS term more specific on an additional information dimension (e.g., setting).

Several recommendations will be made regarding changes and additions to ICHI to improve coverage of nursing-relevant interventions:

- Proposed new interventions (n = 10), e.g.,
  - Stoma care
  - Management of internal device for esophagus

- Proposed inclusion terms for existing interventions, e.g.,
  - Advocacy in relation to interpersonal interactions and relationships, SRA TA FA
  - Incl. Cultural brokerage

Proposed changes to ICHI intervention titles, e.g.,

- Care of incontinence, NTD RA FA — change of title to ‘Care for urinary incontinence’ (Target NTD is ‘Urination function’)

The work also highlighted differences between ICHI and B-NMDS:

- Some B-NMDS concepts cannot be captured using current ICHI axis categories, e.g.,
  - V300 Continual monitoring of vital parameters — ICHI lacks Target able to capture the concept ‘vital parameters’

Several B-NMDS items include information not captured by ICHI axes Target, Action and Means, such as setting, patient characteristics, and complexity of care, e.g.,

- D120_1 Support of feeding (dining room) Supervision

Some terms used in B-NMDS are not in ICHI and it is difficult to confirm their conceptual equivalence, e.g.,

- Items using the term ‘Care’ were variously mapped to ICHI codes with the following Actions:
  a) ‘Practical support’ (e.g., ‘B100_1 Elimination child care Toilet trained child day and night time’)
  b) ‘Other therapeutic action’ (e.g., ‘L500 Care for dermatological lesions _ frequency’)
  c) ‘Other managing action’ (e.g., ‘L300 Simple care for open wound _ frequency’)

Certain B-NMDS codes are not in scope for ICHI, e.g.,

- X100 Rooming in of family or significant others

The predominance of broader ICHI matches indicates that B-NMDS is more fine-grained than ICHI.

The work also indicates the potential for refinement of B-NMDS:

- Several B-NMDS items focus on characteristics or diagnoses of the patient, rather than what intervention is delivered (therefore no map possible), e.g.,
  - B500 Constipation prevention or treatment

Some B-NMDS items require clearer expression, e.g.,

- S100_1 Specific education
  - Occasional

Discussion & Conclusions

Although differences in structure added to the complexity of mapping, this initial field testing of ICHI nursing content, using B-NMDS care descriptions, produced useful results that may contribute to the enhancement of both resources. For ICHI, as well as specific recommendations for changes, the results of this work suggest some broader content areas may warrant further development, such as ante partum and post partum interventions. Further expansion of the Target axis may also be required to enable ICHI to capture common nursing-relevant interventions such as monitoring vital parameters. Further field testing of ICHI nursing content, using terminological resources that are used in practice is planned.

References

The Swedish Classification of Social Care Interventions and Activities – based on the ICHI structure

Almborg A.H.1,2, Bratt M.1, Berg L.2.
1 National Board of Health and Welfare, Sweden.
2 Nordic WHO-FIC Collaborating Centre, Norway.

Abstract

The National Board of Health and Welfare (NBHW) in Sweden has developed a national classification of interventions in social care (KSI), commissioned by the Swedish government. The KSI is based on the International Classification of Health Interventions (ICHI) structure and its three axes (targets, actions and means). The KSI includes three parts for interventions including 1072 investigative and individual supportive interventions; 84 administrative activities and 54 interventions for national statistics. The next step is to develop a manual and other support tools for using the KSI in electronic documentation in the social care process.

Introduction

In Swedish social care, each municipality uses its local terms and descriptions of activities, which can lead to misunderstandings when information is to be shared between professions and operational areas.

The NBHW was commissioned by the Swedish government to develop a national classification of interventions for social care. More clear and uniform descriptions of the activities used within social care will improve the quality and comparability of:

- local documentation
- transfer of information to local operations
- evaluation on local or regional levels
- the basis for national statistics
- the development of evidence-based practices

The target group of the classification is professionals, representatives of the social care sector, business developers and people responsible for development and (national authorities) monitoring on a national level.

The ICHI structure has been used as a framework for development (Figure 1).

The published version (January 2015) of KSI consists of fifteen chapters divided into three parts.

Part 1

13 chapters of 556 investigative activities (A), which can also be used for monitoring and follow-ups and 516 activities to support individuals (B).

<table>
<thead>
<tr>
<th>Interventions</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions on Activities &amp; Participation</td>
<td>383</td>
<td>397</td>
</tr>
<tr>
<td>Interventions on Body functions</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Interventions on Environmental factors</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>Interventions on Health-related Behaviour (+ General Health)</td>
<td>88</td>
<td>63 (+4)</td>
</tr>
<tr>
<td>Total interventions</td>
<td>556</td>
<td>516</td>
</tr>
</tbody>
</table>

The social care activities and interventions can be used at different levels such as the first, second, third and fourth level in line with targets, which are based on the chapters, blocks, 2nd and 3rd level of the International Classification of Functioning, Disability and Health (ICF).

Targets

The final count of targets is 112 distributed as follows:

<table>
<thead>
<tr>
<th>Targets</th>
<th>1st level</th>
<th>2nd level</th>
<th>3rd level</th>
<th>4th level</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities &amp; Participation</td>
<td>9</td>
<td>17</td>
<td>36</td>
<td>10</td>
<td>72</td>
</tr>
<tr>
<td>Body functions</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Environmental factors</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Health-related Behaviour</td>
<td>1</td>
<td>2</td>
<td>14 (+2)</td>
<td>17 (+2)</td>
<td></td>
</tr>
</tbody>
</table>

Contact: ann-helene.almborg@socialstyrelsen.se
<table>
<thead>
<tr>
<th><strong>WHO ID</strong></th>
<th><strong>Title</strong></th>
<th><strong>Author(s)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>C701</td>
<td>Family of International Classifications: progress towards a revised ‘Family’ paper</td>
<td>Hargreaves; ten Napel; Hanmer; Macpherson</td>
</tr>
<tr>
<td>C702</td>
<td>Use of the WHO-FIC Together</td>
<td>Hanmer; et al.</td>
</tr>
<tr>
<td>C703</td>
<td>Collaborative working to support classifications implementation &amp; training</td>
<td>Bracewell; Davidson; McIntosh</td>
</tr>
<tr>
<td>C704</td>
<td>International Classification of Primary Care in a cross-lingual terminology portal</td>
<td>Jamoulle; Kuehlein; Pizzanelli; Grosjean, et al.</td>
</tr>
<tr>
<td>C705</td>
<td>Classification of Primary Care in China</td>
<td>Zhang; Ci; Liu; Liu</td>
</tr>
<tr>
<td>C706</td>
<td>Meaningful clinical communication among Primary and Specialized Care Professionals in the Public Health System of Barcelona</td>
<td>Pastor; Conesa; Lozano</td>
</tr>
<tr>
<td>C707</td>
<td>Developing a Network of WHO-FIC Centres: LAC Experience</td>
<td>Ruiz; Giusti</td>
</tr>
<tr>
<td>C708</td>
<td>Different Agencies Contribute to the LAC Network for the Strengthening of HIS</td>
<td>Weinstein; Giusti</td>
</tr>
<tr>
<td>C709</td>
<td>USAID’s Health Systems Strengthening Work in Latin America and the Caribbean</td>
<td>Slotnick</td>
</tr>
<tr>
<td>C710</td>
<td>Use of the FIC to support performance reporting for UHC - a follow up</td>
<td>Macpherson; Hargreaves; Hanmer; Fortune; et al.</td>
</tr>
<tr>
<td>C711</td>
<td>Tribute to an ICF Pioneer: Professor David B. Gray</td>
<td>Hough</td>
</tr>
<tr>
<td>C712</td>
<td>Classifications Information Management System</td>
<td>Carvell; Moskal; Coghlan; Wang; Valko</td>
</tr>
<tr>
<td>C713</td>
<td>Use of International Classifications (ICF, ICHI and DESDE-LTC) to develop a new taxonomy of Case Management</td>
<td>Lukersmith; Millington; Madden; Salvador-Carulla</td>
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<tr>
<td>C714</td>
<td>Changes in the duties of Health Information Managers in Japan</td>
<td>Yokobori; Sakai; Takeda; Oi</td>
</tr>
<tr>
<td>C715</td>
<td>A Systematic Review of Risk Adjustment Models of Hospital Length of Stay (LOS)</td>
<td>Lu; Sajobi; Lucyk; Lorenzetti; Quan</td>
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<tr>
<td>C716</td>
<td>Technology as facilitators for children with autism</td>
<td>Meucci; Giovannetti; Leonardi; Riva; et al.</td>
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<td><strong>WHO ID</strong></td>
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<td><strong>Author(s)</strong></td>
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<tr>
<td>C717</td>
<td>Standard Interchange of Clinical Data Between Health Organizations</td>
<td>Lozano-Rubi; Pastor-Duran; Munoz; et al.</td>
</tr>
<tr>
<td>C718</td>
<td>Harmonization of ICNP &amp; SNOMED CT: What health information model we want?</td>
<td>Kim; Hardiker; et al.</td>
</tr>
<tr>
<td>C719</td>
<td>Interventions to Improve Physician Documentation: A Systematic Review</td>
<td>Marcio; et al.</td>
</tr>
<tr>
<td>C720</td>
<td>The terminology needs for evaluation of care pathways</td>
<td>Beck; Lorenzetti; Lucyk; Quan</td>
</tr>
<tr>
<td>C721</td>
<td>Electronic Health Records in Latin America and the Caribbean Region</td>
<td>Tvardik; Bouvry; Kergourly; et al.</td>
</tr>
<tr>
<td>C722</td>
<td>Methods to Defining Hypertension in Electronic Medical Records</td>
<td>Borbolla; Novillo; Ruiz; Giusti</td>
</tr>
<tr>
<td>C723</td>
<td>Revision of anthropometric parameters of the newborn in Venezuela</td>
<td>Peng; Chen; Kaplan; Lix; Drummond; et al.</td>
</tr>
<tr>
<td>C724</td>
<td>Hospital at home in Catalonia: the current situation and future prospects</td>
<td>Cordero; Melendez; Melchor; et al.</td>
</tr>
<tr>
<td>C725</td>
<td>Health Information Exchange and Health and Care Register in Norway</td>
<td>Estrada; Munoz; Marinelli; Espallargues</td>
</tr>
<tr>
<td>C726</td>
<td>Developing and Validating Data</td>
<td>Xu; Lu; Dixon; Myers; Quan</td>
</tr>
<tr>
<td>C727</td>
<td>Extracting Method from Chinese EHR</td>
<td>Dorjbal; Stucki; Scheel-Sailer; Prodinger</td>
</tr>
<tr>
<td>C728</td>
<td>Strengthening quality of care through standardized reporting based on the</td>
<td>Weinstein; Giusti</td>
</tr>
<tr>
<td>C729</td>
<td>WHO’s reference classifications</td>
<td></td>
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<tr>
<td>C730</td>
<td>Strengthening Health Information Systems Around the World</td>
<td></td>
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<tr>
<td>C731</td>
<td>Integrating ICD and ICF through Ontologies</td>
<td>Carmo; Santana de Araujo; et al.</td>
</tr>
<tr>
<td>C731</td>
<td>Comparing ontologies</td>
<td>Talin; Della Mea</td>
</tr>
</tbody>
</table>
Introduction

The World Health Organization Family of International Classifications: definitions, scope and purpose (The family paper) defines the Family and discusses its scope and purpose. The Family is currently described as including the three reference classifications ICD, ICF and ICHI, as well as related classifications ICPC, ATC, ICECI, ISO 9999 and ICNP, and classifications derived from the ICD for oncology, mental and behavioural disorders, dentistry and stomatology and neurology.

The paper was authored in 2007 by Richard Madden, Catherine Sykes and Bedirhan Üstün, with inputs from the Family Development Committee: http://www.who.int/classifications/en/

Since the 2010 WHO-FIC Network meeting, the FDC has discussed how the paper should be reworked to reflect current approaches to classification development and, in particular, the development of ICD-11. Progress was last reported in poster C702 for the Barcelona Annual Network meeting in October 2014.

The FDC again discussed the revision of the paper at its mid-year meeting in 2015. A number of issues that were raised were not resolved. They are presented here to inform discussion by FDC at the Manchester Annual Network meeting in October 2015.

It is anticipated that the revised paper, once completed, will be published on the WHO website, in place of the 2007 paper.

Purpose of and audience for the paper?

There is a need for clarity about the purpose of and audience for the paper.

The WHO website and the paper itself focus on the purpose of the Family, rather than the purpose of the paper. For example, the WHO website states: The purpose of the WHO Family of International Classifications (WHO-FIC) is to provide an appropriate selection of classifications for a range of settings in the health field around the world.

The purpose of the paper itself is less clear. Resolutions of the World Health Assembly (WHA) endorse the reference classifications (ICD and ICF) and encourage their use. Is the purpose of the paper to disseminate this information? Is it also to convey some other form of WHO endorsement of other classifications? Or to provide general information on classifications used for health concepts, and interoperability? Or to guide use of classifications together?

Is the audience for the paper the Network and WHO, so the paper can guide their classification development work? Or is the audience a broader range of people who use or could use classifications?

Reference and derived classifications

The Family’s ‘reference classifications’ (ICD, ICF, ICHI) are described as products of international agreements that may be used as models for the development of other classifications. Derived classifications are described as being based on them but providing more detail, for example.

ICD-11 is structured with a foundation from which a number of linearizations will be drawn. The first is the joint linearization for mortality and morbidity (JMMLS). Other linearizations may be developed for primary care, or areas of specialized medical practice.

As all the linearizations will have the same ‘parent’ foundation, will it be appropriate to regard one of them as a ‘reference’ classification and others as ‘derived’? Should ‘reference’ classifications be only the linearizations that are endorsed by the WHA?

Related and neighbour classifications

There is a need to clarify what type of classifications are termed ‘related’.

Are they classifications not managed by the WHO or United Nations? Are they classifications that are not closely linked (structurally/conceptually) to the WHO ‘foundation/reference classifications’?

Should the relationships be described in detail: how they fill gaps in the Family conceptual model; how they relate to the Family content models and ontologies? Should they remain in the family if the gap is filled?

If the structures are too different, or the subject matter not very close, should there be a new ‘neighbour’ category?

Current or future focus?

There needs to be a balance between describing the Family as it is now, and describing a future vision for it (and the pathway to get there).

A vision for the future Family would be informed by the development of ICD-11. It would focus more (than the current paper) on the roles of foundation components and linearizations, and the relationships between any ‘reference’, ‘derived’, ‘related’ and ‘neighbour’ classifications, described carefully in terms of the health concepts covered by each, content models and ontological content (and the degree to which they are shared or overlap).

Acknowledgments

The authors would like to thank all the FDC members for their valuable contributions to this work activity.

Author affiliations

Jenny Hargreaves and Brooke Macpherson are with the Australian Collaborating Centre (at the Australian Institute of Health and Welfare). Huib ten Napel is with the Netherlands Collaborating Centre (at the Netherlands National Institute for Public Health and the Environment). Lyn Hanmer is with the South African Collaborating Centre (at the South African Medical Research Council).
A key work area of the WHO-FIC Family Development Committee (FDC) is to develop the WHO-FIC as an integrated and comprehensive suite of classifications, including in its application. With the goal to support the use of classifications together, the FDC are exploring the potential to produce a guide for the joint use of the ICD and ICF, in order to better describe health. This poster describes some of the early work of the FDC in putting such a guide together, and progress towards thinking for use of the classifications together for other purposes, such as to support casemix.

**Materials & Methods**

A review of the following current documentation on the WHO-FIC reference classifications yielded no specific guidance on the joint use of these existing classifications:
- Published versions of ICD-10 and ICF;
- The WHO-FIC ‘family’ paper (first published in 2007); and
- The exposure draft of the ICF practical manual (dated October 2013).

Posters and presentations from the WHO-FIC 2014 annual meetings provided a rich picture of multiple current initiatives related to the joint use of WHO-FIC classifications:
- The report on an investigation of the use of the WHO-FIC to support performance reporting for Universal Health Coverage (UHC) (Poster C703) reflects a specific requirement of the WHO to be able to monitor progress towards UHC, as a key WHO programme.
- Further progress on this initiative will be reported at WHO-FIC 2015.

**Introduction**

Under the heading of ‘principles for an international casemix classification system’, initial discussions were held on the use of WHO-FIC classifications to support casemix (Posters C405 and C608). It was recognised in the discussion that further work should focus on principles rather than content of a casemix grouper, and would be dependent on progress in the development of ICD-11. Further work would also be dependent on progress in the development of ICHI.

Further discussion of this topic is planned for WHO-FIC 2015.

A poster and presentation on ICD-ICF joint use reflected work being conducted under the auspices of the ICD-11 fTAG (the Functioning Topic Advisory Group) which is aimed at ensuring consistency between functioning information in ICD-11 and ICF. (Poster C502)

Work related to the planned updating of the WHO ‘family’ paper to reflect changing approaches to WHO-FIC reference classification development, as reflected in poster C702 (FIC: an updated definition, foundation and structure), and the poster ‘Shared ontologies for the WHO-FIC’ (Poster C704) are also relevant for developing guidelines for the use of classifications together.

Several posters analysed relationships between WHO-FIC reference and related classifications, including C528 (ICF (Environmental Factors) and ISO 9999); C708 (ICNP); and C409 (ICPC), for example.

The Family Development Committee discussed this background, and the aims of the FDC work to develop guidelines on joint use of the classifications, at a mid-year teleconference in July 2015. The discussions were used to develop the draft framework and proposed next steps presented here. They will be further discussed at WHO-FIC 2015.

**Proposed next steps**

- Propose principles for joint use of the reference classifications (ICD, ICF and ICHI).
  - Guidance for specific use cases such as UHC, and a proposed international casemix grouper could be considered as part of this activity.
- Consider the appropriate format in which to make available the outputs of this work, for example as a WHO-FIC paper, or incorporated in the revised ‘Family paper’.

**Results**

**Draft framework for a guide for joint use of the WHO-FIC classifications:**

- Shaped by consideration of the concepts to be classified; recognising the roles of members of the WHO-FIC to classify different concepts, or to classify the same concepts, but with different levels of granularity; fit for purpose.
- Initial focus on the identified WHO-FIC reference classifications: ICD, ICF, and ICHI.
- Focus on general principles related to the use of classifications together, to inform specific use cases.
- Take account of potential changes in definitions and structure of the WHO-FIC to reflect new approaches in the development of classifications.
- Consideration of whether this guidance material (at least in the form of principles) could be incorporated into the revised ‘Family paper’.

**Acknowledgements**

Inputs to discussions on this topic from members of the FDC are gratefully acknowledged.
We are increasingly looking to collaborative delivery models for our products and services. This poster sets out how we have used this approach within our training service, specifically in relation to the development of National Core Curriculum Materials, Clinical Coding Academies and Trainer Forums.

**National Core Curriculum Materials: Background**

We produce training materials for use in our Clinical Coding Standards and Standards Refresher training courses, both of which are mandatory for all clinical coders in the UK.

We decided that the best way to ensure the materials were fit for purpose would be to develop them in collaboration with the approved trainers who would be using them on a regular basis.

The trainers receive direct feedback from delegates on the training courses and so are well placed to know what works well and what can be improved.

They also have first hand experience of using the materials to deliver training, so they are aware of any weaknesses with the materials.

**Trainer Forums**

In addition to the trainer subgroups we also run annual trainer forums which are mandatory for all approved clinical coding trainers (currently numbering 105).

The forums provide an open environment that encourages a frank and objective review of the strengths and weaknesses of materials, with the aim of identifying improvements that can be made.

The forums also provide a valuable opportunity for trainers to network with each other, which reinforces the sense of a training community.

**Clinical Coding Academy Network**

We are working in partnership with a number of organisations around the country to establish a network of clinical coding academies. We currently have 3 academies in the network with 1 other due to go through the accreditation process this year and a further expression of interest.

The network is designed to support the clinical coding workforce through the development of specialty training materials and other materials in response to demand from the service.

Each set of materials is developed by a lead academy and subject to peer review by another academy before being submitted to the HSCIC’s Clinical Classifications Service for endorsement against the national standards.

We currently have materials endorsed or in development for specialty areas including:

- Circulatory and vascular
- Orthopaedic
- Obstetric & Perinatal
- National Clinical Coding Qualification (NCCQ) Revision
- Mental Health
- General Medicine
ICPC, reflecting the burden of family medicine, is available in the HeTOP cross-lingual terminology portal (URL: www.hetop.eu) in 19 languages, mostly European (e.g. Spanish, Portuguese) but also in Japanese or Mandarin. The HeTOP interface has been also translated in 10 languages by Wonca colleagues (including in Turkish, Vietnamese and Romanian).
Classification of Primary Care in China

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Abstract  
A study was conducted on 275 million cases from primary care institutions in China. We found 243 western medical diagnoses and 62 traditional diagnoses for diseases and 82 for ZHENG could cover over 90% of patients seeking for medical services in primary care institutions. To promote the management, evaluation and planning of primary care institutions and facilitate transferring patients to hospitals, a Chinese classification of primary care was developed based on ICD-10 Chinese Clinical Modification, ICD-10 tabulation list for morbidity and Classification and Codes of Diseases and ZHENG of Traditional Chinese Medicine.

Introduction  
Precise and nationwide information of primary care is essential for health policy-making. However, classification systems for health issues are inconsistently applied in primary care institutions in China, including ICD, ICPC, and Classification and Codes of Diseases and ZHENG of Traditional Chinese Medicine (CCDZTCM, national standard for traditional Chinese medicine). The inconsistency brings difficulties for data analysis. Additionally, diagnosis and coding levels of clinicians in primary care vary largely by regions. To balance the discrepancy and promote coding quality, we established the classification of primary care in China.

Methods & Materials  
Diagnoses and codes were collected from primary care institutions in 5 provinces or municipalities in China. Frequently used diagnosis were selected after data deduplication, integration, and arrangement. These active diagnoses for western and traditional medicine were codified on the basis of ICD-10 Chinese Clinical Modification (quasi national standard for western medicine) and CCDZTCM, respectively, and nominated in the most preferable way of clinicians. Active diagnoses and tabulation list for morbidity in ICD-10 for western medicine, and of 62 active codes and 52 categories of diseases, and 82 active codes and 259 categories of ZHENG (Chart 1).

Results  
We collected 275,014,490 cases from primary care institutions, involving 37,212 diagnoses. After data washing, 243 western medical diagnoses accounted for over 90% of patients seeking for western medical services in primary care institutions, and 62 traditional diagnoses for diseases and 82 for ZHENG could cover over 90% of patients seeking for traditional medical services.

Conclusions  
Implementation of CCPC could promote the accuracy of diagnosis, and provide reliable data for statistics and health planning. As it is established on the basis of national standard classification, CCPC enables the exchange of information and referral between medical care institutions. Expanded pilot program is in progress for more supportive evidence before its nationwide promotion. In addition, Revision and maintenance mechanism of CCPC needs to be established for long-term application.

Acknowledgements or Notes  
The work was supported by grants from the National Health and Family Planning Commission of the People’s Republic of China (No. 20140304 & 20150304).
Abstract: In 2006 a task force group was committed for a radical redesign of the healthcare in an area of Barcelona with a population on 600,000 inhabitants with a focus on the relationship between primary care (PC) and specialized care (SC). Twenty-three centers were involved. They belong to nine different Healthcare Organizations (HCO): three hospitals, one SC outpatient clinic and six PC organizations. The initial analysis of the departure situation resulted in a high heterogeneity in relation to the degree of technological investment and maturity in the use of EPRs by the professionals. Several ICTs were also created. The decision was to implement an interchange platform using of structured xml files with clinical content based on HL7 v2.5. The overall system supports the full information cycle of several clinical processes like the patient referral from PC to SC with all the possible circumstances of each step in the workflow and the return of clinical documentation, the request for specific procedures from PC to SC with the return of the report and the related images if it’s the case, the communication to PC of the admission of a patient at the Emergency ward and the return of the discharge reports, as well as new collaboration processes like the teleconsultation in Dermatology. All the messages written in HL7 are completely generated and fully integrated in all the different EPRs of the nine HCOs. Several management and clinical scores demonstrates the benefits of such implementation in the quality of care of the population covered by the HCOs and on the standardization of the clinical processes in this area of the Barcelona city. At this moment we are in the process to evolve to a new platform with the capability to connect all the HCO and centers in Catalonia.

Introduction

In spite of designing nice diagrams about the relationship between PC and SC, many surveys demonstrate several problems in the real clinical practice:

- Poor (or absence of) communication among HC professionals.
- Technical resources always at the Hospital side.
- No update of clinical info from the hospitals.
- Lack of standardized protocols of care. The final result is a delay in diagnosis and treatment, harmful for the patient.

To overcome this problem we need to analyze it with the leadership of a core of professionals and propose a radical redesign of the integrated care delivery implemented with the help of Information and Communication Technologies.

Methods & Materials

Analysis: working groups (WG) by clinical processes were created to review patient’s workflow and outcomes. All the providers were involved (3 hospitals, 21 PC centers). An specific WG for ICTs was also created.

Proposals: a new approach with

a).- Organizational redesign: suppress intermediate levels, mix the PC team with specialists trying to achieve more efficiency and standardize care protocols with a more rationale patient distribution according severity.

b).- Technological solution: Use of interoperability standards (HL7 v2.5) to define the clinical messages among HC providers to support the clinical workflow among centers with different EPRs.

c).- Teleconsultation

Each provider has its own EPR what it’s used by both PC and SC physicians. When patient need a hospital resource the service is requested through the EPR and a first message is generated in HL7 and sent to the hospital through a platform which assigns an univocal Id number that ensures the full traceability of the process along all its life cycle. The integration of the message info in the EPR of the destination center is complete and the request is processed accordingly, returning to the origin the results which are also integrated in the PC EPR. The workflow includes the sending of image files or links to the published images and clinical documentation. Delay communication is 3 minutes.

Results

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>80826</td>
<td>112266</td>
<td>123982</td>
<td>180733</td>
<td>245081</td>
<td>182905</td>
</tr>
<tr>
<td>2011</td>
<td>84678</td>
<td>134912</td>
<td>161905</td>
<td>394664</td>
<td>523337</td>
<td>348211</td>
</tr>
<tr>
<td>2012</td>
<td>77573</td>
<td>91024</td>
<td>102022</td>
<td>125914</td>
<td>150884</td>
<td>97882</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
<td>0</td>
<td>1301</td>
<td>21670</td>
<td>27258</td>
<td>19192</td>
</tr>
<tr>
<td>2014</td>
<td>93</td>
<td>150</td>
<td>396</td>
<td>522</td>
<td>465</td>
<td>261</td>
</tr>
<tr>
<td>2015</td>
<td>0</td>
<td>0</td>
<td>1301</td>
<td>21670</td>
<td>27258</td>
<td>19192</td>
</tr>
</tbody>
</table>

Some results:

- Immediate clinical feedback from SC to PC. (ie: emergency discharge report is at PC desktop 3 minutes after discharge).
- Saving time in diagnosis (ie: dermatologist diagnosis through teleconsultation is received 1,8 days after the request).
- Full traceability of the patient situation along the clinical process.
- Analytical capability ➔ Information.
- Great improvement in Care coordination and ICTs deployment and evolution.

Figure 2: Diagram of the three main clinical processes implemented.

Figure 3: Governance model of the clinical collaborative model between PC and SC.

Conclusions

- Seven different Healthcare providers with different EPRs are fully involved in collaborative and standard care, sharing clinical data on a real time.
- Several Improvements have been demonstrated in different clinical scores of management.
- Perceived quality of the HC by patients and professionals has improved.

Acknowledgements or Notes

The authors wish to express the participation in such project in all the members of the ICTs working group at the AISIBE area of Barcelona city: A Boixadors, P Cano, N Camu, M Carrasco, D Fernandez, L Garcia, M Gómez, M Gonzalez, M Grau, A Guijarro, M Olmos, M Pindado, J Ruano, J Ruiz, E Sanchez, E Serra, J Villar, R Zapatero.
The AMRO and Spanish Network includes the WHO-FIC Collaborating Centers (CCs) for the American Region and the National Reference Centers (NRCs) on mortality and morbidity. Was launched in 2011 under the framework of the Latin American and Caribbean Network for the Strengthening HIS (RELACSIS as its acronyms in Spanish). The poster presents activities developed under its 2014-2015 WP and shows other activities defined for training purposes in FIC, to promote a collective development of tools for strengthening HIS, to foster the creation of NRCs and establish common criteria among members to participate collectively in the WHO-FIC Network and its different Committees.

Activities developed in the context of RELACSIS WP (2014-2015)

For the first time in the WHO-FIC Network 2014 Annual Meeting in Barcelona, the LAC and Spanish network organized a special session in Spanish with simultaneous translation in English were the region had the opportunity to show their own experiences in working in the field of the FIC.

In its 4th meeting, held in Chile in April 2015, all members updated their situation at the national and international level and defined their 2014-2015 WP.

The most important activities defined were:

1. The launched of the “Dr. Roberto Becker Forum” under the RELACSIS site http://www.relacsis.org/index.php/foros-relacsis/foro-becker-fci-oms to support countries in the proper use of WHO-FIC emphasizing coding with ICD-10 and to find regional consensus in standard recommendations for consistency and comparability. All tutors and coders trained by RELACSIS and coders from different countries can participate in the free Forum.

2. The Coordination of training activities for the region such as: regional CIF course coordinated by Argentina with the participation of México (Sep, 2015); Tutors training in ICD-10 lead by Mexico with the collaboration of other CCs and NCR (Nov, 2015); course ICD-10 for morbidity in Chile, lead by Argentina (Jul, 2015); under the 2014-2015 RELACSIS WP ICD-10 updates to 2015 were included in the online course in ICD-10 for 110 tutors from 11 countries (Aug, 2015); the course will be replicated by tutors for more than 330 coders in these countries (Aug-Sep, 2015); the data bank of exercises for the online course for properly filling out the death certificate was will be updated and is still offered through PAHO’s virtual campus;

3. WG developed a WP to implement a pilot in Spanish for the ICD-11. The network is coordinating activities to translate documents and tools, to identify areas for field studies, to prepare and to test data base platforms and to train pilot’s participants.

Activities developed in the context of RELACSIS WP (2011-2014)

IB WHO FCI will be governed by a Committee composed at least two representatives selected among its members and at least one member of the RELACSIS Secretariat. The PAHO/WHO unit responsible for the topic will assume the role of Secretariat to facilitate exchanges among members and countries in the region. It will be establish task groups assigned to priority issues as a part of the annual plan.

The RELACSIS website (www.relacsis.org) will be the way of communication through a private site with members access and a public section to use for holding public forums, communications with members, dissemination of documents, and use of other tools that the system provides.

Purpose of the network

Develop an annual work plan that includes training and quality HIS evaluation, promote the collective development of tools to strengthen HIS, foster the creation of NRCs, and establish common criteria among members to participate collectively in the WHO-FIC Network and its different Committees.

Membership

Its members include the WHO CCs in the Region of the Americas and Spain, the existing NRCs in the Region, the responsible Area Chief in the PAHO Regional Office, the RELACSIS Secretariat, as well as other future centers to be created, and other governmental and nongovernmental academic institutions that carry out activities related to WHO-FIC.

Further information

Website. www.relacsis.org
Contacts. ruizpatr@paho.org, aline.jimenez@salud.gob.mx
Different Agencies Contribute to the LAC Network for the Strengthening of HIS (RELACSIS)

Authors: Sara Weinstein (MSH), Alejandro Giusti (MSH)

The Latin America and Caribbean (LAC) Bureau of the US Agency for International Development (USAID) the Leadership, Management and Governance (LMG) Project implemented by Management Sciences for Health (MSH) and other agencies (ECLAC and CELADE) contribute the RELACSIS work by actively managing and contributing technical expertise and working with the Pan-American Health Organization (PAHO) on issues relating to HIS strengthening.

Introduction

Contributing to the implementation of the UN mandates on coordinating activities between international and funding agencies to promote and give technical cooperation to countries for the socio-economic and demographic development of the population, PAHO works with USAID, MSH and ECLAC in the field of strengthening HIS.

USAID www.usaid.gov has been the major donor in health in the Latin America and Caribbean (LAC) region for many decades and has made enormous contributions across the region to helping countries improve maternal and child health, voluntary family planning programs, and infectious disease control and health information systems.

The Leadership, Management and Governance (LMG) Project is a five-year USAID-funded consortium project led by Management Sciences for Health (MSH) www.msh.org. LMG currently works in over 35 countries around the world to strengthen health systems by improving the leadership, management, and governance capacity of health workers. The LMG Project supports senior leaders and managers by providing access to reliable and high quality health information systems so they are able to make timely, well-informed decisions.

USAID Efforts in the Region

USAID supports a number of regional initiatives that aim to strengthen health systems, including the RELACSIS network. Strengthening health information systems continues to be a top priority in the region, and this network is USAID’s primary mechanism for funding technical assistance on designing, gathering, analyzing, and using health data to inform decision making about policy and programs.

The LMG Project has contributed to RELACSIS by actively managing and contributing technical expertise and working with the Pan-American Health Organization (PAHO) on issues relating to HIS strengthening.

The Economic Commission for Latin America and the Caribbean (ECLAC) www.eclac.org is a member of the RELACSIS Secretariat. ECLAC contributes to the economic and social development of Latin America and the Caribbean by coordinating actions directed towards this end, and reinforcing economic relationships among the countries and with the other nations of the world. Established by the Economic and Social Council in 1948, ECLAC is one of the five regional commissions of the United Nations, and is headquartered in Santiago, Chile.

ECLAC cooperates with RELACSIS through both the Statistical Division and the Population Division (CELADE) in the field of improving quality and coverage of MDG indicators and in population estimations, as well as in vital statistics coverage.

Results

RELACSIS was officially launched in Lima, Peru in April 2010. RELACSIS is now implementing its 4th annual workplan. Supported by PAHO, USAID, the Leadership, Management and Governance (LMG) Project of Management Sciences for Health (MSH), ECLAC, FIC-CC and NRCS, RELACSIS promotes horizontal cooperation between countries of the Americas.

The main practices developed by RELACSIS in the 2014-2015 workplan are: online courses on ICD-10 Coding; implementation of an electronic system to codify mortality (MMDS); online course for awareness of medical doctors in the adequate registration of the causes of death; four meetings of the AMRO and Spanish Network of the WHO-FIC Collaborating Centers and National Reference Centers for mortality and morbidity; forum on Electronic Health Record (EHR); forum on Inequities; a workshop to disseminate a software and training in deliberate search of maternal deaths.

Four new working groups were defined for 2015: deliberate search of maternal deaths; VS coverage and adjustments at the local level; harmonization of sources of data and indicators and inequities; and English-speaking Caribbean Countries.

Conclusions

In conjunction with country-led efforts, the collaboration between agencies with other donors has contributed to promoting exchange and collaboration among relevant professionals and organizations, as well as among key networks and alliances in the Latin America and Caribbean region. It is expected that this interagency collaboration will improve information and analysis, and will accelerate the reduction of health inequalities in the region.

Further information

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USAID’s Health Systems Strengthening Work in Latin America and the Caribbean
Author: Jennifer Slotnick
USAID, Washington

U.S. Agency for International Development (USAID) has been working to improve health in Latin America and the Caribbean (LAC) for more than 50 years. More recently, efforts have shifted from providing direct services to offering technical assistance to countries for building capacity and strengthening health systems. As USAID transitions from working bilaterally within LAC countries to implementation using a more regional approach, initiatives such as RELACSIS and other multi-country efforts will continue to be an important way for the American people to partner with and provide technical assistance to the region.

Introduction
USAID has been the major donor in health in LAC for many decades and has made enormous contributions across the region towards helping countries improve maternal and child health, voluntary family planning programs, and infectious disease control. Overall, aggregate health indicators at the regional and country level demonstrate substantial progress in LAC. However, these improvements have not been universal among all income quintiles, and maternal, infant, and other premature mortality and morbidity remain high among vulnerable populations.

With improving economic conditions and stronger health sectors in the region, the need for external assistance has declined over the past two decades. Reductions in assistance for LAC countries has been based on analyses of progress and achievements made in addressing basic health issues in maternal and child health and infectious disease control.

As countries in the region have progressed, USAID has shifted from a bilateral assistance model to providing regional technical assistance for health systems strengthening activities in areas ranging from health information systems to family planning to infectious disease control.

Key efforts in the Region
USAID supports a number of regional initiatives that aim to strengthen health systems, including:

- **RELACSIS:** strengthening health information systems continues to be a top priority in the region. This network is USAID’s primary mechanism for funding technical assistance on designing, gathering, analyzing, and using health data to inform decision making about policy and programs.

- **Regional Contraceptive Security Initiative:** focuses on sustaining country capacity and providing high-level technical assistance from the regional platform, often by bringing groups of countries together to learn from one another.

- **A Promise Renewed for the Americas (APR-LAC):** as part of the global “A Promise Renewed” campaign to end preventable maternal and child deaths, USAID in in collaboration with four other international agencies, supports APR-LAC. This initiative seeks to reduce the profound inequities in reproductive, maternal, neonatal, child, and adolescent health that persist in LAC.

APR-LAC works to catalyze and support country-led efforts to decrease inequities in access to quality health care in LAC. Part of this work, focuses on building national capacity in the measuring and monitoring of current health inequities in order to ultimately promote the implementation of policies and programs that consider the distribution of health across all subgroups, and that are based on current evidence.

APR-LAC convenes a working group on health inequality metrics and monitoring. The aim of this working group is respond to country requests and promote the analysis of monitoring of current health inequalities at the regional, national, and sub-national level in LAC.

Results
In conjunction with country-led efforts and in collaboration with other donors, USAID has contributed to significant improvements in health in the region over the years. Region-wide improvements in health information that inform policy, budgeting, and programming has been a key advance supported by USAID. Since 1990, infant mortality in the LAC region has declined by more than half from 43 to 16.2 deaths per 1000 live births. Maternal mortality is estimated to have declined from 140 deaths per 100,000 live births to 81 in the same time period. Fertility rates in LAC have fallen from 4 to 2.2 children per woman since 1980.

Conclusions
USAID will continue to collaborate on health systems strengthening in the LAC region and work toward building sustainable networks and partnerships among the countries of the Western Hemisphere. By promoting exchange and collaboration among relevant professionals and organizations, as well as among key networks and alliances in the region, USAID expects that average health status will continue to improve in the region, and that improved information and analysis will accelerate the reduction of health inequalities in the region going forward.
Use of the Family of International Classifications to support performance reporting for Universal Health Coverage - a follow up

Brooke Macpherson, Jenny Hargreaves, Lyn Hamner, Nicola Fortune and Kathy Giannangelo

Australian Institute of Health and Welfare and Australian Collaborating Centre, FIC Co-chair;
South African Medical Research Council and WHO-FIC Collaborating Centre South Africa, FIC Co-chair;
University of Sydney and Australian Collaborating Centre;
International Health Terminology Standards Development Organisation, USA

Abstract

Universal health coverage (UHC) is a global WHO initiative to ensure that everyone who needs health services is able to receive them, without experiencing financial hardship. This paper builds on previous work by the Family Development Committee to assess the extent to which the WHO-FIC can support indicators for tracking progress towards UHC. The International Classification of Health Interventions (ICHI) Alpha2 2014 and a frozen version of ICD-11 Joint Linearization for Mortality and Morbidity Statistics (JLMMS) were used to identify codes relevant to the indicators.

Introduction

The Family Development Committee (FDC) has been assessing how the WHO-FIC can potentially be used to specify and report against indicators for monitoring the WHO’s UHC initiative.

In 2014, the WHO and World Bank proposed a framework for tracking country and global progress towards UHC, and reported service coverage rates against a small number of illustrative prevention and treatment intervention indicators for four countries.

Building on this, Boerma et al. have presented an overall results framework for monitoring health system performance that can be used to track progress towards UHC. They provide an expanded list of example prevention, promotion, treatment, rehabilitation and palliation intervention coverage indicators, with additional indicators to capture quality for some intervention areas. The authors state that progress towards UHC should be tracked using a tracer intervention coverage indicator across a range of health interventions, with individual countries selecting indicators relevant to their situations to monitor the results of particular UHC interventions and strategies. The main sources of intervention coverage indicators are envisaged to be household surveys and health facility reports.

At the 2014 WHO-FIC meeting in Barcelona, the FDC had begun identifying codes relevant to the indicators in this expanded list using ICD-10 (2010), ICF (online browser) and ICHI Alpha2 2013.

This paper outlines the further work conducted by FDC members to identify relevant codes in the ICD-11 beta draft and the updated version of ICHI Alpha2 2014.

Methods & Materials

Volunteers from the FDC coded the 35 promotion and prevention coverage indicators, and the 30 treatment, rehabilitation and palliation intervention coverage indicators using ICHI Alpha2 2014 and the ICD-11 Beta Draft JLMMS 31 May 2015 frozen version. The frozen version of ICD-11 was chosen to provide a benchmark for any future assessment of ICD-11 to measure UHC as the ICD-11 development continues.

Two FDC members separately assigned codes to the indicators using ICHI Alpha2 2014. This work was independently assessed by two additional FDC volunteers with an in-depth knowledge of ICHI.

Two FDC members separately assigned codes to the indicators using the ICD-11 Beta Draft JLMMS. Due to time constraints, an independent assessment similar to that used for ICHI was not possible.

Volunteers noted when the classifications appeared to have gaps or issues in capturing the indicators.

Findings

This section presents a summary of the results of this coding exercise. More detail will be provided to the FDC during the Manchester meeting.

In general, for many of the indicators, both ICD-11 and ICHI codes of potential relevance were identified (see Table 1).

Many of the intervention coverage indicators in this exercise are explicitly framed as indicators of outcome, so in many instances while ICHI codes may be used to describe interventions aimed at achieving the outcome, they could not be used directly for the indicator. For example, ICHI has 19 codes for interventions that target air quality, but these could not be used directly for the indicator ‘Exposure to good air quality’.

Often the indicators are expressed in very general terms, making it difficult to identify which codes may be relevant—e.g., ‘STI appropriately diagnosed and treated’, ‘Treatment among those with epidemic disease’, ‘Rehabilitative surgical interventions’.

Several UHC indicators coded include concepts outside the current scope of WHO-FIC, such as setting (e.g., ‘Institutional delivery’, ‘Child with fever taken to facility’), and level of professional expertise (e.g., ‘Skilled birth attendance’); these concepts cannot be captured using ICD or ICHI codes. Where an indicator specifies a particular pharmaceutical this could not be coded using the Anatomical Therapeutic Chemical Classification (ATC)—an example of where the joint use of classifications may be necessary.

Compared with the previous 2013 version of ICHI Alpha2, ICHI Alpha2 Updated 2014 contains a greater number of codes relevant to UHC indicators. For ICD-11 frozen version, there were some indicators that were better captured than when using ICD-10, such as for child vaccination, with the addition of extension codes for the specific vaccines (e.g., for measles and DPT). Some possible gaps in ICD-11 and ICHI were identified in the course of the exercise.

Table 1: Examples of results from the coding exercise

<table>
<thead>
<tr>
<th>Intervention Areas and Coverage Indicators</th>
<th>ICHI Alpha2 Updated 2014</th>
<th>ICD-11 JLMMS (31 May 2015 frozen version)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Exposure to good air quality</td>
<td>19 interventions targeting indoor and outdoor air quality, e.g., UBM AA ZA Assessment of indoor air quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Surgical conditions:</td>
<td>Hema: 19 codes, e.g., MCM MR AA Repair of duodenogastric hernia, Hip replacement: 1 code: ML MA Hip replacement</td>
<td>EP4 to EP7 Hema: Contains hip replacement status codes; or codes for the disease state causing the replacement</td>
<td></td>
</tr>
<tr>
<td>• Injuries:</td>
<td>Nil codes</td>
<td>Indicator not covered by current WHO-FIC. An example showing a potential need for a risk/protective factors classification?</td>
<td></td>
</tr>
<tr>
<td><strong>Child vaccination</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DPT/PentaVax</td>
<td>Contains inverse: QAN23 Exposure to air pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measles</td>
<td>Identifies codes may be of use, depending on indicator construction and data sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Polio</td>
<td>Potential well captured using ICD and ICHI together. Further information on the exact type of surgery would be required</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HIV</strong></td>
<td>Chapter 26 Extension Codes contains codes for many individual vaccinations, e.g., XD74 890 measles, XD74 89.15 triple vaccine DPT</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HIV surveillance</strong></td>
<td>Contains inverse: QAN23 Exposure to air pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HIV infection syndrome</strong></td>
<td>Contains inverse: QAN23 Exposure to air pollution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

This exercise has illustrated that the WHO-FIC can potentially be used to support measurement and progress towards UHC. In particular, this ‘use case’ demonstrates the potential value of using ICD and ICHI together—a fundamental principle of the WHO-FIC.

References

3International Classification of Health Interventions Alpha2 Updated 2014. Available at: http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001728

Acknowledgements

The authors extend their gratitude to all of the volunteers who assisted in this exercise, including Megan Cumerlato and Nicholas Hardiker.

Next Steps

The next steps of this exercise include:

- review and refinement of the ICD-10 and ICF codes previously identified as relevant to UHC indicators
- reviewing the indicator specifications in more detail so that it may be possible to identify with more specificity relevant WHO-FIC codes for each indicator
- seeking to engage with the UHC programme area at WHO.
Tribute to an ICF Pioneer: Professor David B. Gray

John F. Hough, Dr.P.H., M.P.H., M.B.A., M.C.H.E.S., C.P.H., F.A.C.E.
CDC National Center for Health Statistics, Hyattsville, MD, USA; North American Collaborating Center

Abstract
This poster honors the life, career and scientific contributions of our friend and colleague, David B. Gray, Ph.D., who passed away February 12, 2015, at age 71. Professor Gray genuinely was an ICF Pioneer. David contributed tirelessly to WHO, our WHO-FIC Network, and toward the development of countless students and professionals. David spearheaded the validation of a suite of ICF-based functional assessment instruments that measure the effects of Environmental Factors.

In Memoriam

David Bertsch Gray was an intellectual giant, mentor, and our friend. David served as a Rehabilitation Scientist and Professor of Occupational Therapy and Neurology at the Washington University School of Medicine, St. Louis, Missouri, USA. Although too brief, David had an amazing career. He had a substantially positive influence on contemporary research in the disability sciences. We are grateful for Dr. Gray’s conceptual and quantitative contributions to many scientific fields, including Occupational Therapy, Psychology, Social Work, and Medical Classifications. David not only served as Director of two federal rehabilitation agencies, he also actively participated in advocacy organizations in his own St. Louis community.

David’s doctoral training actually had been in Psychology and Behavioral Genetics. In 1976, as a young father of 3 children, David experienced a spinal cord injury that changed the course of that career. In his words, “When it’s all said and done, life has been about figuring out how to overcome obstacles, get good at something and then transition onto the next thing.” Today these words inspire us all, David.

Evidence of Dr. Gray’s scholarship is found in his authorship of dozens of articles and chapters, and participation in the clinical training of hundreds of new professionals, particularly in Social Work and Occupational Therapy. David joined the faculty at Washington University in 1995, beginning a career researching the intersection of mobility, and Environmental Factors.

Scholarship

In the 1990s, Dr. Gray co-chaired a task force that called on WHO to remove “handicap” from its lexicon. With linguistic terms changing in accord with the 1990 Americans with Disabilities Act, and with disability rights movements emerging around the world, the need arose for WHO to generate a new Classification covering contemporary concepts of disability, including Environmental Factors and participating in community life. Dr. Gray’s familiarity with these topics, and with rehabilitation around the world, made him an ideal consultant for WHO on updating the first-generation ICIDH.

NACC nominated Dr. Gray as its Charter Member on the FDRG in 2006. David participated in FDRG’s first Midyear Meeting in Québec in 2008, reporting on the new “Community Health Environment Checklist.”

Contributions to the ICF and FDRG

This poster honors the life, career and scientific contributions of our friend and colleague, David B. Gray, Ph.D., who passed away February 12, 2015, at age 71. Professor Gray genuinely was an ICF Pioneer. David contributed tirelessly to WHO, our WHO-FIC Network, and toward the development of countless students and professionals. David spearheaded the validation of a suite of ICF-based functional assessment instruments that measure the effects of Environmental Factors.

Community Service

David worked tirelessly as an advocate. He helped develop the Accessible Health & Wellness Center at Paraquad, a Center for Independent Living in his St. Louis community, where David also served as a board member. He assisted and found funding for CILs in other cities, too. David consulted families, and taught about parenting when mobility impairment occurs in a family.

Government Service

Only 10 years post-injury, Dr. Gray was appointed Director of the National Institute on Handicap Research, renaming it as the National Institute on Disability and Rehabilitation Research. In 1991, he served as Deputy Director at the founding of the NIH National Center on Medical and Rehabilitation Research. David consulted with CDC when it began awarding “Disability and Health” grants to states in 1998.

References and Acknowledgments

Classifications Information Management System

Karen Carvell\textsuperscript{1}, Lori Moskal\textsuperscript{1}, Karen Coghlan\textsuperscript{1}, Sharon Wang\textsuperscript{1}, Anatoliy Valko\textsuperscript{1}
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Abstract

The Canadian Institute for Health Information (CIHI) is responsible for the publication of ICD-10-CA and the companion Canadian Classification of Health Interventions (CCI), along with the distribution of associated code tables for data consumers in Canada. This abstract describes the new business processes and technology platform developed to support CIHI’s current and future classifications maintenance needs.

Background

In 2015, CIHI deployed a new re-engineered system to replace five, 15 -year old systems to build and maintain ICD-10-CA and CCI in English and French. Previous systems were unable to transfer data between systems and link to other classifications-related products. This new integrated system will improve quality and timeliness and enhance efficiencies in updating ICD-10-CA and CCI to new versions; as well as code tables for vendors, CIHI databases, case mix and pick lists. Built on the new technology (WebLogic/Oracle 11g), the hyper-generalized data model will introduce extensibility to accept new clinical data standards such as ICD-11.

New Business Process and Main System Features

The Classification Information Management System (CIMS) is an integrated application that manages all aspects of the ICD-10-CA and CCI update process: receive requested changes, review proposed changes, update and translate accepted changes to a new version, generate code title as well as validation tables, and publish electronic code books.

Figure 1: Classifications & Terminologies business process flow for maintenance and release of ICD-10-CA/CCI

Results

Efficiencies Realized:

- Integrated management and review of change requests.
- Increased efficiency in the process to update and release classification versions.
- Streamlined workflow to ease translation into French.
- Audit and review of updates in classification viewer is less repetitive.
- Automated release of code tables to data consumers.

Future Enhancements

This new Classifications Information Management System will enable CIHI to develop additional modules to manage new classifications, version chronicles, clinical reference sets and terminology maps to support emerging data collection needs in various clinical settings.
### Abstract

The ICF framework articulates the biopsychosocial model of health. The ICF was one of three international frameworks selected to underpin the development of a taxonomy of community-based case management interventions for brain injury. Use of an international frame such as the ICF resulted in efficiencies and strengthened the rigour of the taxonomy.

### Introduction

Case management, care coordination, support planning are terms which represent the diversity in practice of case management (CM). CM has multiple components and variations differentiated by the theoretical approach or model, context, and the client population. The diverse expressions of CM have confounded professional consensus on a common framework and standard definition for CM. This has significant implications for clinical practice, monitoring, planning and semantic interoperability.

In this research case management practice was based on the theoretical background of the biopsychosocial model of health and disability, and two main care models (person-centred care and community care). In practice this means that case management is provided within a community context and adopts a human rights approach, which holistically considers the client’s own context and situation, strengths, choice and goals for participation in key life areas, the barriers and facilitators to their participation, and promotes active involvement in planning.

A new taxonomy of case management was developed. It has been designed to allow for semantic interoperability and interconnectedness with three international classifications: functioning, disability and health (ICF), health interventions (ICHI) and services/care delivery (DESDE-LTC). The interconnection with the ICF is presented here.

### Methods & Materials

Mixed qualitative methods were used to develop the taxonomy including scoping, framing and a nominal group technique of experts (n=12) to iteratively develop the Beta version of the taxonomy. The structure and concepts of the international frameworks was used in the development of the Beta version of the taxonomy. A two part developmental evaluation involved case studies and also mapping to the international frameworks to assess the applicability and acceptability (feasibility) of the Beta version, revision and then finalisation of the Brain injury case management taxonomy (BICM-T).

### Results

The concepts and language in the ICF aligns with the approach taken in community-based and person-centred case management. The ICF identifies and defines the domains of health, their interaction and influence on functioning. At the onset of the nominal group, it was established that the ICF was to be adopted as a frame.

The framework and common language of the ICF facilitated discussions by providing a point of reference and clarity during nominal group discussions, supported the distinctions between concepts and enhances the consensus process for the definitions developed for the identified interventions. Examples are: the ICF concepts assisted with discussions around the differences between ability and capacity versus functioning; these discussions influenced the definition of the intervention (action)–holistic assessment; the ICF groups and definitions of contextual factors (environmental and personal) influenced the definitions of formal and informal supports. There were seven key definitions used in the taxonomy glossary taken directly from the ICF (context, disability, functioning, health condition, health, health related domains, personal factors).

As part of the feasibility analysis of the Beta version, developmental evaluations were undertaken. One of these involved using the ICF to review the conceptual and language consistency across the taxonomy. The taxonomy was reviewed for alignment with all three international frames (ICF, ICHI and DESDE-LTC). This resulted in some refinement to the interventions and definitions.

### Conclusions

The research used international frames to inform the concepts, development process, structure and review of the feasibility of the case management taxonomy. The ICF together with the other reference classifications (ICHI and DESDE-LTC) provided a conceptual knowledge map and a common language for the theoretical model of community based person-centred case management to underpin the taxonomy. Use of an international frame such as the ICF resulted in efficiencies and strengthened the rigour of the taxonomy.

### References


2. World Health Organization (WHO), International Classification of Functioning, Disability and Health (ICF), 2001, WHO Geneva


### Acknowledgments

We acknowledge the in-kind support of the Lifetime Care & Support Authority for 15 days of Sue Lukersmith’s time during the development of the taxonomy and also hosting the nominal group meetings. We thank the nominal group members who so willingly contributed their expertise and time.
**Abstract**
Health Information Manager Education Committee of Japan Hospital Association has been carrying out the Survey on the current status surrounding Health Information Manager every 3 years since 2004. This has been conducted in the aim to find out the current issues to archive better Health Information Management in Japanese medical setting. The 4th survey on the current status was conveyed to 22,963 health information managers with whose address we could confirm (out of certified 25,965 managers). In this poster, the findings in this survey are summarized. We found out that compared to the last three surveys, the operation area of the Health Information Manager has greatly expanded and their work contents have been drastically changed as a result of progress of IT in health information management.

**Introduction**
Since 2004, Japan Hospital Association’s HIMs Distance Training Committee has been conducting a triennial survey on the existing conditions of health information managers (HIMs) in Japan, with the objective of improving the health information management system in medical institutions in this country. In July 2013, the committee carried out its fourth survey on 22,963 HIMs with valid mailing addresses, out of total certified 25,965 HIMs.

In comparison with the findings from last three surveys, we found out that with the advancement of information technology, HIMs’ tasks/responsibilities have undergone changes, resulting in higher needs for handling diversified tasks.

**Methods & Materials**
In August 2013, the HIMs Distance Training Committee sent questionnaire survey sheets to 22,963 certified HIMs with valid mailing addresses among 25,965 certified HIMs, and tabulated the data on 8,046 responses received as of October 7th, 2013. The survey consisted of 26 questions in the following four areas:

1. Personal information (sex, age, etc.)
2. Information on employment and working conditions (Length of service and name of working place, etc.)
3. For those working in health information management: Job description
4. For those engaged in other occupations: Job description, orientation towards health information management

The effective response rate for the 4th Survey was 37.6%.

**Results**
In the 4th survey, of 8,044 respondents, 2,544 said they were professionally active HIMs. In terms of number, this represents an increase of 300 people from the 2010 survey but in terms of proportion, as in the previous survey, it remained lower than the first two surveys, accounting for about 30% of the total. The results also indicate that in Japan, diverse professionals working at medical institutions are certified as HIMs.

- **Number of years working as HIMs**

A comparison for the length of service was made between the most recent (2013) and the previous (2010) surveys. In the first three surveys, HIMs with short working experience (1-2 years) accounted for the majority of HIMs, which presented a risk of reduction in HIM operational base with experienced HIMs leaving work or retiring. However, the 2013 survey showed an overall increase in the number of experienced HIMs, suggesting that stable HIM positions were available for them to work longer. This trend is thought to be owing to more long-term HIM jobs becoming available and more HIM departments being established within medical institutions in Japan (Fig. 2).

- **Changes in the duties of HIMs**

“Coding,” “health records archiving/retrieval management,” “health records checks,” and “discharge information registration” were on the decline. On the other hand, “cancer registry” “health records audits” and “statistics creation” were on the rise. Included in “Others” were National Clinical Database (NDC) registration, information systems-related tasks, medical affairs, clerical work, and clinical pathway-related tasks. The results show that duties of HIMs are diversifying and that a major shift from “management of physical things” to “management of information” has taken place. (Fig. 3)

- **Status of computerization**

The survey results showed that the ratio of HIMs working for highly computerized institutions was very high: 67.6% work for institutions with EHR and 20.4% work for institutions with computerized provider order entry (CPOE) system, making the total 88.0%.(Fig. 4) As of April 2013, around 21.7% of institutions used EHR and 32.4% of institutions employed the CPOE system.*


**Conclusion**
The survey results showed that a progress has been made in employment situation of HIMs and establishment of HIM departments at medical institutions in Japan. It also revealed that highly computerized institutions are primary employers of HIMs and that with the advancement of information technology, HIMs’ tasks/responsibilities have undergone changes, resulting in higher needs for handling diversified tasks and heavier workload. As for status of computerization at medical institutions, Japan is seeing a steady growth, with 88.0% of HIMs working for highly computerized institutions, with 67.6% of HIMs working at institutions using EHR and 20.4% at institutions employing a computerized provider order entry (CPOE) system. The significant increase in the use of IT is bringing drastic changes in HIMs’ tasks and responsibilities, which call for an urgent development of international classifications that make effective use of technological advancement and allow effective HIM operations.
A Systematic Review of Risk Adjustment Models of Hospital Length of Stay (LOS)

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Abstract
Policy decisions in health care, such as hospital performance evaluation and performance-based budgeting, require an accurate prediction of hospital length of stay (LOS). This paper provides a systematic review of risk adjustment models for hospital LOS, and focuses primarily on studies that use administrative data. Systematic review methodology was used to identify studies that tested models developed for the general inpatient population, described below. Our search yielded 3,973 abstracts, of which 37 were included. These studies used various disease groupers and severity/morbidity indexes to predict LOS. Few models were developed specifically for explaining hospital LOS; most focused primarily on explaining resource spending and the costs associated with hospital LOS, and applied these models to hospital LOS. We found a large variation in predictive power across different LOS predictive models. The best model performance for most studies fell in the range of 0.30 to 0.60, approximately. The current risk adjustment methodologies for predicting LOS are still limited in terms of models, predictors, and predictive power. One possible approach to improving the performance of LOS risk adjustment models is to include more disease-specific variables, such as disease- or condition-specific measures, as well as functional measures. For this approach, however, more comprehensive and standardized data is urgently needed. Additionally, statistical methods and evaluation tools more appropriate to LOS should be tested and adopted.

Introduction
Cost containment and improved efficiency are primary issues in health care policy, as countries face budgetary constraints in health care globally. The existing literature suggests that hospital length of stay (LOS) is a key indicator of inpatient resource use and efficiency, but exhibits large variations across hospitals. Policy decisions therefore must account for differences in underlying populations, which necessitates the development of LOS risk adjustment models. This paper systematically reviews the performance of risk adjustment models for hospital LOS to determine which models and adjustors best control for patient severity and whether the predictive power of existing models are satisfactory.

Figure 1: Conceptual framework – Determinants of Hospital Length of Stay (with examples)

Figure 2: PRISMA Flow Chart

Methods & Materials
MEDLINE, EMBASE, Cochrane, PubMed, and EconLit were searched for studies that tested the performance of risk adjustment models in predicting hospital LOS. We included studies that tested models developed for the general inpatient population, and excluded those that analyzed risk factors only correlated with LOS, impact analyses, or those that used disease-specific scales and indexes to predict LOS.

Results

• Diagnosis-Related Groups were the most commonly used and widely tested disease grouper (59.5% of all studies) for LOS risk adjustment.
• Charlson Index was the most commonly used comorbidity index (37.8% of all studies).

Conclusions
Future work is needed in developing better risk adjustment models for hospital LOS, as they are currently limited in their models, predictors, and predictive power. One possible approach to improving model performance is including variables outside of patient characteristics. For this approach more comprehensive and standardized data is urgently needed, along with the need for testing and adopting more appropriate statistical methods and evaluation tools specific to hospital LOS.

Table 1: Some examples of risk adjustors and their study populations

<table>
<thead>
<tr>
<th>Risk Adjustor</th>
<th>Test Population</th>
<th>No. Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlson</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Elixhauser</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Readmission</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Age, sex, race</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Index</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Severity Index</td>
<td>General population</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>General population</td>
<td>2</td>
</tr>
</tbody>
</table>

Data used: hospitalization data (e.g., admission and/or discharge), medical records, and clinical data.

Most prevalent statistical model adopted: Ordinary Least Squares (78% of all studies). Other models included generalized linear regression, log transformation, and classification and regression tree model.

Most studies attempted to include as many adjustors as possible in their models (e.g., age, sex, sociodemographic controls, groupers, disease severity indexes).

Large variations in Adjusted R^2 among studies using different models:
• OLS: 0.31 to 0.59
• Linear regression: 0.25 to 0.63
• Hierarchical regression: 0.09 to 0.34
• Data mining classification models: 0.03 to 0.17

The performance of LOS risk adjustment models improved significantly once one or more disease groupers and/or disease severity indexes were added.

References
Technology as facilitators for children with autism: playing as activity and as environment with the Roddi robotic platform

17-23 October 2015
Manchester, United Kingdom

C716

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Abstract

The aim of this poster is to introduce a project based on a game that uses a robotic platform as a central element to engage a child with Autism Spectrum Disorders (ASD) in a playing activity: “RODDI – New Robotic Platform for Rehabilitation of Children with Pervasive Developmental Disorders and Cognitive Impairments”. The purpose of this project is to study the interaction between children with ASD and adults during playing activities, mediated or not by an ad hoc developed, robotic platform.

Introduction

Autism Spectrum Disorders (ASD) are developmental disorders characterized by persistent impairments in social interaction, verbal and non verbal communication, restricted, repetitive and stereotyped patterns of behaviours, interests and activities. These symptoms may interfere with shared activities with others, including game activities. Play is a step in which a child (with or without ASD) can practise and experiment basic skills. Considering the importance of playing for any child and his development and evaluating the specific features of children with ASD that may limit the possibility to learn by playing and enjoying this activity, it is often important to foster in these children either modifying already existing or creating purposely new toys. As reported by Diehl et al. (2012), in many playing contexts, robots could become social mediators in two ways: eliciting behavior, to promote social behavior with an interactive human partner, or providing feedback or encouragement, to give positive reinforcement when the child correctly executes an assigned skill.

Methods & Materials

RODDI project has two phases: development of the robotic platform and application.

In the first phase (that started in June 2013), the robotic platform has been developed. The second phase (deadline in December 2015) is a longitudinal case series observational study. Children with ASD and moderate/severe cognitive impairments were consecutively enrolled at L’Abilità Centre (Milan – Italy). Once per week they participate in playing activities with a specially trained educator: at least 6 months with traditional games based on TEACCH approach and the following 6 months (at least) with TEACCH intervention “plus” robotic platform. Cognitive functioning and adaptive behaviour of children are evaluated by a psychologist at three time points. At the same three time points, parents opinions about children functioning are collected trough a semi structured interview, in order to assure parents’ involvement along all the project and collect information about child’s functioning in other settings.

Playing sessions are recorder and an observation grid is used to evaluate children’s quality of interactions (psychologist) together with skills developments (educator). Some parameters such as duration of play, time spent to perform specific tasks, and objects manipulation are registered by the platform itself during every playing session. To perform and integrate the results of all these project activities, the multidisciplinary team collaborates strictly and coherently with the biopsychosocial model (WHO, 2007) pays attention not only to children impairments and functioning, but also to the environmental factors that influence quality of interaction.

Need for research in this area of the role of playing

Our rationale is based on a robotic platform as the central element to engage a child in a playing activity inserted in a well structured teaching programme. This game activities should help to develop or improve some basic skills, necessary to start social interactions and in this way playing can prepare the child for situations which require him/her to have social interactions with an adult. Playing should become the intermediate step in which a child with ASD can practise and experiment skills necessary for the interaction with a person who is close to him/her. Latte these levels could be transferred to other situations.

The aim of the RODDI project (New Robotic Platform for Rehabilitation of Children with Pervasive Developmental Disorders and Cognitive Impairments) is to study the interaction between children with ASD (age between kindergarten and primary school) and adults during playing activities, mediated or not by an ad hoc developed robotic platform. A structured setting has been selected based on TEACCH approach (Treatment and education of autistic and related communication handicapped children) (Ospina et al. 2008; Ministry of Health - Italy, 2011) and a multidisciplinary team (composed of educators, teachers, paedagogists, medical doctors, psychologist, engineers, designers and informatics) was set for project’s development.

Conclusions

Through RODDI project we are testing an intervention based on a structured play (as a main activity in the childhood) with a specially developed robotic platform. We already know that tailored robotic toys are attractive to children. We wanted to know if they can work as a mediators between a child and an adult.

We believe that playing with RODDI is a developmental and a rehabilitative issue and a change might come through the complex interaction between well-chosen stimuli for children, safer environment (familiar and well structured), well-intentioned and well-trained adult who can use the robotic platform as one of the means to meet a child.

Acknowledgements or Notes

This project “RODDI – New Robotic Platform for Rehabilitation of Children with Pervasive Developmental Disorders and Cognitive Impairments” (Bando Ricerca Sanitaria RF 2010, Area Clinico - Assistenziale GR-2010-2320870, D.lgs 502/92 e successive modifiche ed integrazioni) is supported by a grant of the Italian Ministry of Health.
Standard Interchange of Clinical Data Between Health Organizations

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Abstract
Semantic interoperability is an essential factor to improve the quality and safety of patient care. We present a native CEN/ISO 13606 repository for the storage of clinical data, based on ontologies. We have demonstrated semantic interoperability of clinical information using CEN/ISO 13606 extracts.

Introduction
There is a growing need to interchange clinical data for different purposes. The data source can be very heterogeneous like different EPRs, research databases or biobanks. The desideratum consists in making it simple, easy with a direct and clean process. The use of Standards is crucial to find a real solution.

Our objective is to interchange clinical data semantically interoperable, conforming to CEN/ISO 13606 standard, between two different organizations.

Methods & Materials
We use OntoCR, a native CEN/ISO 13606 clinical repository developed by our team. OntoCR is a repository driven by ontologies. In OntoCR, CEN/ISO 13606 Reference Model and Archetype Model, ISO 21090 data types, and SNOMED CT structure, are modeled as OWL ontologies.

After representing specific archetypes into the system, OntoCR provides the possibility to define applications in a declarative way. Web forms are automatically generated on the fly to record data specified by archetypes.

Among the archetypes built to test OntoCR, one of them gathers certain basic information and the clinical stage of breast cancer samples for a tumor bank. Figure 1 partially shows the archetype in ADL format.

This archetype was automatically translated to OWL format and uploaded into OntoCR.

Figure 2 shows the OWL representation of the concept “clinical stage” in OntoCR, showing its relationships with OntoCR meta-model.

For the purpose of validation some fictitious data were introduced and some extracts were sent to the CEN/ISO 13606 repository built by the Instituto de Salud Carlos III.

Results
A complete evaluation cycle has been demonstrated with such approach: the creation of the archetype in ADL format, its translation to OWL format, the creation of a simple test application, and the communication of standardized extracts to another organization. The extracts produced by OntoCR were correctly validated and successfully uploaded in the repository of the Instituto de Salud Carlos III without any additional process.

Conclusions
The present work demonstrates that is possible to interchange clinical data semantically interoperable, conforming to CEN/ISO 13606 standard, between two different organizations.

Acknowledgements
This research was partially supported by grants PS09/02076, PI112-01476, PI12-01558, and PI12/01399, “PN 2008-2011- Instituto de Salud Carlos III – Subdirección General de Evaluación y Fomento de la Investigación” of the Spanish Ministry of Science and Innovation, and co-funding from European Regional Development Fund (ERDF), European Union.
Harmonization of ICNP and SNOMED CT: A Status Report

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Abstract
Under a collaboration agreement between International Council of Nurses (ICN) and the International Health Terminology Standards Development Organisation (IHTSDO), the authors aimed to build linkages between International Classification for Nursing Practice (ICNP®) and SNOMED® CT for nursing diagnosis, intervention, and outcome concepts. The purpose of this poster is to provide an update on the current status of harmonization efforts.

Introduction
• The International Classification for Nursing Practice (ICNP) is a logic-based nursing terminology developed by ICN to support the documentation and exchange of nursing data worldwide.
• The representation of nursing domain knowledge within a multi-disciplinary terminology such as SNOMED CT is critical if the terminology is to capture a holistic view of healthcare.
• The overarching aim of the collaboration agreement between ICN and IHTSDO, first established in 2010 and updated in September 2014, is to advance terminology harmonisation and foster interoperability in health information systems.1

Material & Methods
• In this project, the ICNP 2015 Release was the source terminology and SNOMED CT (01-31-2015 Release) was the target terminology.
• A series of mapping and validation activities included:
  - Initial cross-mapping of ICNP concepts by the ICN eHealth team;
  - Validation of a candidate equivalency table by the IHTSDO Nursing Special Interest Group (SIG); and
  - Discussion with the IHTSDO terminology modelers to add new concepts to SNOMED CT and finalize the equivalency table.

Results
• Joint work between ICN and IHTSDO resulted in the publication of:
  a) An equivalence table between ICNP and SNOMED CT for nursing diagnoses/outcomes; and
  b) An equivalence table between ICNP and SNOMED CT for nursing interventions.
• The cardinality for all equivalencies in the table is one-to-one, whichever way it is applied.

• Of the 805 ICNP diagnosis and outcomes concepts, a total of 399 concepts (50%) were mapped to SNOMED CT:
  a) All target concepts are drawn from SNOMED CT Clinical Findings and Situation.
  b) Positive ICNP statements (relating to wellness) represent a large proportion of unmatched concepts.
  c) The work has resulted in 126 new concepts for SNOMED CT Clinical Findings.

• Of the 1,019 ICNP intervention concepts, 740 concepts (73%) were mapped to SNOMED CT:
  a) All target concepts are drawn from SNOMED CT Procedures.
  b) New concepts added to the ICNP 2015 release represent a large proportion of unmatched concepts.
  c) Additional concepts were recently submitted to IHTSDO for modeling.

Discussion & Conclusions
• Significant quality improvements to both terminologies were made.
• Working with the IHTSDO Nursing Special Interest Group (SIG) ensured broader involvement of the profession internationally.
• The equivalency tables between ICNP and SNOMED CT for nursing diagnosis, intervention, and outcome concepts are produced.
• The equivalencies will facilitate a bi-directional transformation pathway between ICNP-encoded data and SNOMED CT, benefitting the users of either terminology and ensuring that nursing continues to be reflected in global multidisciplinary healthcare information systems.

Table 1: Example linkages from ICNP diagnosis/outcome to SNOMED CT

<table>
<thead>
<tr>
<th>ICNP</th>
<th>SNOMED CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired Dressing And Grooming</td>
<td>Dressing-grooming self-care deficit (finding)</td>
</tr>
<tr>
<td>Literacy Problem</td>
<td>Illiteracy (finding)</td>
</tr>
<tr>
<td>Negative Response To Enteral Nutrition</td>
<td>Poor response to enteral nutrition (situation)</td>
</tr>
<tr>
<td>Non Adherence To Medication Regime</td>
<td>Noncompliance with medication regimen (finding)</td>
</tr>
</tbody>
</table>

Table 2: Example linkages from ICNP intervention to SNOMED CT

<table>
<thead>
<tr>
<th>ICNP</th>
<th>SNOMED CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing Bowel Status</td>
<td>Bowel assessment (procedure)</td>
</tr>
<tr>
<td>Assessing Caregiver Knowledge</td>
<td>Assessment of caregiver knowledge (situation)</td>
</tr>
<tr>
<td>Collaborating With Family</td>
<td>Liaising with family (procedure)</td>
</tr>
<tr>
<td>Teaching About Symptom Control</td>
<td>Education about symptom control (procedure)</td>
</tr>
</tbody>
</table>

Acknowledgements
The authors would like to thank both ICN and IHTSDO for their support, and acknowledge the contribution of Maria Balthwaite, Amy Coenen, Kay Jansen, Susan Matney, and Zac Whitewood-Moores.
What health information model we want?

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Abstract

What standard in health we want? The registry or a model might add a more complete view of the health concept as environmental factors, personal, contextual ability or disability. Much has already been developed but that question does not have a clear answer. Maybe both, it is proposing that text.

Introduction

What health information model we want? The SNOMED appears in the current scenario as the terminology that responds to the need for medical record, reuse information, or for support the provision of care, enabling semantic interoperability between different professionals, regions and countries, however, the ICF - International Classification Functionality comes in the opposite direction of this process because it does not treat the clinical record it makes a paradigmatic shift of the disease hub for the health axis, allowing a different view of health, allowing understand the condition or state of health within specific contexts such as environmental factors, circumstantial, social, physical, activity and others. In this sense, which of the two models is more interesting? Or it would be complementary? This paper aims to defend the idea that the SNOMED should be complemented by the CIF.

Methods & Materials

SNOMED has a division that includes the basic components (concepts, terms and relationships), attributes that characterize a particular concept and hierarchies that result from the type of relationship between different concepts and it still being developed in ontologies format - which record the knowledge and their relations independent of language. The ICF is a classification that is subdivided into eight sessions and its qualifiers (functioning and disability). Our proposal is to think about how SNOMED could include ICF within your taxonomy not treating only the disease but all the factors related to it and the interference that has on the individual. The study would be to ontological analysis of SNOMED for understanding of the organization and concepts reflecting about the possible increments offered by ICF without losing the structure already established in SNOMED, in this way, we believe we are walking for a complete model of health information record with focus on interoperability and the exchange of information among various areas of health.

Results

Currently an issue that has drawn attention in health is the information exchange and interoperability and the adoption of basic electronic communication standards that enable integrated parts, transmission, receipt, and store data.

As a standard of international representation, the SNOMED has been viewed positively by the all scientific community by creating a global standard taxonomy for medicine organizing a series of clinical terminologies.

The hierarchical structure of SNOMED translates the link between the various concepts held by a kind of relationship that ranks without repetition, however, the expected result of this discussion / paper is the understanding that the SNOMED is a good standard of clinical data, but it is not alone. ICF - International Classification of Functioning - developed by WHO - provides fundamental role in the analysis of the consequences of disease and understanding of health states bringing other mechanisms for the prevention and identification of patient needs, bringing the concept of functionality as health component.

ICF can come to complement the analysis of clinical states on various aspects such as bodily functions, body structures, disability, functioning, disability and environmental factors for both models starting from different concepts of functionality and context. In this sense, we support the integration of ICF to SNOMED respecting the ontological standards and interoperability created by SNOMED.

Conclusions

Much remains to be discussed by the scientific community about the patterns and models representation of health data in the literature, it has more than one hundred (100) ontologies for different functions and uses in healthcare.

The SNOMED has its importance because it managed to unify a number of information and organize them by facilitating the implementation of health information systems due to its interoperability.

However, one cannot forget the history and importance of other classifications, that do not have the disease as a base - the CIF for instance - that seeks to provide a broader view of the different perspectives of health: biological, Individual and Social.

The term functioning and disability needs to be further discussed in large communities and inserted into the SNOMED.

An ontological study of the CIF based on standards created by SNOMED becomes of particular relevance to the addition of this concept. The SNOMED junction and CIF not treat only the registration of clinical information but an analysis of health components as a whole.

In times where we talk and discuss the management of information there is no room for a unilateral system, health must be seen at all aspects: record (electronic patient record) functionality issues, disability and environment where the patient it is inserted.

Acknowledgements or Notes

ISCTE - Lisbon University Institute
CIF - Brasil
CNQ – National Counsel of Technological and Scientific Development – Brazil

Chart 1: unifying concepts in SNOMED standard enabling an information record in health that go beyond the disease.
Interventions to Improve Physician Documentation: A Systematic Review

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Abstract
Background
Ongoing improvement of administrative data is essential to maintain the validity of analyses that are based on the data. Much administrative data originates in physician documentation, which is known to be variable in quality and is often incomplete, illegible, or inaccurate. Yet in most jurisdictions, physicians receive little training on how to produce quality documentation. This study examined the potential to improve physician documentation. Objective
To perform a systematic review of studies of interventions targeted at improving physician documentation. Methods
We searched Medline, PubMed, Embase, Cochrane library, and grey literature for studies of interventions to improve physician documentation, and evaluated and synthesized the results of those intervention studies with comparison groups.
Results
Our literature search yielded 6,188 abstracts, including those derived from a hand search of references. Of these, 245 were selected for full-text review, of which 109 were included in our synthesis. We found that many studies included a combination of interventions. The commonest single interventions were templates (22.9%), followed by electronic medical record (EMR) implementation (18.3%), and audit and/or feedback (15.8%). We classified outcomes as: improvement, worsening, or mixed/non-significant results after the implementation of a documentation intervention for accuracy, richness, non-documentation, or multiple outcomes. While improvements were shown in all sets of outcomes, richness of documentation showed improvement most frequently, in 31 studies (28.4%). Conclusions
Physician documentation can be improved in a variety of ways. For collecting better data, interventions such as the implementation of templates or EMR should be adopted to facilitate improvement in documentation in areas such as richness and accuracy.

Introduction
Administrative data are collected in the day-to-day operation of the health care system, and not with the purpose of conducting research or other analyses. As such, validity checks with these secondary uses of the data in mind were not put in place at the point of data creation. The validity of data for these purposes is still of concern today.

Our study focuses on errors that may occur in clinical documentation, because there is great potential for improvement in this area. Physician documentation has been repeatedly shown to be incomplete, illegible, or inaccurate, and physicians often receive little education on clinical documentation and data.

The purpose of this study was to evaluate the potential of interventions to improve physician documentation in hospital settings, by systematically searching the peer reviewed and grey literature for intervention studies with control groups and synthesizing the results.

Methods & Materials
We searched the Cochrane Library, DARE Database of Reviews of Effects, EMBASE, MEDLINE, PubMed, and Web of Science to identify relevant studies for inclusion in this review. We also searched University of York’s Health Technology Database, Current Controlled Trials Register, and the websites of government and professional organizations for grey literature, and also hand-searched reference lists of included studies. Our review is summarized in Figure 1.

Table 1 – Search strategy themes

<table>
<thead>
<tr>
<th>Themes captured by search strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Physicians e.g., clinician, physician, doctor, house officer, intern, resident, medical student</td>
</tr>
<tr>
<td>(2) Documentation e.g., administrative data, clinical coding, documentation, hospital record, medical chart</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Records identified through database searching (n=6,188)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Records after duplicates removed (n=5,169)</td>
</tr>
<tr>
<td>Records screened (n=3,447)</td>
</tr>
<tr>
<td>Records excluded (n=5,943)</td>
</tr>
<tr>
<td>Full-text articles assessed for eligibility (n=2,457)</td>
</tr>
<tr>
<td>Studies included in qualitative synthesis (n=109)</td>
</tr>
</tbody>
</table>

Table 2 – Synthesis of studies for 7 categories of interventions and 4 categories of outcomes

<table>
<thead>
<tr>
<th>Direction of change</th>
<th>No. Studies</th>
<th>Accuracy Outcomes</th>
<th>Non-Documentation Outcomes</th>
<th>Richness Outcomes</th>
<th>Multiple Outcomes</th>
<th>Total Improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑</td>
<td>109</td>
<td>4</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>↓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>↔</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

We gratefully acknowledge the support of a CIHR - Knowledge Synthesis grant for this study.
WHO - FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK ANNUAL MEETING 2015

The terminology needs for evaluation of care pathways

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(1) Université Lyon 1, LBBE, France; (2) CISMef, Rouen, France

Abstract

Electronic medical records (EHR) are a very important source of information for secondary use as epidemiological analysis and health services research. The normalisation of the medical terms extracted from EHR documents is an essential step of the preprocessing. Its quality partly depends on the medical terminologies available in the corresponding language. The objective of this presentation is to highlight the terminology needs for optimizing the analysis of medical documents in the context of care pathway evaluation.

Introduction

Different challenges were identified for secondary use of EHR through different research projects aiming at developing a generic IT solution for exploiting data extracted from French medical documents (URL: www.synodos.fr). One of them is the medical language normalisation. The objective of this presentation is to highlight the terminology needs for optimizing the data analysis of medical documents in the context of care pathway evaluation.

Methods & Materials

Source of data: There are two different sources of data. The first was part of the research project ALADIN-DTH in which 1600 medical documents (discharge summaries, operative reports, consultation reports, etc.) were extracted and de-identified in four French university hospitals participating. The second source of data was part of the SYNODOS project and consisted of 300 medical documents of patients diagnosed with colon cancer in a French referral center for oncology care.

Multi-terminology server: For the standardization of medical language, a health cross-lingual multi-terminology ontology portal HeTOP developed by the CISMef team is being used in this project (URL: www.hotop.eu). It contains 57 health terminologies and ontologies, including 1 million health concepts in French and 1.7 million in English of which 48 were available for the project partners. From this terminology portal, a health extractor (ECMT V2) was developed to automatically code the health concepts included in the medical reports. These health concepts should be included in at least one of the 18 terminologies selected in ECMT V2.

Gold-standard annotation: A subsample of the medical documents was randomly selected for building a gold standard annotated corpus for the evaluation of the SYNODOS solution. The terms not coded or miscoded by the ECMT were manually coded using the 48 terminologies of HeTOP portal, with the help of MedIndex. MedIndex is an application developed by LBBE on R software and MS Access.

This application was developed for the annotation of medical concepts by semi-automatic methods, completing manually the ECMT V2 automatic annotation. The “gold standard database of facts” was populated by semi-automatic annotation of 244 medical records (learning dataset: 96 medical records – test dataset: 150 medical records) using MedIndex. The gold standard database of facts obtained in MedIndex is based on the logical model developed by LBBE. The model is organized on the classical care pathway of a patient in hospital. Different categories corresponding to the chronology of events were built: medical history, current clinical history, reasons for health care access, evolution, the results of the episode of care. For each of these categories, subcategories were defined. For example, for the category “current clinical history”, the subcategories “chief complaints”, “clinical examination”, “paraclinical texts”, “therapeutic procedures”, “therapeutic management (drug therapy, nursing care...”) were defined. Each medical term is stored in one of this subcategory.

Results

The number of annotated medical terms coded in this corpus was 42,109 corresponding to 11,129,10,670 unique terms by category (10,670 unique terms in the whole database). The annotators did not find any corresponding code in HeTOP multi-terminology portal for 26.7% of the unique medical terms. The percentage of medical terms without any codes available in one of the 48 terminologies used, varied from 13.9% of the category “other biological exam” to 45.9% of “physiotherapy management” (40.5% of socio-professional categories).

Conclusions

The analysis of the concepts not coded by HeTOP, highlighted some terminology needs in French language for optimizing the epidemiological use of data contained in non-structured medical records. Medical terminologies should include more codes related to social aspects (socio-professional category, health insurance, access to housing, country of birth). It would be necessary to make available French codes describing imaging results, non-invasive therapeutic procedures, nursing care. The higher the wording of concepts is detailed, the less likely the automatic tool will find the concept in medical texts written by clinicians as part of their practice.

Acknowledgements or Notes

This work was funded by the French National Research Agency, as part of a TECSEAN program (SYNODOS Project ANR-12-TECS-0006).

Contact: Dr M. Metzger: marie-helene.metzger@aphp.fr

Table 1: Distribution of the terminologies used for the normalisation of medical concepts in each category of the base knowledge model of concepts

<table>
<thead>
<tr>
<th>Category</th>
<th>ANR</th>
<th>CLIC</th>
<th>ICN</th>
<th>ICNP</th>
<th>ICH</th>
<th>LOINC</th>
<th>MPF</th>
<th>MSH</th>
<th>MSHBR</th>
<th>NCI</th>
<th>SNOMED</th>
<th>SNO</th>
<th>OTH</th>
<th>NOT</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Paraclinical exams and results</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<td>Physical examination</td>
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<tr>
<td>Other biological exam</td>
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<tr>
<td>Other biological results</td>
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<td>Imaging test</td>
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<td>Imaging results</td>
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<td>0.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Other pathological exam</td>
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<tr>
<td>Other pathological results</td>
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<tr>
<td>Other pathological concept</td>
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</tr>
<tr>
<td>Other pathological concept</td>
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</tr>
<tr>
<td>Total (n)</td>
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<td>0.0</td>
<td>0.0</td>
<td>12.1</td>
</tr>
</tbody>
</table>

Note: ANR: ADICAP (French longitudinal terminology); BNC: BNC; BCC: CCAM (French terminology for therapeutic procedures); ICN; ICNP; ICPS: ICN (French MESH extension); CLA: CLA (Spanish MESH); DRF: French primary care terminology; ICN; ICNP; LINC: LOINC; Med: MedDRA; MESH; SNO: SNOMED; OTH: other terminologies; NOT: no code available
Today more and more health care organizations are turning to electronic health records. As an initiative of the Latin American and Caribbean Network for Strengthening Health Information Systems (RELACSIS), a group of professionals enrolled at a virtual forum discussed the situation of Electronic Health Records (EHR) in Latin America and the Caribbean region. For the analysis of the content generated by participants a qualitative methodology was used. After sending the letter of invitation more than 200 people signed up to participate in discussions, in total 21 countries were represented in the virtual discussions. Among the factors mentioned by the participants were found that it is necessary to have a registry of the extent of adoption of the EHR in the region with accurate and updated data. Participants also recommended stimulating the formation of human resources in the domain of health informatics. Organizational aspects were also mentioned, the importance of engaging and involving all people who can receive some impact on the use of records, and manage change effectively. It was mentioned the importance of having a regulatory framework that facilitates or encourages EHR adoption. Confidentiality and security of sensitive information was another important factor. And interoperability was also mentioned as a key factor to the success of EHR implementation. In general the issues discussed and the factors identified as important for the region are described in the literature. Participants identified joint work and interoperability between countries in the region as a factor that can facilitate the adoption of EHRs.

### Methods & Materials

The input of participants was analyzed using a qualitative methodology, reviewing the discussion of virtual forums. Also, the characteristics of the participants who expressed their interest in the project were analyzed. Before the virtual discussion was started, a literature search on the topic of EMRs and their adoption was performed. One of the coordinators was responsible of the bibliographic revision. For the quantitative description of demographic data, summary measures as mean and percentages are used to bring participants’ information together. Data was processed using Microsoft Excel 2010 which, in turn, was used to generate tables and graphs.

### Results

<table>
<thead>
<tr>
<th>Country</th>
<th>N participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>29</td>
</tr>
<tr>
<td>Mexico</td>
<td>29</td>
</tr>
<tr>
<td>Argentina</td>
<td>21</td>
</tr>
<tr>
<td>Chile</td>
<td>12</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>12</td>
</tr>
<tr>
<td>Venezuela</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 1: Number of participants. Only the first six countries are shown in table

A total of 200 people indicated their interest to participate in virtual discussions. Table 1 summarizes the top 6 countries to which participants in the virtual forum belong. One of the factors mentioned was: having a record on the EMR adoption level in the Region, including accurate and updated data. Participants also recommended to encourage the training of human resources so that they can master health information systems, with a focus on EHRs’ associated benefits and risks. Besides, topics such as EHRs organizational aspects, the significance of strategic planning, engaging and involving all the people that can be impacted by the use of the records, working with interdisciplinary teams and managing change effectively were also discussed, as well as the relevance of having a regulatory framework to enable or foster EHR adoption. Confidentiality and safety of sensitive information was regarded as another factor to be considered.

### Conclusions

Although the implementation of EHRs is a complex process, this study documents a series of recommendations that can be used by the countries of the Region to facilitate and encourage their used by health institutions. There is still a long way to go and many topics to discuss, but this first document specifies some relevant questions to be taken into account, many of them have been describes in the international literature as important steps prior to the correct adoption of EMRs in the Region.

### Acknowledgements

The authors acknowledge Gabiel La Valle for the support in diffusion of RELACSIS activities and with the online forum platform. For more information see [www.relacsis.org](http://www.relacsis.org).
Electronic medical records (EMR) can be a cost-effective source for hypertension surveillance. However, diagnosis of hypertension in EMR is commonly under-coded and warrant the needs to review blood pressure and antihypertensive drugs for hypertension case identification. The aim of study were to Evaluate the role of hypertension diagnosis codes, antihypertensive drug prescriptions and blood pressure records in identifying hypertension patient in electronic medical records (EMR).

Methods & Materials

This is a cross-sectional descriptive study.

• Health Survey of England (HSE)

HSE has been conducted since 1991 to estimate the prevalence of certain health conditions including hypertension. Blood pressure was measured during nurse visit and use of antihypertensive drugs were record. Hypertension in HSE was defined as blood pressure above 140/90 mmHg or use of antihypertensive drugs. Treatment rate of hypertension was the proportion of defined hypertension patients receiving treatment at the time of survey.

Results

Table 1 shows nearly all the cases defined by diagnosis code had abnormal blood pressure; 15% of cases defined by antihypertensive drugs did not have records of abnormal blood pressure.

Figure 2 Comparison of prevalence and treatment rate between THIN and HSE

Conclusions

THIN data could be used as a cost-effective substitute to conduct hypertension surveillance in the UK. We recommended the use of “diagnosis code or 2 abnormal blood pressure records with a 2 year-period” to conduct hypertension surveillance in THIN.

Acknowledgements

This project was funded by Canadian Institutes of Health Research (CIHR). We acknowledge Jordan Engbers for providing technical support for data access and processing and the Clinical Research Unit and the O’Brien Institute for Public Health of the Cumming School of Medicine at the University of Calgary for supporting data access.
Revision of anthropometric parameters of the newborn in Venezuela

Authors: Cordero C., Melendez S, Melchor A, Ortega N, Colina O, Marcano J.
Collaborating Center fro the WHO-FIC in Venezuela (CEVECE), Statistics and Health Information, Ministry of Popular Power for Health; Caracas, Venezuela

Abstract

The role of Collaborating Centers will grow over time as well as their skills, early identification of risk factors in newborns is a priority in the units of perinatology, since the intrauterine growth retardation (IUGR) is a recognized factor that affects both the perinatal mortality and morbidity in the short, medium and long term, so we propose drawing up a curve of weight for gestational age infants and to compare our data with those reported in the literature worldwide.

Introduction

Anthropometric measurements accurately determined and applied to comparative indexes or tables are one of the best indicators of nutritional status in both infants and older children, since they are of great help growth assessment at these stages of life. The weight and size are generally considered the most important for evaluating a state of normal growth and nutrition measures. Anthropometry should be a routine procedure in the neonatal care units and the capture of data for the preparation of the birth certificate,(EV-25) allowing the identification of neonates with greater risk of morbidity and mortality and of those who may suffer from a condition in the state of nutrition. The majority of the anthropometric indicators must be compared to tables of a reference population with similar characteristics to the population with which you are working, to correctly determine the patient's diagnosis. However, subsequent measurements are of greater value, since they enable you to perform individualized curves of growth.

What then is the realization of comparative charts in function of the anthropometric measures (weight, height, and gestational age) captured the filling of the EV-25.

Objectives

The objective of this report is revision of anthropometric parameters of the newborn in Venezuela.

Method

Birth Weight to determine nutritional status and development of the baby in relation to the length of gestation. In Venezuela there are tables that relate weight with the gestational age of the newborn, the concern of making in our database of live births, in order to make comparison with the data emanating from the scientific societies of pediatrics arises country.

Average values (which weighs 50% of boys or girls) and normal limits (10th and 90th percentiles) above or below which there may be problems in the newborn are established. Children born at term (between 37 and 42 weeks from conception) typically weigh between 2,700 and 3,900 grams. Girls usually weigh 200-300 grams less.

It is said that newborns have a birth weight below the 10th percentile are "small for gestational age (SGA)" or "Low weight for gestational age (SGA)".

Being underweight can be due to different causes:
- Malfunction of the placenta. If it has aged prematurely, the fetus does not provide enough food
- Poor maternal nutrition
- Maternal smoking
- Antenatal infections
- Malformation syndromes or genetic disorders

In all maternity centers in the country takes place, after birth, the development of the birth certificate (EV-25), following the capture of data is performed: weight, height, gestational age, with them and other demographic data yearbooks produced birth of the country, yet we see the potential for further studies and comparisons that can be made with this data, hence, our intent to use.

This study will establish the possible variations in anthropometric measures that exist in newborns Venezuelans, allowing programs works to maternal and child with more parameters adjusted to our current reality.

Acknowledgements or Notes

Author responsible for correspondence about the original Dra. Cordero, C., Masters in Epidemiology (UDO) and Demographer. (UCAB).
Hospital at home in Catalonia: the current situation and future prospects

Abstract
Hospital at home provides acute or subacute active treatment by health care professionals in the patient’s residence for a condition that would normally require admission to acute hospital in-patient care. If hospital at home were not available then the patient would remain in an acute hospital ward. It is also known as “hospital in the home” or “home hospitalisation”. The key is substituting for inhospital care.

Introduction
Hospital at home has been defined as that provides an alternative to admission to a hospital or an opportunity for earlier relocation to the home than would otherwise be possible. There is not a single, standardized approach to hospital at home service delivery. Rather, hospital at home services deliver a range of interventions, to a range of patients cohorts, requiring treatment for a range of conditions. Staffing structures also vary between hospital at home units, most are dominated by nursing staff, but others are also utilizing medical and allied health professionals. Patients treated by hospital at home may avoid admission to an acute hospital ward after assessment by their primary care physician or in the emergency department. Alternatively, patients may be discharged early from hospital to receive hospital at home care (Figure 1).

The concept of hospital at home was originated in New York (U.S.) in 1947 and has been implemented in a number of other countries, including Spain (1981). As of today, there are more than 100 hospitals at home units in Spain (2009) according to Register of Spanish Society of Hospital at home. In 2015, there are 28 of them located on Catalonia.

Figure 1. Hospital at home programmes

<table>
<thead>
<tr>
<th>Objective</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>To evaluate the effectiveness and cost of hospital at home and determine the impact of this alternative to in-hospital admission in Catalonia (Spain).</td>
<td></td>
</tr>
<tr>
<td>We used several methods to reach our goals:</td>
<td></td>
</tr>
<tr>
<td>- A systematic review (searched of Medline, Cochrane Library and so on until July 2015 and assessed quality by SIGN checklist).</td>
<td></td>
</tr>
<tr>
<td>- An electronic survey addressed to person in charge of Catalan hospital at home units (objective questions). The approach to answer subjective questions will be focus group addressed to human teams involved in this substitute model of care.</td>
<td></td>
</tr>
<tr>
<td>- An exhaustive search in several Catalan databases from 2010 to 2014. Specially, the Catalan Minimum Basic Data Set (CMBD, morbidity) and the Central Register of Insured Persons (mortality). The clinical information is coded using the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM).</td>
<td></td>
</tr>
</tbody>
</table>

Results

Available data on hospital at home units in Catalonia (in progress):

- Eighteen articles met the inclusion criteria: 11 from randomized controlled trials, 5 from before and after studies, and 2 from longitudinal studies.

- Literature summary (in progress): Eighteen articles met the inclusion criteria for this systematic review, including five Cochrane reviews.

- The survey has 11 domains with more over 60 items. We expected to send it during mid-October 2015.

- Catalan hospital at home activity (preliminary results) (Figures 2-5):

Table 1. Main diagnoses (2014)

<table>
<thead>
<tr>
<th>ICD-9-CM</th>
<th>Main diagnoses (20 most frequent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>558.11</td>
<td>Diabetes mellitus and complications</td>
</tr>
<tr>
<td>038.01</td>
<td>Acute myocardial infarction</td>
</tr>
<tr>
<td>99.26</td>
<td>Other oxygen enrichment</td>
</tr>
<tr>
<td>98.01</td>
<td>Respiratory dysfunction</td>
</tr>
<tr>
<td>185.93</td>
<td>Other uncomplicated infectious disease</td>
</tr>
<tr>
<td>185.99</td>
<td>Other acute infectious disease</td>
</tr>
<tr>
<td>185.1</td>
<td>Other acute infectious disease of respiratory system</td>
</tr>
<tr>
<td>038.01</td>
<td>Other oxygen enrichment</td>
</tr>
<tr>
<td>038.02</td>
<td>Other oxygen enrichment</td>
</tr>
</tbody>
</table>

Table 2. Main procedures (20 most frequent)

<table>
<thead>
<tr>
<th>ICD-9-CM</th>
<th>Main procedures (20 most frequent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.21</td>
<td>Injection of antibiotics</td>
</tr>
<tr>
<td>93.94</td>
<td>Respiratory medication administered by nebulizer</td>
</tr>
<tr>
<td>93.14</td>
<td>Training in joint movements</td>
</tr>
<tr>
<td>92.28</td>
<td>Other physical therapy services</td>
</tr>
<tr>
<td>92.24</td>
<td>Other rehabilitation services</td>
</tr>
<tr>
<td>92.25</td>
<td>Other rehabilitation services</td>
</tr>
<tr>
<td>92.26</td>
<td>Other rehabilitation services</td>
</tr>
<tr>
<td>92.27</td>
<td>Other rehabilitation services</td>
</tr>
<tr>
<td>92.28</td>
<td>Other rehabilitation services</td>
</tr>
</tbody>
</table>

Conclusions
We would expect to find the promising results have been reported by both individual trials and meta-analyses about hospital at home. Specially, it is associated with reduction in mortality, readmission rates and cost, and increases in patient and career satisfaction. Also, We would also expect that it’s not only in randomised controlled trials, but it’s also in clinical practice (Catalan hospital at home units).
Health Information Exchange and Health and Care Register in Norway

Julie Kjelvik¹, Elisabeth Vatten¹, Eirik Jonsberg¹
¹Norwegian Directorate of Health, Department of Statistics

Abstract
Only one in five patients is registered with diagnosis data in the Norwegian health register IPLOS. This is partly due to imperfect electronic information flow between different types of health personnel. Consequently there is no national statistics or research based on these data. Some municipalities however have sufficient data quality.

Introduction
Seamless electronic health information exchange is essential for high quality health registers. Despite increasing electronic information flow between health personnel groups there are still obstacles to obtain all the optimal benefits.

Our objectives were:
- To identify causes of low variable coverage for diagnosis in the health services register IPLOS
- To produce diagnosis tables on municipal level

Table 1: Register quality for classification variables. 2013

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of persons</th>
<th>Variable coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional level</td>
<td>318,910</td>
<td>99.5%</td>
</tr>
<tr>
<td>Diagnosis (ICD-10, ICPC)</td>
<td>271,406</td>
<td>18.1%</td>
</tr>
</tbody>
</table>

Methods & Materials
Data from the national register IPLOS is used. The register contains individual information about all applicants and recipients of health- and care services in Norwegian municipalities. Nursing homes and home based health and care services are included. GP and hospital services are excluded.

There are 52 information items in the following categories:
1. Personal and housing information
2. Health and care services
3. Functional level: activities of daily living (ADL)
4. Diagnosis (ICD-10, ICPC)
5. Information about admission in a hospital

The underreporting of the diagnosis variable is investigated by contacting municipalities.

Results
Only one in five of the patients in the register are registered with one or more diagnosis, either ICD-10 or ICPC (table 1) and statistics can not yet be produced on a national level.

Statistics on municipal level show:
- Variation between municipalities in variable coverage.
- In Tromsø 68 per cent of the persons receiving services are registered with diagnosis data in the register.
- Two thirds of the persons registered with dementia in Tromsø are residents in institutional long term care (fig. 1)
- 75 per cent of patients with diabetes are living in their own homes receiving nursing care, practical home care or other types of home based services (fig. 2).

Conclusions
The ADL assessment is made by the care staff being mainly nurses, whereas the diagnosis is set by GPs in primary care or medical hospital doctors.

The main causes for low diagnosis coverage are:
- Missing diagnosis information from the GPs and hospital doctors
- The care personnel does not request the diagnosis data from the doctors
- Lack of routines for registrations of the diagnosis data
- Diagnosis data is registered in paper journals, other electronic systems or in text fields

Acknowledgements
We would like to thank Statistics Norway for tables from the IPLOS register. Personnel in the municipalities of Harstad, Stange and Sandefjord has been helpful to identify causes of missing registrations.

For questions regarding the IPLOS register, please contact the authors or e-mail us at:

iplos@helsedir.no
Developing and Validating Data Extracting Method from Chinese EHR

Introduction

As the increasing growth of EHR in China, more and more primary clinical data is being collected which is potential clinical data source for various research use. Instead of roughly considering some factors such as bed size, outpatient admission and total revenue to assess the health care quality of hospital [1], EHR will help to provide a new and precise way to evaluate the resource use and quality of health care through establishing more powerful risk adjustment method [2, 3]. Because EHR contains clinical data beyond the components in the health administrative data.

However, the inconsistent and not-coded data in Chinese EHR make the overwhelming clinical data not easy to be directly utilized in research. Current efforts mainly focus on improving the computerized recognition technique, implementing the standardized EHR system and structuring the manual input sections for EHR’s functionalities to meet the need of health researches and the better interoperability [4, 5]. However, all of these efforts are rather time-consuming because they are mainly dedicated to build and ensure EHR system.

In this study, we tried to develop computerized variable specific searching algorithms to extract the data from Chinese EHR and then validated it by chart review. The method is applicable for extraction of other clinical data (conditions, symptoms, or test results, etc.) through slight modification.

Methods & Materials

Data Set: The study included the patients who was admitted to Beijing YouAn Hospital between January, 2010 to August, 2014. Over 85,000 EHRs were included in this study. EHR was approved by Beijing YouAn Hospital Research Board of Ethics and Health Research Ethics Board at University of Calgary. 

Extracted Variables: We extracted the variables including cancer (PLC), Pulmonary (PLD), Hepatitis, Cirrhosis, Hepatocellular Carcinoma (HCC), Intrahepatic Cholangiocarcinoma (ICC), HBV, HCV, the variables in the Child-Pugh scoring system, Model for End-stage Liver Disease (MELD), the consistency of them was assessed by Kappa and Els waiter Index, patient’s outcomes (death), the treatment/procedure, demographics, and laboratory test results.

Computerized Searching Algorithms: As we mentioned above, variants existed among the diagnoses recorded in free text, and the name of the laboratory and radiology test may change slightly over time. To develop the algorithms, we found out a group of variants for each variable through team discussion which consist of all the known variant terms.

Case Definition: In this study the case definition contains the text-based (disease diagnostic criteria) definitions and operational definitions (searching algorithm). All the original diagnoses of the conditions in the EHR followed the published national or international clinical practice criteria or guidelines. The detailed description of the operational definition and computerized searching algorithm is available upon request.

Charts Review: Randomly selected 450 patients’ EHRs were reviewed by two physicians who were blinded to the searching algorithms. 50 charts were overlapped between the two reviewers. The reliability of the reviews was assessed by kappa value. The sensitivity, specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) of each searching algorithm.

Results

Table 1 Patient’s characteristics

<table>
<thead>
<tr>
<th>No. of conditions of Charlson Index</th>
<th>Kappa value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.4 - 0.6</td>
</tr>
<tr>
<td>2</td>
<td>0.4 - 0.6</td>
</tr>
<tr>
<td>3</td>
<td>0.4 - 0.6</td>
</tr>
</tbody>
</table>

Table 2 Summary of Kappa

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>85.79%</td>
<td>99.93%</td>
<td>99.89%</td>
<td>99.87%</td>
</tr>
<tr>
<td>Bacterial Pneumonia (BP)</td>
<td>98.70%</td>
<td>99.98%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Hypertension (HYP)</td>
<td>97.91%</td>
<td>99.37%</td>
<td>99.37%</td>
<td>99.37%</td>
</tr>
<tr>
<td>Hepatitis B (HBV)</td>
<td>98.70%</td>
<td>99.98%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Hepatitis C (HCV)</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Chronic Dialysis (CD)</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Diabetes Mellitus (DM)</td>
<td>98.57%</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Pulmonary Disease (PD)</td>
<td>98.70%</td>
<td>99.98%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Renal Disease (RD)</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
</tbody>
</table>

Conclusion

1. The validity of the extracting method is high, and we can use it to extract the information from Chinese EHR. However, the method need to be tested using other hospitals and data in China.
2. Because the information in EHR are date and time stamped, so this extracting method can be used to identify the present conditions from the past illness. Moreover, the ideal situation is to integrate the method into the EHR system to provide clinicians alarm and timing surveillance during hospitalization.
3. More work needed to improve some of the algorithms, such as the algorithms integrated the free text as information source.

Reference

Strengthening quality of care through standardized reporting based on the World Health Organization’s reference classifications

17-23 October 2015
Manchester, United Kingdom

Abstract

Transparency and consistency is a vital component of strengthening the quality of care. The World Health Organization’s (WHO) reference classifications provide standards for coding information in order to facilitate the storage, retrieval, analysis and interpretation of data.

It was the aim of this project to examine whether it is feasible to create a standardized report from case records written in routine care to ensure that routinely collected information becomes available for quality management in health care.

Introduction

A comprehensive and transparent information system, which allows integration and aggregation of information in a meaningful, efficient and accessible way, is essential for achieving high quality of care. Using WHO’s reference classifications.

- International Classification of Diseases (ICD; currently in its 11th revision)
- International Classification of Functioning, Disability and Health (ICF; endorsed in 2001)
- International Classification of Health Interventions (ICHI; under development)

facilitates the systematic coding of health information, including information about health conditions and their treatments, and enhances the comparability of this information.

In addition, the Rehab-Cycle®, as illustrated in the figure to the right, is one systematic approach to coordinating the organization and documentation of care and rehabilitation processes. The aim of this project was to examine the feasibility of creating classification-based, standardized reports based on routinely documented narrative health records.

Methods & Materials

This project presents a secondary analysis of three random case records of persons attending a three-week rehabilitation program at the Swiss Paraplegic Centre.

ICD codes were taken from the case records as they were entered by a trained coder. Meaningful concepts related to functioning were linked based on the established ICF linking rules. For the linking of health interventions to ICHI, a linking protocol was developed, building upon the ICF linking methods and the information provided in the ICHI-Alpha2 Manual 2014.

The process of linking these records to ICD, ICF and ICHI is outlined in the following Figure:

![Diagram](Image)

While ICHI is still in development it shows promise: all identified concepts related to Assignment and Intervention in the Rehab-Cycle could be linked to a pre-coordinated ICHI code. In some instances, we identified an additional post-coordinated ICHI code for a more accurate representation of the original concept.

Translating narrative information into a coded format is a process of abstraction. Finding a balance between complexity in clinical practice and meaningful reduction of information in clinical records and ensuring that information is readily available and useful for various stakeholders is a continuous challenge.

Results & Discussion

Based on the three random case records selected, we were able to link all meaningful concepts identified to the WHO’s reference classifications.

This Figure demonstrates an example:

![Example Image](Image)

This study provides evidence that it is feasible to create a standardized report based on WHO’s family of reference classifications based on the outlined principles and methods.

Once health information is available in a standardized manner, it can be utilized not only for clinical use, but also for secondary usages such as internal audits, resource allocation, and policy and program planning.

References


Acknowledgements

The authors acknowledge the support of Nadia Lustenberger in extracting the meaningful concepts from the health records and linking those to the ICF.
Management Sciences for Health (MSH), a global health nonprofit organization, uses proven approaches developed over 42 years to help leaders, health managers, and communities in developing nations build stronger health systems for greater health impact. MSH (www.msh.org) works to save lives by closing the gap between knowledge and action in public health. In 2014, MSH counts more than 2,000 staff members working from home offices in the US and in 40 field offices. Working with governments, donors, nongovernmental organizations, the private sector, and health agencies, MSH responds to priority health problems such as HIV & AIDS; tuberculosis; malaria; maternal, newborn and child health; family planning and reproductive health; and chronic non-communicable diseases. Through strengthening capacity, investing in health systems innovation, building the evidence base, and advocating for sound public health policy, MSH is committed to making a lasting difference in global health.

MSH Presence Around the World

MSH’s Center for Pharmaceutical Management has developed and widely implemented a number of data management systems and software tools to help manage medicines in the public health sector. Teams in Brazil, South Africa, and the US – with support from consultants in Nepal and Kenya – played key roles in the management information systems assessment and tool development process.

In Costa Rica, MSH worked with the Ministry of Health to design and train staff on a web-based information system to monitor the adolescent pregnancy prevention program. In Guatemala, Honduras, and the State of Chiapas, Mexico, MSH worked closely with the Ministries of Health to improve data quality and timeliness, and improve processes for the use of data for decision making. These processes included the development of open-source, web-based platforms and tools for data capture and consolidation, and performance dashboards. Tools and approaches were tailored to the context and needs of the country and have been designed for scale. Stakeholders at multiple levels and locations were engaged throughout the processes, which will contribute to the success and sustainability of the platforms and approaches.

Introduction

Community HMIS

MSH has involved the community in monitoring and reporting on health events. In Peru, the primary objective of MSH’s Healthy Communities and Municipalities (HCM) Project is to improve maternal, child, and perinatal health in communities with high rates of poverty and poor health indicators. HCM’s strategy includes design, implementation, and support for a municipal public health information system known as SISMUNI (Sistema de Información de Salud Comunal). HCM helps communities implement a health information assessment that includes documenting demographic and economic information about the community. This information enables and empowers communities to monitor and identify priority actions to improve maternal and child health indicators. MSH has introduced similar community monitoring and reporting in Afghanistan, Pakistan, the Philippines, and South Africa.

National HMIS Design

MSH has designed health information systems at national and district levels. Key successes include projects in South Africa, Philippines, and Afghanistan. In the West Africa region, MSH conducted an HIS needs assessment and developed an HMIS policy framework document that was adopted by the Economic Community of West African States Assembly of Health Ministers in April 2012.

Examples of MSH support to Strengthening HMIS

Information tools for better management and use of medicines

MSH’s Center for Pharmaceutical Management has developed and widely implemented a number of data management systems and software tools to help manage medicines in the public health sector. Teams in Brazil, South Africa, and the US – with support from consultants in Nepal and Kenya – played key roles in the management information systems assessment and tool development process.

MSH has introduced similar community monitoring and reporting in Afghanistan, Pakistan, the Philippines, and South Africa.

Accurate and reliable data on health outcomes, service delivery indicators, and the overall performance of the health system is essential for planning, implementing, monitoring, and evaluating health programs and health trends in every country. MSH project staff support health systems at all levels of the health system – central, provincial, district, and facility levels - to ensure availability of high quality data to guide decision making and facilitate reporting.

Authors: Weinstein Sara (MSH), Alejandro Giusti (LMG)

For more information: http://www.msh.org/our-work/health-system/health-information

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C729

17-23 October 2015
Manchester, United Kingdom
Integrating ICD and ICF through Ontologies

Authors: Antonio Márcio M. Carmo; Eduardo Santana de Araujo; Octavian A. Postolache; Pedro Ramos
ISCTE-IUL, Lisbon / CIF-Brasil, São Paulo / ISCTE-IUL, Lisbon / ISCTE-IUL, Lisbon

Abstract
Through ontologies it is possible to develop an information system that transcends the "machine language" providing greater interoperability and information retrieval in health, in this sense, our objective is to create an ontology that integrates the ICD and ICF standards. We understand that the standards are complementary, therefore our ontology is able to assist health professionals preparing medical reports, statistics and non-trivial data analysis when combined with information systems.

Introduction

The International Classification of Diseases (ICD) is relevant for registration health conditions and it has provided statistical data on mortality and morbidity around the world over the years. The International Classification of Functioning (ICF) in turn causes a paradigm shift in the disease to health provides a better and more complete view of the health of a particular patient. The development of an ontology that integrates these two classifications into a single representation of the information model may contribute to a better interoperability of health information, improving the quality of the clinical record and may provide further statistical data for the Social Security (Government) in terms of analysis retirement and concession of benefits and how it will associate categories of diagnoses with the elements of the ICF.

Methods & Materials

To the creation of ontology integration between the standards ICF and ICD we will be used Methontology Ontology developed by the Artificial Intelligence Laboratory of the Polytechnic University of Madrid. This methodology was chosen because it has the good definition principal of the method for ontology development and due to the detail that it provides enabling the development of ontologies with a high level of knowledge and granularity. The ontology development will be realized through the Protégé software that is specific for building ontologies in OWL format - Web Ontology Language. OWL is a semantic markup language that allows publishing and sharing ontologies. Through these methods is expected to create an ontology that seeks inferences integrated into the ICF and ICD and that returns non-trivial information between standards facilitating the clinical reports’ analysis. This ontology is represented by means of an information system in Java language having specific libraries the OWL language.

Results

As a result it is expected that the development of an ontology integrates both health standards proposed by WHO. This ontology can be applied to the Health Information Systems resulting in a larger information framework for medical decisions because beyond the disease itself ontology will bring other aspects to record the impact of the disease condition in the patient's quality of life at the end of analysis, the health professional can have more complete view from the state of functionality or the patient's inability to make decisions.

The ICD does not offer other information beyond the disease code. Already the ICF can lead to understanding of different health prospects of the patient beyond the disease adding value and quality to the medical report. In the example, the patient suffers from lip dystrophy (abnormal distribution of body fat - impaired body image) caused by HIV and that can cause the patient emotional changes and social life. Such information could be registered with the integration of ICF:

<table>
<thead>
<tr>
<th>Disease:</th>
<th>HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code ICD:</td>
<td>B24</td>
</tr>
<tr>
<td>Detailing ICD:</td>
<td>Disease by the human immunodeficiency virus [HIV] unspecified</td>
</tr>
</tbody>
</table>

The ontology must be able to bring causal references between the disease and its functionality restrictions.

Conclusions

Studies indicate ontologies as a way to solve interoperability and integration between systems and standards, through the ontologies it is possible to manage the knowledge independent of language and to enable greater interoperability between systems and the exchange of health information structuring knowledge of both standards in a single ontology. Currently many health information are lost due to the lack of system interoperability in terms of integration and retrieval of information. In this sense, this ontology unify two proposals from WHO, one the tip to disease and other that records the factors associated with this disease and their relationship with the patient and the environment. This ontology can be extremely useful for insurers, government programs of social security as it does not treat the disease only data but all relationships associated with it, may serve to generate statistics and bring more quantifiable relationship to the social security processes.

Acknowledgements or Notes

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CIFBrasil

For each code are generated qualifiers (0 to 9) that specify extent or magnitude of functionality or inability in that category. The ontology integration will have four levels of the ICD that define a disease along with the ICF in its two main divisions: Functioning and Disability; Contextual factors.

Chart 1: Ontological integration between the ICD and ICF standards

ICD
Ontology Integration
inference rules
Information System / Data Bases

ICF

CODE ICF: B1801
Detailing ICF: Body Functions: Body of Image

CODE ICF: E460
Detailing ICF: Environmental factors: Social Attitudes

CODE ICF: D910
Detailing ICF: Activity and Participation: Community Life.
Comparing ontologies: an experiment with Jaccard Distance

Authors: Francesco Talin¹, Vincenzo Della Mea¹,²
1) Dept. of Mathematics and Computer Science, University of Udine, Italy
2) WHO-FIC Italian Collaborating Center

Abstract

Recognizing where two ontologies describing the same domain are different is mainly matter of expert work. However, some automated computation can be done to identify critical areas. In this poster we present an approach in which a measure of distance between the same entity described in two different resources is provided, starting from the Jaccard distance, and preliminarily tested on the...

Methods & Materials

One way to support harmonization between ontologies (in particular, alignment) is to provide some measure of similarity/dissimilarity among equal entities expressed in the two source ontologies. In order to define equal entities, of course at least some mappings should be already available. Once two entities are declared as equivalent, their respective position in the ontology structure may differ, that is, they might be in different relationships with other equal entities. For example, the easiest issue that can be found is inverted ancestor/descendant relationship; other more complex can involve ancestors or descendants at different levels.

In the JAG harmonization work between ICD-11 and SNOMED-CT, in the past we developed methods for identifying logical discrepancies using Prolog (1) and using Protege (2).

In this poster we present an approach in which a measure of distance between the same entity described in two different resources is provided, starting from the Jaccard distance, and preliminarily tested on the...

Results

The experimentation has been made on about 1600 entities, for which 666 equivalence mappings were available from previous JAG work. The measures that differed in a statistically significant way (p<0.001) between problematic and non problematic mappings were SUPER₁, SUPER₂, and SUM₁ (defined as SUPER₁+SUB₁). The next table shows average values (the larger the more similar) in the two categories.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Problems</th>
<th>No problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPER₁</td>
<td>0,232</td>
<td>0,496</td>
</tr>
<tr>
<td>SUPER₂</td>
<td>0,143</td>
<td>0,226</td>
</tr>
<tr>
<td>SUM₁</td>
<td>0,776</td>
<td>0,958</td>
</tr>
</tbody>
</table>

Since the problematic mapping individuated with the Prolog method were also categorized according to problem type, we also preliminarily evaluated average measures per type, as shown in the next table.

<table>
<thead>
<tr>
<th>Problem</th>
<th>SUPER₁</th>
<th>SUPER₂</th>
<th>SUM₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children of a mapped entity that are mapped elsewhere</td>
<td>0</td>
<td>0,149</td>
<td>0,596</td>
</tr>
<tr>
<td>ICD-11 in a ancestor-descendant relationship mapped distant relatives SNOMED terms</td>
<td>0</td>
<td>0,333</td>
<td>0,333</td>
</tr>
<tr>
<td>ICD-11 entities in an ancestor-descendant relationship mapped on sibling SNOMED terms</td>
<td>0,333</td>
<td>0</td>
<td>0,7</td>
</tr>
</tbody>
</table>

Conclusions

The proposed method for evaluating similarity of entities described in different ontologies might be a further help to the work of experts involved in merging and alignment of ontologies, as well as during the mapping work between subsequent versions of the same ontology or classification. In fact, while the measures seem to agree well with the method already used in the past (although on a preliminary analysis), it also allowed to discover some situation with similarity equal to 0 but not discovered using logical methods. Such situations need confirmation by an expert, and this will be part of the further work to be carried.

References