WHO-FIC 2021 VIRTUAL ANNUAL MEETING
POSTER BOOKLET

18 - 22 October 2021

Classifications and Terminologies Unit
## Poster Submissions & Topics

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WHO-FIC 2021 virtual

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Chapter 1 – Committees and Reference Groups Annual Report
**Introduction**

The Classification and Statistics Advisory Committee (CSAC) was launched at the Mexico Network meeting in 2017. It replaced the Update and Revision Committee. The purpose of the CSAC is to provide strategic and technical advice to WHO and the WHO-FIC Network in keeping its Family of International Classifications up to date in line with current knowledge, and relevant to the purpose for which they were designed. The functions of the CSAC are to maintain the Family of International Classifications, in maintaining policy, and maintaining work.

CSAC is co-chaired by Meng Zhang (ICD) and Marie Cuenot (IFC). Secretariat support is provided by Brooke Macpherson (ICD) and Paula Tonel (IFC).

**Methods & Materials**

CSAC work is conducted through the WHO-FIC Foundation platform. These are workflow engines designed to facilitate communication within expert workgroups and ensure transparency of processes.

Work and communications are also carried out via e-mail, conference calls and meetings, including during the WHO-FIC Network annual meeting.

Activities of the CSAC are carried out in accordance with the WHO-FIC Strategic Work Plan.

**ICD**

**ICD Small Group**

Formed in 2019, the function of the Small Group (SG) is to evaluate proposals on the ICD-11 platform and provide recommendations for CSAC voting. During this reporting period, the SG met six times, with all work carried out via videoconference and email.

The SG considered 93 proposals, with the majority being put to the CSAC for voting, with recommendations to accept or reject. The other outcomes are in Table 1.

**Table 1: Outcomes of Small Group meetings**

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<th>Outcome*</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Back to Author</td>
<td>4</td>
</tr>
<tr>
<td>Referred to MRG and MBRG</td>
<td>1</td>
</tr>
<tr>
<td>Referred to MSAC</td>
<td>6</td>
</tr>
<tr>
<td>Referred to WHO</td>
<td>12</td>
</tr>
<tr>
<td>CSAC for voting</td>
<td>70</td>
</tr>
<tr>
<td>Implemented prior to meeting</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>93</td>
</tr>
</tbody>
</table>

* Note this is the final status of the 93 proposals. Some may have been referred to other groups for advice between the SG’s first and final report, with additional minor modifications discussed more than once by the SG.

**ICF**

**ICF updates 2020**

At the 2020 WHO-FIC Network annual meeting (virtual) in October 2020, the CSAC-ICF ratified 10 recommendations for updating the ICF. An extraordinary CSAC-ICF session was held via teleconference in December 2020 to complete discussion on 2 ICF update proposals that could not be discussed in October due to time restrictions. In total, taking into account the proposals discussed and voted in May 2020, 24 ICF update proposals were considered in 2020 by CSAC-ICF.

The annual update documents for the ICF updates approved during the 2020 update process and to be implemented in 2021 were prepared and delivered to WHO.

**2021, a transition year: no update cycle**

In 2021 on the ICF update platform, no new update proposals were submitted. The year 2021 is a transition year. ICF has been moved to a new Maintenance platform and thus no discussion and voting has occurred. The few proposals remaining in the Open Discussion layer of the usual ICF update platform will be migrated to the new platform.

**ICD-11 updates 2020**

161 proposals were considered by CSAC-ICD in 2020. After voting rounds and the annual meeting, CSAC members voted to accept 83 proposals, reject 75, refer 2 to WHO (for technical editorial changes). See Table 2 for the full 2020 voting results.

**Table 2: Outcome of Voting Results by CSAC-ICD, 2021**

<table>
<thead>
<tr>
<th>Proposals</th>
<th>Number</th>
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<tr>
<td>Accepted</td>
<td>83</td>
</tr>
<tr>
<td>Rejected</td>
<td>75</td>
</tr>
<tr>
<td>Referred to WHO (for technical editorial changes)</td>
<td>1</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>1</td>
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<tr>
<td>Total</td>
<td>161</td>
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78 proposals are being considered by CSAC in 2021. The first voting round was opened on 6 May and closed on 4 July. Round 2 opened on 27 July and closed on 13 September. A number of proposals will be discussed at the annual meeting.

**Use of emergency codes for COVID-19**

The emergence of SARS-CoV-2 (COVID-19) prompted the assignment of emergency codes in ICD-10, in order to capture this disease in morbidity and mortality settings around the world.

CSAC members continued to participate in videoconferences with WHO to discuss international requirements for coding SARS-CoV-2. A particular focus was needed for a dedicated code for COVID-19 vaccination, resulting in recommendations for new codes:

- U11 Need for immunization against COVID-19
- U12 COVID-19 vaccines

Corresponding changes were also made to ICD-11.

**Work on ICF Linearization/Foundation**

The ICF is being integrated into the new Maintenance platform (ICAT) (Figure 1).

In the transition phase, the following work has been done:

- the first ICF content, based on ICF 2017 release plus the updates with implementation in 2018, was integrated by WHO into the new Maintenance platform.
- old ICF update platform has been closed.
- in the ICF linearization in the new platform, automatically generated residual codes .8 and .9 were checked by the CSAC-ICF co-chair and secretariat and by FDRG co-chairs.

Work to be done in the new Maintenance platform (ICAT):

- check of the ICF Foundation/Linearization current content (“Related impairments” and other new entries specific to the WHO-FIC Foundation) to be done by some CSAC-ICF members and WHO
- incorporation of pending updates (2018 onwards) to be done by CSAC-ICF co-chair and secretariat and WHO.

Work in progress:

- work on a new ICF workflow document, based on the CSAC-ICD process documentation, is being carried out by CSAC-ICF co-chair and secretariat together with WHO.

**Transition year, preparation year**

During the year, the CSAC-ICF Co-Chair and secretariat participated in various teleconferences with WHO and FDRG co-chairs in relation to the ICF, and in FDRG meetings in order to update FDRG members on the transition. In particular, in April 2020, an FDRG/CSAC-ICF joint session was organized.

Other teleconferences were organized with CSAC-ICF members to inform them on work on the ICF and on the new Maintenance platform, to prepare the transition and so that every member gets used to the new entries specific to the WHO-FIC Foundation.

**References**

2. The ICD-11 Maintenance Platform https://icd.who.int/dev1/1/m/en/
The Education and Implementation Committee (EIC) assists and advises the World Health Organization (WHO) and the WHO Family of International Classifications (WHO-FIC) Network in implementing WHO classifications, with a principal focus on reference classifications. This poster presents a summary of EIC activities and achievements from October 2020 to September 2021.

Abstract

Further work is being conducted on a repository of ICD-11 based coding exercises for morbidity to assign learning outcomes. It is envisioned that this will be delivered at the 2021 Annual Meeting. ICD FIT continues to be developed by the WHO and now includes exercises around assigning main condition (for morbidity) and Underlying Cause Of Death (UCOD) (for mortality).

ICD-11 Training

The ICD-11 eLearning tool is now posted on the ICD-11 home page (https://icd.who.int) and on the WHO-FIC page (Classification of Diseases (ICD) (who.int). It can also be accessed via the EIC website: https://hscic.kahootz.com/WHO_FIC_EIC/groupHome

Conclusions

Through the small working groups, the EIC is on track to complete the tasks outlined in SWP 01, and it is envisaged that the EIC will continue to support the WHO in the implementation of courses for the WHO Academy.

The EIC website is routinely updated with new content and can be found at https://hscic.kahootz.com/WHO_FIC_EIC/groupHome.

The implementation status report and the design and implementation of a forum will allow collaborating centres and countries to share experiences and best practices in the transition and implementation of ICD-11. Both tasks will be part of EIC’s SWP in collaboration with other WHO-FIC Groups or Committees.

The EIC will continue to work with its subgroups to progress the outstanding tasks on the SWP to ensure support to WHO in the development of education and implementation strategies as we move towards the international implementation of ICD-11, the modernisation of the ICF and the finalisation of ICHI.

Acknowledgements

The authors would like to acknowledge and thank EIC members for their contributions to various activities and discussions throughout the year.
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 23rd year, the MRG focused on clarifying mortality data in the transition from ICD-10 to ICD-11, while taking into consideration future updates and making the most of the enhancements made in the ICD-11 revision.

**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 23rd year, the MRG focused on clarifying mortality data in the transition from ICD-10 to ICD-11, while taking into consideration future updates and making the most of the enhancements made in the ICD-11 revision.

**Introduction**
This is the 23rd 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.

While countries continue to use ICD-10 in their daily coding and production of mortality statistics, ICD-11 was adopted at WHA in May 2019. So, the MRG focus was on ICD-11 in 2020-2021 in anticipation of implementation in countries. ICD-10 issues directly addressed concerned coding of COVID-19 in data.

This report describes the background of the MRG and its activities in the 23rd year.

**ICD-11 Issues**

In 2020-2021, the MRG continued ongoing discussions and entertained a few issues referred to the MRG by other groups.

- **Major topics discussed in MRG**
  - Maternal mortality: Continue to discuss rules to standardize coding.
  - Perinatal section: Review and translate suggestions into mortality instructions.
  - SIDS proposals: Discuss how to arbitrate between competing proposals.
  - COVID-19: Talk about use of new codes, adequacy of decision tables, and experience of rapidly reporting.
  - ICD-11 implementation: Review different aspects of task:
    - Testing
    - Training
    - Transition
    - Implementation

**Methods & Materials**

Provisions for the MRG are described in the conduct paper of the WHO-FIC network (https://www.who.int/classifications/network/EN_WHOFICNetworkConductPaper.pdf?ua=1) where its objective is to improve international comparability of mortality data by establishing standardized application of the ICD.

The MRG was one of the first groups WHO – working with the Centre Heads - established for updating ICD-10 and continues its role with ICD-11. 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 as recommendations to the CSAC for a vote on ICD updates and changes.

* See also WHO long-term strategy document (WHO/HST/ICD/ C/97.39) and the Centre Heads’ Report for 1997 (WHO/HST/ICD/C/97.65).

**Facilitating online discussions**
The MRG normally holds a face-to-face meeting biannually, uses emails, and shares & stores documents using the SharePoint workspace. However, the COVID-19 pandemic forced the MRG to meet virtually. Several small groups convened additional single-topic virtual meetings. This method was effective when working on a short term project with several devoted people.

**Next milestones**
The next milestones for the MRG occur in 2022 when ICD-11 comes into effect and the following years when Member States will start mortality coding based on ICD-11. Based on previous experience, we know issues will be identified as and after adopting a new revision. Intensive discussion in the coming few years followed by ongoing refinement is expected to be necessary in the mortality area.

**Conclusions**
The MRG has dealt with many issues related to updating and clarifying ICD as it applies to mortality classification and coding. Such work continues as countries move toward implementation of ICD-11. So far, attention has focused on transition topics related to the content of the Reference Guide and aspects of implementation.

**2021 Mid-year Meetings**

The MRG met virtually in March instead of holding a face-to-face mid-year meeting.
Abstract
This poster presents the 2021 annual report of the Informatics and Terminology Committee (ITC). The poster highlights activities around: updates on tools and technologies that support the WHO-FIC clinical classifications, WHO’s new tool on cause of death identification & electronic death certificate standard, update on OMICS activities, and content model development work.

Introduction
This poster presents the 2021 report of the Informatics and Terminology Committee (ITC) of the WHO-FIC Network. ITC concentrates on the development and use of electronic versions of WHO-FIC classifications and their relations to other terminologies. The committee also contributes to the advancement of policies on electronic standards used for WHO-FIC classifications and related terminologies and promotes their international implementation.

Platforms, Software Tools and APIs for WHO-FIC

Tools for Classification Development and Maintenance

(1) iCAT (Authoring Tool)
Originally developed for ICD, iCAT is used for the content update of the Foundation. Recently, ICF and ICHI were integrated in it. These classifications are now generated as linearizations of the WHO-FIC foundation.

(2) Proposal System
Enhancements introduced for complex hierarchy proposals to support richer formatting. Comments from WHO staff, CSAC admin and MSAC admin are highlighted and the MRG admin and MBRG admin user roles have been added. Proposals now separately show the details of the originator and last edited person when both the personnel are not the same. It is also possible to view the proposal histories.

(3) Translation Platform
The system has been enhanced to provide better support for the translations that are nearly complete.

ICD API and other tools for software developers

(1) ICD API
The ICD-API allows other software to access the ICD content. It is an HTTP based REST API. The API also supports open API (Swagger) and a detailed documentation of the API is provided in it. The API is also deployed in the Microsoft Cloud (Azure) allowing increased availability with redundant deployments.

Platforms, Software Tools and APIs for WHO-FIC .. Contd.

(2) Local Deployment Possibilities
Docker-based lightweight images of the classifications are available which can be deployed in any platform that supports Docker such as Linux, Windows, Mac and Cloud platforms, for the digital classifications to be usable in countries where internet services are not reliable. In addition, local server-based versions are available for Windows and Linux which can be deployed in settings without Docker.

(3) Embedded Classification Tool
This is a set of web-components that could be integrated into any web-based software. It is powered by ICD API and could be used as cloud deployed or as locally deployed ICD API. This is currently used in death certificate coding in Uganda and UNRWA e-health record system, Colombian Health ministry and many other countries.

Cause of death identification tool and Electronic death certificate standard
This tool has been developed using the rules coming from SMOL and ICD-11 Reference Guide. The rules are abstract and high level, and they are based on code sets that may come from different classifications (SMOL, ICD-10, ICD-11).

The system and the rules are continuously tested on the publicly available CDC death certificates
• With SMOL rules: 73.52%
• Work is ongoing to embed the Reference Guide rules, which are increasing accuracy: 84.93% on all CDC 2018 certificates
• On 1000 certificates coded in ICD-11: 79.20%

New rules can be easily integrated into this tool, and as a collaborative authoring to edit/discuss on the existing or suggesting new rules. The software is developed in a cloud-based architecture and has the feature to access the API through the frontend.

OMICS
In 2021, the work included adding clinical information as well as exhaustive molecular information. The iCOS currently consists of two versions; Alpha and Beta. The Alpha version is the primitive model. The Beta version was developed integrating the reverse transcription model where it consists a module which has two interfaces for ICD-11 and OML and transcription mapper.

WHO-FIC Content Model Development
The work to unify ICD, ICF and ICHI in a single Content Model has mostly been achieved. The model defines properties shared by all WHO-FIC as well as classification-specific properties. It is a post coordination model which formalizes the roles played by properties and provides extension mechanism. This model also contains a linearization model that specifies generation of classification. It is the basis for a unified Foundation for ICD, ICF, and ICHI.

Acknowledgments: The authors wish to acknowledge the work carried out by Marc Donada, Vincenzo Della Mea, and Jun Nakayta that contributed to the content of this poster.
Morbidity Reference Group
Annual Report

18-22 October 2021
Virtual WHO-FIC

Abstract
This poster presents an annual report of the work of the Morbidity Reference Group, highlighting activities undertaken by this committee.

Introduction
The Morbidity Reference Group (MbRG) identifies, discusses and provides guidance related to interpreting and applying the ICD to morbidity coding and classification. Specifically, MbRG supports WHO and the WHO-FIC Network by providing input and advice for development and use of WHO-FIC classifications, to support the collection of internationally comparable morbidity data.

The MbRG also supports the work of other reference groups and committees where there are opportunities for collaboration and overlapping priorities.

Activities and Achievements
Virtual series of mid-year meetings
In lieu of an in-person mid-year meeting, we decided to host 4 virtual meetings. The first three meetings were to address the three priority areas as the most substantive agenda items. What follows is an inventory of this year’s accomplishments.

• A small working group was struck to support the exploration of ICD-11 and ICHI. The group convened in January to discuss the option of using the NordDRG as a template for an international tool.

• A short paper was drafted by the co-chairs to provide a brief overview existing DRG/case mix tools. It sets out the rationale/value proposition for using the NordDRG as a template. The paper is being presented at the annual meeting of Council for discussion. The outcome of the discussion with Council will inform the MbRG work plan for 2022.

• In February, MbRG co-chairs met with WHO and co-chairs of FDRG to discuss an approach to providing practical guidance on the use of the supplementary section in ICD-11. It was agreed that efforts would focus on finalizing relevant text in the Reference Guide.

• Text for the Reference Guide related to the functioning section was reviewed at MbRG and is now finalized.

• MbRG provided feedback on the ICHI mapping paper that has been incorporated into a revised draft.

• MbRG co-chairs and secretariat met with EIC co-chairs to discuss alignment of work plans. We are collaborating to integrate planning for the development of an information sharing forum to support implementation and practical use of classifications.

Conclusions
ICD-11 becomes the new global standard in January 2022. Around the world, Member States are at different stages in their planning for implementation. The years ahead will bring opportunities and challenges as these plans are finalized and begin to be implemented.

The MbRG is committed to being a resource within the WHO-FIC network for ongoing review of ICD-11 content, coding rules, reference guide content, training materials, and related aspects.

Going forward, the MbRG will continue to contribute to exploring and refining innovative uses of ICD-11 and other WHO-FIC classifications (ICHI and ICF). In this regard, the joint use of ICD-11 and ICHI to develop a global case mix standard represents a genuinely novel opportunity. We also look forward to collaborating with our EIC colleagues to further develop the concept of an ICD-11 information-sharing forum to support implementation. We also plan to consider the future relationship between ICD-O and ICD-11, as well as the range of potential use cases for ICD-11’s Foundation layer.

As we get close to ICD-11 replacing ICD-10 as the new version of the classification, WHO-FIC classifications are at an exciting time in their history. The MbRG is committed to supporting the WHO in the important work that lies ahead.

Acknowledgements or Notes
The co-chairs wish to acknowledge the work of the MbRG members and collaborating centres for their contributions over the past year.
**Abstract**

The Family Development Committee (FDC) aims to develop and maintain the World Health Organization’s Family of International Classifications (WHO-FIC) as an integrated and comprehensive suite of classifications that provide a common language for health information across the world. It also aims to ensure that the WHO-FIC reference classifications has a logical and unified structure with the complement of related classifications to fulfill any gaps in coding health information across settings. The poster will present a summary of the FDC activities from October 2020 to October 2021. The activities related to supporting the completion of ICHI, development of a harmonized WHO-FIC across settings. The poster will present a summary of the FDC activities from October 2020 to October 2021. The activities are related to supporting the completion of ICHI, development of a harmonized WHO-FIC content model and the migration of classifications to WHO-FIC Platform, mapping of the UHC across classifications and exploring the use of terminologies within WHO-FIC.

**Introduction**

The tasks of the Family Development Committee (FDC) detailed in the Strategic Work Plan (SWP) have been addressed along the year with special emphasis on items falling within some of the FDC Terms of Reference mandates:

1. To serve as a focal point for the Network for the finalization of ICHI
2. To oversee the development of a harmonized content model across the 3 classifications (ICD, ICF, ICHI)
3. To oversee the expanded mapping of WHO-FIC across UHC criteria
4. Oversee the formulation of terms of reference on integrating terminologies into the WHO-FIC

**Methods & Materials**

The activities have been developed through three modalities:

- Regular teleconferences among co-chairs and secretariat and WHO
- Mid-year virtual meeting held 4-5 May 2021
- Dedicated small working groups and meetings with these working groups
- Stakeholder meetings

**SWP1 Finalising of ICHI**

ICH was migrated to the WHO-FIC Platform by the end of 2020 and in the earlier 2021 following the review of index and includes terms. A mid-year meeting was held 3 May 2021.

The ICHI Target axis titles was reviewed for consistency and to correct possible overlap. Content development is still ongoing based on continued reviews and commenting processes as example enhancement of the public health interventions.

**ICH**

ICHI is now ready for finalisation and implementation and the next release is planned for October 2021 at the Annual WHO-FIC meeting with a tooling environment including browser, coding tool, translation and proposal platform.

Further work required undertaken by WHO such as reviewing of Functioning interventions (ongoing) and Public health interventions.

*Please refer to two separate posters for ICHI.*

**SWP 2 Content Alignment and Harmonisation**

All three reference classification are migrated to the WHO-FIC Platform (Figure 1).

**Figure 1. The WHO-FIC Platform**

The vision of a unified WHO-FIC content model is largely realised. It is possible to formulate ICD, ICF, ICHI as part of a generalized WHO-FIC Content Model. Similar to ICHI, there has been significant progress on the migration of the ICF to WHO-FIC Platform (Figure 2).

**Figure 2. ICF in WHO-FIC Platform**

**SWP 3 UHC Mapping**

The systematic mapping of the health indicators has shown that for the majority of the indicators grouped as Health Status, Risk Factors, Health coverage and Health systems, one or more of the three reference classifications can indeed be utilised for identification and tracking.

A further gap analysis conducted during 2021 concluded that ICPC2 and ICNP did not provide additional detail that could be added to fill gaps, so mapping will not include these.

Review of gaps in indicators resulted in feedback to the ICHI Task force for enhancements. An example of some gaps in ICD – codes do not include age, so the measure would need to come from elsewhere.

*Please refer to separate poster for this task*

**SWP 4 Terminologies**

Purpose of the working group was to bring clarity on the role of health ‘terminologies’ within WHO-FIC. Work was approached through used cases.

Four categories of use cases developed:

1. Parallel use
2. Transforming
3. Enriching the foundation
4. Enhancing application of WHO-FIC

*Please refer to separate poster for this task*

**Acknowledgements**

The FDC co-chairs thank the FDC members for their contributions to the FDC work plan activities during the year, especially the dedicated working groups.
# ANNUAL REPORT FDRG 2020-2021

**18-22 October 2021**

Virtual WHO-FIC

**Authors:** Maribo, T.; Martinuzzi, A.; Yañez, M, Kostanjsek, N.

Aarhus University, Denmark; IRCCS E. Medea. Italian WHO-FIC Collaborating Centre, Italy; Ministry of Health, Mexico, WHO

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**Abstract**

This poster describes the activities of the Functioning and Disability Reference Group in the 12 months from October 2020 to October 2021. Three main streams of work are reported; Moving ICF into the WHO-FIC information model, ICF use cases, FDRG brief history.

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## FDRG meetings

FDRG activities have been connected by extensive full group meetings (annual, mid-year in April), periodic full group Tele Conferences (December, January and June) and regular monthly co-chairs/secretary TC. All these activities were held virtually due to the pandemic situation. The FDRG annual meeting was held virtually during the WHO-FIC 2020 annual meeting. At the annual meeting the FDRG thanked for the chairman service the outgoing co-chairs Matilde Leonardi and Haejung Lee and for secretariat support Olaf Kraus de Camargo. Thomas Maribo from Denmark and Andrea Martinuzzi from Italy were elected as new Co-chairs, while Manuel Yañez from Mexico took the duty of Secretary.

## Activities

1) **IFC in the new common platform:**
   - The most striking new is the completed migration of ICF 2018 in the e-platform in which both ICD-11 and ICHI draft are handled. The ICF appears thus as a linearization of the common foundation. However, after the automatized process manual curation of the elements coming from ICF was needed and it was initiated by surveying and completing the residuals. Further checking will start on the correct position of the various ICF entities within the content model.
   - Functioning section is integral part of ICD-11 and the integration of the reference classifications both conceptually and practically is relevant to member states. The present options offered by chapter V of ICD-11 in their heterogeneity need to be harmonized within the common content model. WHO presented an update on the representation and coding structure ICD-11 V chapter. The WHO-DAS 2.0 as a tool for assessing functioning can produce a clinical scale across any/all diseases.
   - The ICF update process was temporarily halted in 2021 given the new e-environment hosting ICF. The new update process for ICF will be designed and streamlined together with CSAC and WHO with 2020-2021 being a transition year. Remaining proposals on the old platform will be migrated onto the new one. The process will be ongoing and open to the public. The ICF review process will follow the former time frame and use the 2013 platform user guide. The new process will not require an initial review group. The task will be undertaken by the WHO ICF focal point and the CSAC ICF secretariat. Reviews will be undertaken by the FDRG, the MbRG and the MSAC.

2) **WHO-DAS 2.0:**
   - Training Academy: provide technical guidance on the sensible issues identified through the responses to a specially designed questionnaire to inform the training resource (with EIC)
   - Development of KID-DAS; relationship of WHO-DAS within ICD functioning rubric in the context of the common foundation
   - Support and collaborate with the ICHI task force & FDC towards the finalization for functioning & public health parts of ICHI
   - Finalize the collection of ICF use cases
   - Discuss a document on FDRG history

As no funding for KID-DAS has been provided this matter is pending. Further, discussions on WHO-DAS environmental factors module has been discussed.

3) **ICHI:** constant exchange of information was assured between FDRG and the ICHI development task force with the objective to best prepare the ICHI beta 3 draft to the external revision of the functioning and public health sections due in September.

4) **ICF uses cases:** the collection of use cases was completed with the last additions (Brazil, Czech Republic, Finland, Italy and Mexico). The collection now constitutes the first survey on actual ICF use globally and will be object of a scientific publication.

5) A draft on FDRG history has been provided and it is to be discussed further.

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## Strategic Work Plan

The FDRG SWP was reviewed and updated and the following items were identified as priorities:

1. **Moving ICF into the WHO-FIC information model:**
   - polishing and completing the index terms, the inclusion/exclusion, the remarks and in general the content;
   - Review the ICD-11 functioning section (V-chapter) and chapter 21;
   - Review the update/revision process (with CSAC)

2. **WHO-DAS 2.0:**
   - Training Academy: provide technical guidance on the sensible issues identified through the responses to a specially designed questionnaire to inform the training resource (with EIC)
   - Development of KID-DAS;
   - Relationship of WHO-DAS within ICD functioning rubric in the context of the common foundation

3. **Support and collaborate with the ICHI task force & FDC towards the finalization for functioning & public health parts of ICHI**

4. **Finalize the collection of ICF use cases**

5. **Discuss a document on FDRG history**

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## Conclusion

The ICF is finding its way in the information model. Going forward the FDRG will continue to contribute to the development of description and coding of functioning. The FDRG is committed to supporting the WHO in the important work that lies ahead.

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## Acknowledgement

The co-chairs wish to acknowledge the work of the FDRG members and Collaborating Centres for their contributions over the past year.
Introduction

This is the 1st annual report poster of the VARG, established at the 2018 annual meeting of the WHO-FIC Network in South Korea. As VA is increasingly becoming part of routine mortality data collections systems, the VARG supports and advises WHO regarding:

- Development and maintenance of WHO VA standards;
- Standards and recommendations for VA training and implementation;
- Advancement of methods and tools for assigning causes of death from VA interviews;
- Use of the causes of death data determined by VA;
- Use of the VA causes of death data as a complement to medically certified cause of death data;
- Quality assessment and assurance of VA data; and
- Methods for comparing and evaluating VA results.

Methods & Activities

The activities have been carried out through four modalities:

- Dedicated small working groups collaborating online;
- Weekly teleconferences among co-chairs, secretariat and working groups;
- Virtual workshops; and
- Bi-monthly full VARG meetings.

Guidance on the Joint Use of Verbal Autopsy and Medical Certificate of Cause of Death Data

A key VARG activity in the last year has been to develop guidance on how to aggregate mortality data from multiple sources and how to integrate VA results into national statistical processes. This emerging guidance aims to demonstrate the utility of routine VA data alongside MCCD data and includes the following sections:

- Section 1 - steps to understand the context of the data being analyzed
- Section 2 - prerequisites for mortality data before aggregation
- Section 3 - steps for preparing and aggregating the datasets, such that a single mortality profile can be generated for the area of interest
- Section 4 - guidance on using and interpreting the resulting findings

Revision of WHO Verbal Autopsy Instrument – Release of 2021 WHO Verbal Autopsy Instrument

Another key activity has been revising the standard VA Instrument, including:

- 18% reduction in number of questions used for cause of death assignment from the 2016 WHO VA instrument;
- 10 new questions added;
- 28% of 2016 WHO VA questions improved, including clarification of intent, simplification of questions, and reallocation of questions to improve quality of responses;
- Hints added for the interviewers to clarify intent of questions and improve response patterns;
- Issues reported from the field resolved; issues were related to lack of clarity in terminologies and constructs used, redundancy between questions and confusing sequence of questions; page.
- Use of standard medical terminology to facilitate translations; and
- Modifications expected to improve sequencing and flow and to reduce less time to conduct the interview.

Table 1 - Distribution of questions used for cause of death assignment between the 2016 and 2021 WHO VA instruments by the three age groups and for the maternal death section.

<table>
<thead>
<tr>
<th></th>
<th>2016 WHO VA Instrument</th>
<th>2021 WHO VA Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonates</td>
<td>147</td>
<td>122</td>
</tr>
<tr>
<td>Entry level questions</td>
<td>74</td>
<td>63</td>
</tr>
<tr>
<td>Children</td>
<td>195</td>
<td>164</td>
</tr>
<tr>
<td>Entry level questions</td>
<td>85</td>
<td>70</td>
</tr>
<tr>
<td>Adults</td>
<td>216</td>
<td>191</td>
</tr>
<tr>
<td>(incl. maternal section)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry level questions</td>
<td>95</td>
<td>81</td>
</tr>
<tr>
<td>Maternal section</td>
<td>49</td>
<td>40</td>
</tr>
<tr>
<td>Entry level questions</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>All</td>
<td>319</td>
<td>273</td>
</tr>
<tr>
<td>Entry level questions</td>
<td>154</td>
<td>131</td>
</tr>
</tbody>
</table>

Acknowledgements

We would like to thank all members of the VARG, collaborating centres and partners for their commitment and contributions to the maintenance and advancement of VA standards, especially the dedicated working groups.

The VARG wishes to greatly thank and acknowledge the contribution and guidance of the outgoing co-chair Daniel Chandramohan.

Abstract

The WHO Verbal Autopsy Reference Group (VARG) supports and advises WHO regarding development and maintenance of verbal autopsy (VA) standards, respective instruments and associated processes including use of VA cause of death data to ensure consistency with ICD classification rules. This poster presents a summary of the work undertaken by the VARG, highlighting activities and achievements from October 2020 to October 2021.

Other Highlights

Election of new VARG Co-chairs

- Outgoing Co-Chair Daniel Chandramohan, 2018-2021
- Elected Co-chairs: Erin Nichols and Daniel Cobos

“Strengthening CRVS Systems Guide for Verbal Autopsy”

- Drawn from international standards and concepts, the guide provides practical and operational advice, and strategic planning support for targeted CRVS system improvements to implement VA.

Prospective meta-analysis – “Diagnostic Accuracy of Verbal Autopsy to Ascertain COVID-19 as a Probable Cause of Death”

- VA community of practice brought together 14 teams working in the validation of VA to ascertain COVID-19 as a probable cause of death; 6 monthly sessions hosted.
- Protocol developed.

PDF versions of the WHO VA instrument per age group for data managers

- Automatically generated via a web application that converts the ODK (XForm) version of the instrument to a human readable format; to be made available at WHO VA standards web site.

Interactive map on implementation of WHO VA standards

- Tracks past and current (v2012–...) implementations with the WHO VA instrument.
- Map will be updated regularly and will be hosted at the WHO VA standards web page.

IT roadmap – VA Explorer

- Python-based application to manage and track VAs. Currently under development and available on GitHub in alpha release form.
Abstract

The Medical and Scientific Advisory Committee (MSAC) provides medical and scientific advice on changes or enhancements to the ICD-11, particularly in response to proposals received via the ICD-11 maintenance platform, or requests from the Classifications and Statistics Advisory Committee (CSAC), and associated reference groups. MSAC may also recommend changes or enhancements to ICD-11 based on scientific advances or other new information.

Introduction

The MSAC was launched at the ICD Revision Conference in 2016 and is comprised of 19 experts selected by WHO, some of whom were drawn from the Topic Advisory Groups. In addition, the co-chairs of CSAC sit as ex-officio members. The primary role of the MSAC is to advise WHO on scientific updates to ICD-11.

The advice of this committee reduces pressure on national experts to review proposals, while still allowing for that input, and accelerates the implementation and maintenance of the classification by streamlining the process. It allows for apolitical reflection of important scientific innovations in the classification, in a timely fashion.

The MSAC met virtually during the annual WHO-FIC Network meeting in 2020. During the period between November 2020 and September 2021, the MSAC met 10 times via videoconference. The main focus of the meetings has been on the review and consideration of proposals submitted via the ICD-11 maintenance platform.

Other issues discussed

The MSAC process for reaching consensus was revised during the past year and now follows the CSAC process as much as possible. This revised process allows MSAC to use the voting mechanism available in the maintenance platform of the ICD-11.

- MSAC reviews all proposals for new entities and all proposals requesting deletion of an entity.
- MSAC will also review proposals upon request from CSAC and other committees and reference groups.
- Each MSAC proposal is then assigned to an MSAC member who completes the assessment of the evidence provided by the author. The recommendation of the MSAC reviewer is then discussed at an MSAC meeting.
- MSAC members are encouraged to vote on the recommendation prior to the MSAC meeting.
- Voting and discussions will be held until the recommendation on behalf of MSAC (reached based on initial recommendation from the MSAC reviewer) will reach consensus.
- When a proposal has merit but needs major modifications the proposal will be sent back to the author.

The topic of coronary atherosclerosis was one of major discussions during this past year. Coronary atherosclerosis has been moved out of its ICD-10 location under Chronic ischaemic heart disease and currently resides as a child of Diseases of the coronary artery in ICD-11. Significant research and deliberation was done by MSAC regarding the question of whether or not to move coronary artery disease out of Diseases of coronary artery. MSAC recognized the relevant changes made by the Cardiology Working group during the revision process, but also recognized the need to maintain statistical continuity. The final recommendation to CSAC is to follow ICD-10 legacy and move Coronary atherosclerosis to become a child of Chronic ischaemic heart disease.

Methods

The MSAC reviews proposal on the scientific merit and evidence base, before a new entity can be added to or deleted from the ICD foundation. The MSAC will also evaluate proposals for entity descriptions, and may be asked to participate in the review of changes to coding rules.

Proposals are initially assigned to a specific MSAC member for scientific review. Where possible, these are assigned according to specialty, but all members are experts in research methodology. If the topic relates to a specialty not represented on MSAC, members may consult with colleagues for the review. The introduction of a consent agenda has facilitated an effective proposal reviewing process.

Conclusions

MSAC recommendations are added to the proposal platform to ensure transparency of the maintenance process, and to inform CSAC members. Certain topics receive considerable attention from advocacy groups despite decisions attained regarding whether to add an entity to the ICD-11.

Acknowledgements

MSAC members are thanked for their valuable contributions to the ongoing development and maintenance of the ICD-11.

Proposals referred in 2021

<table>
<thead>
<tr>
<th>Total</th>
<th>Reviewed</th>
<th>Decided</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>48</td>
<td>40</td>
</tr>
</tbody>
</table>
Report from the Traditional Medicine Reference Group

Authors: Co-chairs; Kenji WATANABE, Danbo DOU, Secretariat; Wenjie XU
Traditional Medicine Reference Group
WHO Liaison; Nenad KOSTANJSEK, Stéphane ESPINOSA

Abstract
Traditional Medicine Conditions Module 1 (TM1) was developed and included in ICD-11 as a supplementary chapter 26. This chapter on Traditional Medicine disorders and patterns is designed to be integrated with coding of cases in conjunction with the Western Medicine concepts of ICD Chapters 1-25. TMRG established the review work flow and dealt with 16 proposals, out of which 1 has been recommended for acceptance with modification and 15 for rejection. In the mid-year meeting, preparation for the implementation was shared and the future plan of the implementation was discussed. In order to encourage TM practitioners to collect data, training tool is necessary. Training tool of TM chapter coding will be developed under the umbrella of WHO Academy, collaborating with EIC and national training organization. For this goal, clear guidance of the coding of TM chapter is necessary. Module 2 development is undergoing.

Introduction
- The development of the Supplementary Chapter Traditional Medicine Conditions, Module 1 (TM1) is a result of requests to WHO from several member states to include TM concepts in an international classification such as the ICD. Although countries such as China, Japan and Korea have developed their own country specific classifications, there was no agreed international standard to allow collection of comparable data or as a starting point for testing efficacy of interventions and monitoring their safety.
- TM clinicians have been working 2005-2018 to integrate and standardize their terminology, resulting in the current TM chapter Module 1.
- ICD-11’s chapter on Traditional Medicine disorders and patterns is designed to be integrated with coding of cases in conjunction with the Western Medicine concepts of ICD Chapters 1-25. The TM1 module within ICD enables continuity and coordination of care and promotes integrated people centered care for those accessing traditional, complementary and integrative medicine as a means of primary health care.

Summary of the Mid-year Meeting
- Preparation for the implementation, mapping between TM chapter and national standards and the data collection were reported by the experts from the member states, such as China, Japan, Korea, UK and USA. The results of the preliminary study using TM chapter in outpatients clinic and the hospital-based field were shared, and discussed for the future plan of the implementation and use cases.
- Some examples of the double coding of TM chapter and other chapters (WM) were presented as a show case.
- China, Japan and Korea have finished the translation of TM chapter and will be combined with other chapters of ICD-11.
- Communication with EIC on the development of the educational program, was shared and the further collaboration was discussed.
- Development plan of the TM chapter Module 2 (TM2) was discussed.

Implementation Plan
- ICD-11 will officially come into effect in January 2022.
- Implementation of the ICD-11 TM Chapter in conjunction with other ICD-11 Chapters has started. Countries where national standards for traditional medicine diagnostic coding are used started aligning their national standards with the ICD-11 TM chapter to ensure international comparability of reported TM morbidity data. To facilitate this process, mapping from national standards to ICD-11 TM chapter is under way.
- Training tool of TM chapter coding will be developed under the umbrella of WHO Academy, collaborating with EIC and national training organization. For this goal, clear guidance of the coding of TM chapter is necessary. Also the translation is needed where necessary.

Module 2 Development
- Currently, chapter 26 of ICD-11, contains the classification of the diagnostic categories used in the traditional medicine (TM) that originated in ancient Chinese medicine and are now commonly used in China, Japan, Korea and elsewhere around the world.
- This chapter opens for other TM modalities. Development of Module 2 covering Ayurveda and related systems such as Siddha and Unani has started. The kick off meeting of Module 2 was held in February 2019 in India, and the official development started in 2020, with situation analysis of 8 stakeholder countries. The first milestone of the project was reached in September 2021 at the 1st WHO ICD11 TM2 Technical Meeting (virtual) where the stakeholder countries discussed use cases and double coding, and reached consensus on the content model, high-level structure and principles for the development of the TM2 Alpha draft.

Maintenance of TM Chapter

Proposals

- Arrange the format, correct spelling
- ME assigns each item to one of TMRG members
- Assigned member judge whether the proposal meets the criteria or not
- Assigned member prepares the recommendation
- Members decide whether the proposal is acceptable or not in web meeting of TMRG

MSAC • CSAC
Quality and Safety TAG Update

Authors: D. Southern, H. Quan, H. Pincus, W. Ghali
For the Quality and Safety TAG

**Abstract**

Quality and Patient Safety TAG was 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.

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Activities</th>
<th>Dissemination and implementation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontally crossing all ICD-11 chapters to advise on optimizing entire classification’s content, structure &amp; coding rules for enhanced application in both existing.</td>
<td>Meetings: Zoom online meeting May 2020.</td>
<td>Emphasis of meetings activities focused on strengthening stakeholder &amp; user engagement. As part of a broader dissemination strategy, the Q&amp;S TAG’s published a series of academic articles in the International Journal for Quality in Health Care (and new scholarly writing by several TAG members is currently actively under way):</td>
</tr>
<tr>
<td>Developing an inventory of existing quality of care &amp; patient safety indicators and potentially novel quality and safety indicators.</td>
<td>Topics: Update on Comorbidity algorithms • Delphi work from Banff 2019 now analysed • Listing of ICD11 codes to define clinical conditions has been tabulated • Charlson/Elixhauser conditions ready for use in ICD11</td>
<td>ICD-11 for Quality and Safety: BMC Medical Informatics and Decision Making – scholarly articles to bring reference guide content to public</td>
</tr>
<tr>
<td>Assessing potential uses of ICD-11 for health services, quality &amp; patient-centered outcomes research.</td>
<td>Update on BMC Medical Informatics and Decision Making publication proposal • Reference Guide topics to be covered • Authors from Q&amp;S TAG and MbRG</td>
<td></td>
</tr>
<tr>
<td>Reviewing &amp; critiquing Reference Guide work from the perspective of quality and safety use case.</td>
<td>Dissemination and implementation of the innovations to capture quality and safety data through ICD-11 as well as stakeholder engagement (i.e., coders, ontologists/classification experts, hospital administrators, health services researchers, etc.).</td>
<td></td>
</tr>
</tbody>
</table>
| Producing knowledge translation around ICD-11 | 2010 Meeting Attendees

Harold Pincus (Co-Chair, Columbia University); William Ghali (Co-Chair, University of Calgary/ Canada and Co-Chair WHO Morbidity Committee); Patrick Romano (University of California Davis); Oluseun Atolagbe (University of California Davis); Hude Quan (University of Calgary/ Canada); Alan Forster (Ottawa Hospital/ Canada); Chris Chute (Johns Hopkins University/ US); Yana Gurevich (CIHI/ Canada); James Harrison (Flinders University/ Australia, Chair of Injury and External Causes TAG); Marilyn Allen (American Acupuncture Council/ Member of Traditional Medicine TAG); Bernard Burnand (University of Lausanne/ Switzerland); Vijaya Sundararajan (University of Melbourne/Australia); Danielle Southern (University of Calgary/ Canada); Saskia Droesler (Niederrhein University of Applied Sciences/ Germany); Jean-Marie Januel (EHESP/ France); Marie-Annick Le Pogam (University of Lausanne/ Switzerland); Bastien Boussat (CHU/ France); Nenad Kostanjsek (WHO/ Switzerland); Robert Jakob (WHO/ Switzerland). | Conclusions The Quality & Safety TAG has secured funding from AHRQ for future meetings Field trial work for testing ICD-11 is completed and focus is now on dissemination of ICD-11 Quality and Safety. |

![Figure 1: Q&S TAG meeting participants](image)

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)
WHO-FIC 2021 virtual

WHO-FIC Poster Booklet

Chapter 2 – Collaborating Centres Annual Report
Abstract
The Australian Collaborating Centre (ACC) has continued its active involvement in the WHO-FIC Network and the Committee and Reference Groups (CRGs), allowing Australia to contribute to products benefitting both the Australian and the international health information and statistical services environments. In addition, Australia has built on participation in these activities to influence strategic planning and potential adoption of ICD-11 in Australia. This paper outlines the activities against the ACC work plan.

Introduction
The Australian Institute of Health and Welfare (AIHW) has hosted the Australian Collaborating Centre (ACC) since April 1991. The ACC is designated until 2022. The Head of the ACC is Michael Frost, Senior Executive of the Data Governance Group at the AIHW.

The ACC comprises a broad network of Australian and New Zealand experts and organisations with an interest and experience in health classifications.

This annual report summarises the activities of the ACC and its members during the period October 2020 to October 2021. The report incorporates information on specific activities of the ACC work plan, including that of its member organisations and experts relevant to the ACC Terms of Reference, as agreed with the WHO.

1. Support for coordination of the WHO-FIC Network
The ACC actively contributes to every Network Committee and Reference Group as well as participating in the Small Executive Group and Advisory Council.

The ACC provides chairperson and/or secretariat support to the Classification and Statistics Advisory Committee (CSAC)-ICD, the Mortality Reference Group (MRG), the Education and Implementation Committee (EIC), the Informatics and Terminology Committee (ITC) and the ICHI Task Force.

The ACC also regularly collaborates with other Collaborating Centres to support the work program of the Network.

2. Participation in EIC & Education
The ACC has contributed to the work of the EIC through:
• development and refinement of the ICD-11 transition and implementation package
• development of the ICD-11 Electronic Training Tool
• development of ICHI training materials
• providing education on mortality coding in Australia and the Pacific
• providing education on ICF and its use, nationally and internationally
• providing input to ICD and ICF Education resources including membership of the editorial team for the ICF Education portal: http://icfeducation.org/.
• Catherine Sykes continues as one of the editors responsible for monitoring the platform.
• Sue Walker continues to manage the EIC’s Facebook page: https://www.facebook.com/#!/groups/350099288373997/.

3. Participation in CSAC
The ACC has actively contributed to:

CSAC-ICD, by:
• developing, progressing and refining the process for reviewing proposals on the ICD-11 maintenance platform
• participating in the ICD-11 proposal review process and coordinating the Australian point of view among stakeholders
• participating in videoconferences with WHO regarding use of emergency codes in ICD-10 to capture COVID-19, and
• providing support to the WHO Classifications Team.

CSAC-ICF, by:
• being involved in the review and voting on ICF proposals
• contributing to the development of an ICF Update process and maintenance platform.

ACC work plan activities (2018-22):
1. Support for coordination of the WHO-FIC Network
2. Participation in the work of the WHO-FIC EIC and support for WHO-FIC related education
3. Participation in the WHO-FIC Network’s CSAC
4. Participation in the WHO-FIC Network’s FDC
5. Participation in work on the ICHI
6. Participation in and support of the work of the WHO-FIC MRG
7. Participation and support of the work of the WHO-FIC FDC
8. Participation in the transition and implementation work for ICD-11
9. Participation in the work of the WHO-FIC ITC
10. Participation in the work of the WHO-FIC MbRG.

4. Participation in FDC
The ACC has contributed to the work of the FDC through:
• ICHI development work (see Activity 5)
• WHO-FIC mapping and gap analysis
• contribution to content harmonization discussions and activities, and
• contribution to the development of a WHO-FIC information model.

5. Participation in work on the ICHI
The ACC has continued to lead and contribute to the development of ICHI.

Migration to the new WHO-FIC Platform was finalised in early 2021. As a part of the migration to the WHO-FIC Foundation, the ICHI editors have continued to review ICHI index terms and includes notes in line with the structure used in ICD-11. The editors have continued to progress content development since the October 2020 Annual meeting based on ICHI review processes and any comments posted on the platform. As of August 2021 there have been approximately 160 comments actioned.

The ICHI development team together with WHO have also been involved in reviewing the WHO draft document ‘Compendium of WHO and other UN guidance in health & environment’ with the aim of testing the coordinating of ICHI in a public health use case and to identify gaps in ICHI. This work has resulted in a number of new and/or revised Targets, Actions and interventions being included in ICHI.

Acknowledgements
Thank you to the ACC members and organisations for the invaluable contributions to the ACC including the work plan activities during 2020-21.

Many of the activities occur through in-kind support from these individuals and their organisations.
The United Kingdom (UK) Collaborating Centre continues its involvement in the WHO-FIC Network Committees and Reference Groups. This enables the UK to contribute to the products benefitting both the UK and the international community for classifications. This poster outlines some of those activities since the last WHO-FIC Annual Network meeting in October 2020.

**Abstract**

NHS Digital in Leeds, England has hosted the UK WHO-FIC Collaborating Centre since 2014 and redesignated for the period 2018-22. NHS Digital perform this role in collaboration with the Office for National Statistics to reflect ICD morbidity and mortality use cases.

The joint contributions from NHS Digital (for morbidity data) and ONS (for mortality data) on behalf of the UK enables the successful fulfilment of the Centre's activities which correspond to the 2018-22 work plan agreed with the WHO and aligns with the WHO-FIC Strategic Framework. The Head of the UK Centre is Lynn Bracewell.

The Head of Centre participates in the WHO-FIC Advisory Council meetings to date: Dec-20, Feb-21, May-21).

NHS Digital activities include:
- continued hosting the WHO-FIC Education and Implementation Committee collaboration platform and the public-facing website, and providing support to the Committee secretariat. (This platform was launched at the Oct-2019 annual network meeting)
- Contributed to the Family Development Committee / Classifications and Terminology Sub-group providing the UK terminology use case as part of a White Paper and Poster for 2021.
- participated in the Education and Implementation Committee meetings (Jan-21, 28/29-May, Jun-21) providing regular UK update on status of UK ICD-11 implementation
- conducting a short project, in collaboration with UK home nation representatives to analyse and document the strategically important ICD stakeholders and use cases for mortality data. The project will help inform strategic discussions and decision making with respect to the adoption of ICD-11 Mortality and Morbidity Statistics (ICD-11 MMS) and is planned to complete by the end of Oct-21.

**Provide and coordinate UK input and advice to the development and use of ICD-11**

NHS Digital collaborates with the home countries through the UK Classifications Technical Advisory Group on coding issues. NHS Digital activities include:
- publication of national ICD-10 coding guidance on COVID-19
- publication of annual updates to ICD-10 national coding standards
- provision of helpdesk for ICD coding queries
- ICD-10 online query database with 924 resolutions
- Delivery of the clinical coding train-the-trainer and train-the-auditor programmes to ensure that user training or local audits are consistent and of high quality*
- Support for 249 Approved Clinical Auditors and 111 Approved Clinical Coding Trainers
- *Due to COVID-19 pandemic and government guidelines we have made some adjustments such as providing online alternatives

**Contribute to the development and maintenance of ICD-11 (morbidity)**

NHS Digital provides morbidity input and participated in:
- Morbidity Reference Group (MbRG) virtual meetings (Feb-21, Apr-21, May-21 and Jun-21)
- CSAC Round 1 review, research and voting for ICD-11 proposals between Apr-21 and Jul-21
- CSAC Round 2 review and voting for ICD-11 proposals between Aug-21 and Sep-21
- review of CSAC proposals sent for MbRG review and recommendation at Oct-21 Annual Network Meeting

Facilitated a meeting between WHO and SNOMED International to discuss collaboration on linkages between SNOMED CT and ICD-11.

**Contribute to the development and maintenance of ICD-11 (mortality)**

ONS have:
- participated in MRG meetings in Nov-20 and Mar-2021 and CSAC meetings in Jun-20
- participated in further international discussions on formulation of codes and rules for recording COVID-19 in mortality setting
- Contributed to CSAC proposals and review process
- participated in WHO working group for drafting international guidance on primary death examination and investigation for physicians.

**Develop and maintain International English coding dictionary for Iris coding system (mortality)**

ONS activities include:
- updating the international ICD-10 mortality coding dictionary in English according to schedules
- as an active member of the Iris Consortium ONS has participated in regular meetings to develop the programme for transition of Iris to support ICD-11, with a view to the effective implementation of ICD-11 for mortality
- Through a contract with the Iris Consortium, taken overall project management responsibility for the ICD-11 Iris development.

**Other activities: ICHI and ICF**

NHS Digital activities include:
- Completion of Phase-2 of OPCS-4 to ICHI mapping to 65% of total (Hospital Episode Statistics) cases
- Leading a Mapping Task and Finish Group (under the MbRG) to develop a paper to describe a standard approach to mapping between national intervention classifications and ICHI (ongoing). A final draft to be submitted to MbRG annual meeting agenda (2021) for discussion and sign-off. The Group have also submitted a 2021 poster

**Acknowledgements or Notes**

NHS Digital website: [www.digital.nhs.uk](http://www.digital.nhs.uk)
Office for National Statistics website: [www.ons.gov.uk/ons](http://www.ons.gov.uk)
Annual Report from the Nordic WHO-FIC Collaborating Centre 2021

Authors: Marie Vikdal, Solvejg Bang
Nordic WHO-FIC Collaborating Centre, Oslo, Norway

Abstract
The Norwegian/Nordic Collaborating Centre for the WHO Family of International Classifications was redesignated for a new four-year period from November 2020. The Centre contributes to the work in the WHO-FIC Network with members in eight Committees and Reference Groups, by co-chairs in both FDRG and FDC, and by participation in the ICHI development.

The Norwegian/Nordic WHO-FIC Collaborating Centre

The Norwegian/Nordic Collaborating Centre was established in 1987. It is currently hosted by the Norwegian Directorate of eHealth in Oslo, under the Ministry of Health and Care Services. The Centre was redesignated as a WHO-FIC Collaborating Centre, for a new four-year period from November 2020.

The Centre has bilateral 4-year agreements between the Health Authorities in Denmark, Iceland, Finland, Norway and Sweden. The countries have agreed on a 4-year work plan that is updated in concordance with the regulations of the Norwegian/Nordic WHO-FIC Collaborating Centre.

The Centre collaborates on classifications and its use in the member countries. The work force is constituted by governmental employees from the member countries’ Classification and Health Data Units/Departments, and experts affiliated to the Centre.

It also has established collaboration with:
- NordCase, The Nordic Casemix Centre in Helsinki (www.nordcase.org)
- NOMESCO (Nordic Medico-Statistical Committee) (http://nowbase.org/)
- On Mortality Coding with the Classification Units/Statistical Departments and others in the all the Nordic and Baltic Countries and Canada:
  - Denmark
  - Finland
  - Iceland
  - Norway
  - Sweden
  - Estonia
  - Latvia
  - Lithuania
  - Canada

Work during October 2020 – July 2021

A delegation of 14 experts from the Centre participated in the virtual Annual WHO-FIC Meeting in October 2020. Additional contribution is described below.

FDRG
- Thomas Maribo contributed as co-chair, and has held and participated in multiple virtual meetings including the FDRG mid-year meeting April 19th – 20th, that there also was a joint session with CSAC-ICF.
- Solvejg Bang and Ann-Helene Almborg participated in meetings as voting members.
- All Nordic countries have provided input to the ICF use cases questionnaire.

MbrRG
- Øystein Hebnes (VM) and Olaf Steinum (VM) have attended and participated in regular meetings and discussions.
- Martti Virtanen (M) has presented the NordDRG Casemix tool as a possible model for an international tool. Olaf Steinum, Martti Virtanen and Ralph Dahlgren (M) has offered to contribute in a small work group on such a WHO-FIC Casemix model.

ITC
- Several virtual ITC meetings and the mid-year meeting June 15th was attended by a large delegation of observers from the Nordic centre.
- Ann-Helene Almborg is the voting member in ITC, and has contributed by sharing information about ICF and ICHI.

CSAC-ICF
- Solvejg Bang and Ann-Helene Almborg participated as voting members in virtual meetings. Thomas Maribo participated and collaborated as the FDRG co-chair. Due to technical issues there will not be regular votes for ICF this year.
- Heidi Antilla and Jaana Paltamaa participated also in the Nordic ICF network for ICF updates.

CSAC-ICD
- Olaf Steinum and Øystein Hebnes have participated voting members, Martti Virtanen as member.
- Work has been performed on questions on classification of COVID-19 and in Small CSAC Group meetings preparing for the ICD-11 update rounds, and in voting itself.

EIC
- Solvejg Bang and Ann-Helene Almborg are voting members, but a larger delegation has attended all meetings including the mid-year meeting in April 28th and 29th.
- Input has been given on the learner profile and journey questionnaire for e-learning tools for ICD-11, and information on the transition and implementation of ICD-11 in the Nordic countries has been shared.

MRG
- Anne-Gro Pedersen (VM) and Eva Strand (VM) have participated in the multiple online meetings, and taken part in discussions mortality coding rules in ICD-11.
- They have also performed regional coding comparisons in Nordic and Baltic countries and Canada, to ensure good quality of mortality coding.
- The centre would like to acknowledge Patricia Wood from the Canadian CC for providing her support on these coding comparisons.

Contact and information
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Chair of the Centre Board Solvejg Bang, SMB@sundhedsdata.dk

FIC Collaborating Centre, for
http://nowbase.org/
Abstract
The Collaborating Centre for the WHO-FIC in Japan, at Japan ICD Office in the Ministry of Health,Labour and Welfare, began its third designation period in September 2019. On that occasion, a collaborative network was launched comprising the ministry as well as seven other organizations including national research institutes that had been members of the Centre during the second designation period.

The translation of ICD-11 into Japanese is ongoing which will become the legal basis for implementation of ICD-11 in official statistics of Japan. The translation of Chapter V related to functioning is on the lead ahead of other chapters. In February 2021, the Centre held the Online Symposium of ICF aiming to take a new step forward to explore how ICF can become an effective tool to capture the "whole picture of living" and to share information among people in various fields of expertise and different positions.

Collaborative Network of the WHO-FIC Collaborating Center in Japan
The Collaborating Centre for the WHO-FIC in Japan began its third period in September 2019. Whereas Japan CC consisted of multiple organizations in its second designation period, Japan ICD office of the Ministry of Health, Labour and Welfare became the single organization to be designated as the Centre in the third designation period following the WHO Framework of Engagement with Non-State Actors (FENSA) adopted at the 69th World Health Assembly. Therefore, Japan CC decided to launch a collaborative network consisting of the ministry and the seven former members including national research institutes.

The collaborative network inherited the working framework in place during the second designation period. At the start of the third designation period, the bylaws of the Centre were reviewed for better management and coordination within the collaborative network and for expansion of future activities of the Centre.

Translation of ICD-11
The translation of ICD-11 into Japanese is ongoing which will become the legal basis for implementation of ICD-11 in official statistics of Japan.

The 9th ICF Symposium - First time to be held online -
Japan CC has organized the ICF Symposium almost every year since 2010 for implementation and use of ICF in Japan. The recent pandemic of COVID-19 has had a major impact on our society, drastically changing many aspects of our lives. However, in the spirit of ICF's "don't count what you can't do" and "look for what you can do," we took up the challenge of a new method of online communication.

Symposium theme: Outlook for the New Stage in Utilizing and Applying ICD-11 and ICF: Toward a common language in various job sites
Professor IZUMI Shinichi (Tohoku University) who is leading the effort on the implementation of ICF in Japan, moderated the presentation session.

The keynote speaker, Professor SAITOH Eiichi (Fujita Health University) spoke about "Possibilities and utilization of the ICF".

Next followed six poster presentations concerning evaluation, education and practice on ICF. To introduce a few, Mr. GOTO Shinsuke presented three strategies in rehabilitation that fits into the ICF concept model: the 'level-up' strategy to improve activity, the 'protect' strategy to sustain activity and participation, and the 'expand' strategy to expand and generate participation. Mr. MATSUMOTO Shohachi introduced research results aiming to develop training programmes for staffs of welfare services for persons with disabilities using WHODAS 2.0, where a survey highlighted specific question items that could be useful for support planning but are less used as it is difficult to interpret.

In the era of new normal after COVID-19, how can ICF capture the "whole picture of living" together with ICD-11?, how can it contribute in linking various occupations? We are convinced that this symposium was the first step to such a "new stage."
The Dutch National Institute for Public Health and the Environment has hosted the WHO-FIC Collaborating Centre in the Netherlands since 1998. This poster summarizes the activities of the WHO-FIC Collaborating Centre in the Netherlands (Dutch WHO-FIC CC) that took place from October 2020 to October 2021 in relation to its Strategic Workplan.

**Abstract**

The Dutch National Institute for Public Health and the Environment has hosted the WHO-FIC Collaborating Centre in the Netherlands since 1998. This poster summarizes the activities of the WHO-FIC Collaborating Centre in the Netherlands (Dutch WHO-FIC CC) that took place from October 2020 to October 2021 in relation to its Strategic Workplan.

**Introduction**

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 2017, for the period 2017 – 2021.

**Strategic Workplan**

With its re-designation in 2017 a new Strategic Workplan was implemented. Therefore, 2021 marks the last full year of this designation period.

This poster highlights the activities of the Dutch WHO-FIC CC that took place from October 2020 to October 2021 along the six key activities in the Strategic Workplan 2017 - 2021:

I Support Revision of ICD

The Dutch WHO-FIC CC published a final version of the ICD-10 books – ICD-10 2021 – early 2021. It will serve as an anchoring point for implementing ICD-11 in the future. With this final ICD-10 version published, efforts can now focus on translation, preparation and implementation of ICD-11.

Key stakeholders will be involved in designing the translation and implementation trajectory, thereby ensuring their commitment to this important health information transition. Statistics Netherlands, hospital data organizations, the Dutch Healthcare Authority and the Ministry of Health are among the key stakeholders.

The health information domain in The Netherlands is changing rapidly; new laws come into force, new health care standards will apply, and the speeds with which health care is digitalizing is breathtaking. The transition from ICD-10 to 11 in The Netherlands needs to take place amidst these changes.

**III Support WHO-FIC Education & Implementation**

The Centre participated actively in the review of the online Learning Modules for ICD-11, which are being developed for the WHO-Academy. As a follow-up for the Implementation Database, the CC has provided information on national progress concerning implementation of ICD-11.

**IV Support WHO-FIC Informatics & Terminology**

Over the reporting period the Dutch CC contributed to the conception of a paper on the use of terminologies in the context of WHO-FIC (in progress).

**V Support Development of Other WHO-FIC Classifications**

The Dutch WHO-FIC CC provides the FDC co-chair, and actively participates in the FDC strategic work plan. As such the Dutch WHO-FIC CC is involved in the work on harmonizing the WHO-FIC content model (together with ITC), the work on Universal Health Coverage, and in the work on the use of terminologies in the context of WHO-FIC. The Dutch WHO-FIC has always been a strong proponent of ICHI along its development, and it will continue to do so, now that completion is near.

**VI (Inter-) National WHO-FIC Activities**

Over the reporting period there have been multiple exchanges with ICF, ICD-0 and terminology experts from Belgium and Germany, indicating the interest of our neighbors in classification related matters.

The Dutch WHO-FIC CC also organized or contributed to several ICF courses over the reporting period, some of which have taken place in India and Africa. Moreover, it supports the re-development of the international ICF Train-the-Trainees course in collaboration with the South African CC, redesigning it for the purpose of online learning.
Activities of the Stanford University WHO Collaborating Center

Samson W. Tu, Mark A. Musen
Stanford University WHO Collaborating Center
Stanford Center for Biomedical Informatics Research, Stanford, CA, U.S.A

Abstract
The Stanford WHO Collaborating Center (CC) has the mission to provide support for the development, maintenance, and implementation of infrastructure to develop and manage WHO Classifications and the associated terminologies. The focus of the Stanford CC's work includes (1) hosting and maintaining the iCAT server on Stanford facilities; (2) developing a generalized Content Model that is applicable to ICD, ICF, and ICHI, (3) prototyping the representation of the ICD Content Model in OWL 2 and a new curation tool based on the updated representation.

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 the use of semantic web technologies to develop a common modeling framework and associated software tools for developing and maintaining WHO classifications. The modeling framework consists of a formal content model, specified in the Web Ontology Language (OWL), 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 helps to realized the vision that all WHO-FIC classifications can be modeled and maintained in a consistent framework, using the most up-to-date semantic web technology, 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.

Results
1. A unified Foundation that contains knowledge for all three WHO-FIC reference classifications had been created and used for ICD/ICHI/ICF curation. All three classifications were successfully generated as linearizations from the Foundation. Work to validate and harmonize the content across the three classifications continues. Another issues is that the implemented model, while sufficient to represent the current WHO-FIC classification entities, lacks a post-coordination model for ICF, and fails to incorporate relationships between ICF domains and qualifiers.
2. We found that we could duplicate almost all of the current iCAT functionalities using the OWL 2 WebProtege forms (see comparison below). We will document separately what can and cannot be reproduced in the new WebProtege forms.
3. We found that SHACL constraints generated from the Content Model provide constraints that can be validated using the Protégé SHACL plugin.

Methods & Materials
1. Stanford’s hosting and maintenance of the iCAT server for the curation of ICD-11 have come to an end. The iCAT server, which had been hosted by Stanford Collaborating Center since the beginning of the ICD-11 revision process, has been migrated to the Azure cloud maintained by WHO.
2. Following WHO’s decision to develop a unified WHO-FIC Foundation using the existing software, the WHO-FIOC Content Model was reformulated and implemented as an extension of the ICD-11 Content Model. The extended model was used to import ICHI and ICF into a unified Foundation.
3. We converted a subset of ICD-11 Foundation knowledge to an OWL 2 representation and configured WebProtege forms for viewing and editing entities in the subset. Furthermore, we wrote scripts to generate SHACL constraints from the ICD Content Model in order to study their use in Protégé.

Discussion
1. The success of the ICD-11 revision process demonstrated that the modeling and editing infrastructure that the Stanford CC had provided is viable and can be the basis for extending the paradigm to other WHO classifications. Having the three classification in a common model opens up the possibility of seamless joint use of entities from multiple classifications with uniform syntax, thus providing consistent coding schemes for diagnosis, functional assessment, and interventions.
2. WHO rightly focuses on reproducing the current ICHI and ICF in the new framework. However, while ICHI, being constructed using the same post-coordination model, fits into the framework well the same thing cannot be said of ICF. To truly unify the three core classifications, we propose the addition of codable entities that combine existing ICF domain codes and qualifiers using a post-coordination model. We will try to advance this proposal as an academic publication with a view toward greater discussion within the WHO-FIC community.
3. The use of the WebProtege’s new capability to create viewing and editing GUI forms allows us to recreate most of iCAT’s functionalities in a modern semantic web environment. The configuration for the forms, in effect, becomes a specification of the WHO-FIC Foundation content as a structural model (as opposed to OWL 2’s encoding of the model as logical axioms), embodying constraints (such as cardinality and data types) that can be checked and enforced through the WebProtege forms.
4. Our experiment with the use of SHACL to specify structural constraints on the Content Model was successful; however, without a way of generating editing user-interface forms from the SHACL specification, this work has been replaced by the use of WebProtege forms.
The team at the University of Barcelona – Hospital Clinic has been continuously and actively collaborating in the WHO_FIC network since 2010 as part of the Barcelona-Spain CC. Unfortunately, in July 2020, the Spanish coordinators of the center decided to finalize the collaboration as a governmental CC. Because our team is deeply compromised with the WHOFIC activities, and we want to continue such collaboration we have decided to propose to the WHOFIC Office at WHO (Geneva) to begin our designation as an Academic Collaborating Center. This is an option that only depends on our own efforts, and it is not determined by external influences. A message addressed to the President of the WHOFIC Council formally initiated the request stating that all the work we have been doing continuously since 2010 will be recognized to support and speed as much as possible the designation process. Our Academic authorities, the Rector of the University and the Dean of the Faculty of Medicine fully support the process. Tasks and forthcoming activities were agreed and jointly planned between the WHOFIC Office.

**Previous participation in the WHOFIC activities**

**2010-2013:** Participation as Observers

**2014-2020:** Active participation without interruption inside BCN-Spain CC

- WHOFIC meetings attendance and participation in several Committees and Reference Groups
- Oral and poster presentations related with:
  - Experience in the transition from ICD9 to ICD10.
  - Experience in ICD11 Virtual Training.
  - Ibero-FIC network collaboration in the Spanish translation of ICD11.
  - Evaluation of the Implementation of the ICF core sets in neurological disability.
  - Automatic coding using supervised NLP and ML.
  - Relationships ICD-SNOMED-CT.
  - Universal Health Coverage.
  - Healthcare data exchange and interoperability using standards.
  - Dissemination actions: Hospital Clinic, RELACSIS, SCDM, SEDOM, SESPAS, University of Barcelona.

**2020 Academic CC (under designation)**

**2020 & beyond:** University of Barcelona Academic CC

**Ongoing tasks:**

- Committees and Work Groups. (Council, FDC, EIC, ITC).
- Active participations in:
  - EIC Implementation Status Information.
  - Proposals for WHO-Academy.
  - Survey on Allergy Health Interventions.
- Connections & Dissemination activities:
  - PAHO-RELACSSIS: mutual collaboration in common aspects related to the adequacy of Spanish translations of WHOFIC HQ requests.
  - IFHIMA 2021: "Fosters Planning for ICD-11 Adoption with Global Case Studies".
- Academic activities: assignments and dissertations.

**Goals and Future actions:**

- "To bring the coding of health problems to the very beginning of an integrated clinical process in an interoperable EHR with the help of NLP with supervised machine learning" → Pilot projects in Hospital Clinic.
- "Contribution to test, evaluate and adapt the FIC to better classifications" → involving members in the tasks.
- "To promote the knowledge about WHOFIC activities in the academic environments" → engagement of under and postgraduate students in Healthcare.

**Conclusions**

The Medical Informatics Unit of the Hospital Clinic – University of Barcelona has been committed continuously with the WHOFIC network since 2010. Active contributions have been done and new challenges are afforded from 2020 as an Academic Collaborating Center, offering the expertise of its team on the clinical playground to develop and evaluate effective pilots of new developments of FIC.

**Acknowledgements**

We wish to acknowledge the help, support and assistance provided by the WHO-FIC secretariat at Geneva Headquarters: Nola Tomaska, Carine Alsokhn, Nenad Kostanjsek and Robert Jacob.

**Abstract**

The team at the University of Barcelona – Hospital Clinic has been continuously and actively collaborating in the WHO_FIC network since 2010 as part of the Barcelona-Spain CC. Unfortunately, in July 2020, the Spanish coordinators of the center decided to finalize the collaboration as a governmental CC. Because our team is deeply compromised with the WHOFIC activities, and we want to continue such collaboration we have decided to propose to the WHOFIC Office at WHO (Geneva) to begin our designation as an Academic Collaborating Center. This is an option that only depends on our own efforts, and it is not determined by external influences. A message addressed to the President of the WHOFIC Council formally initiated the request stating that all the work we have been doing continuously since 2010 will be recognized to support and speed as much as possible the designation process. Our Academic authorities, the Rector of the University and the Dean of the Faculty of Medicine fully support the process. Tasks and forthcoming activities were agreed and jointly planned between the WHOFIC Office.
The Argentine Centre for Classification of Diseases (CACE) was redesignated in 2019 as WHO Collaborating Centre on the Family of International Classifications. CACE continues promoting the use of the Family of International Classifications in Argentina and in the Latin American Region, with the support and coordination of the Pan American Health Organization (PAHO/WHO). This poster briefly describes the main activities developed by the Centre during 2020/2021.

Activities

ICD-11

CACE contributed also with real examples an exercises. This virtual course is intended for coders from all Spanish-speaking countries in the region (training of trainers). It will also count with tutors.

ICD-11 transition and implementation

CACE continued the process of awareness building for the transition and implementation of ICD 11 in Argentina, aimed to health statistics officers of each province and at the national level. A Reference Group integrated by the heads of six health statistics provincial offices was formed. The aim of this group is to evaluate training materials and propose new ones and to discuss and adapt the implementation plan to the requirements of the provincial levels.

A survey was conducted in all provinces to prepare a diagnosis prior to the development of an implementation plan. The results were presented in August to all provincial health statistics referents.

An introductory virtual course on the use of ICD-11 aimed for coders of all provinces is being designed and will take place during October 2021.

Within the framework of a Bloomberg Philanthropies grant and with the support of PAHO/WHO, the testing and implementation of the tools for mortality analysis (ANACoD3) and for the selection of the underlying cause of death will be carried out. These applications are part of the ICD-11 toolkit.

ICD-10

During 2020 and 2021, most of the activities were related to the use of the ICD-10 in the context of the Covid-19 disease. CACE participated in international and regional discussions on the definition and uses of new emergency codes for the identification of health problems related to this disease and, in particular, with post covid conditions and vaccination.

CACE collaborated in the preparation of guides for the use of these new codes.

Guides for the correct completion of the death certificate in cases related to COVID-19 and also manuals for coding morbidity and mortality were published and disseminated for national use. Specific virtual trainings were carried out and continuous advice was provided to health statistics officers at the provincial level of Argentina.

CACE has participated in regional discussions related with topics raised by WHO-FIC Mortality Reference Group.

A virtual course on ICD-10 was prepared and held during May 24-28th, 2021. The course was aimed to professionals of the Ministry of Health of Bolivia. It was developed in collaboration with CEMECE and coordinated by PAHO.

Meetings and conferences

CACE participated in the WHO Family of International Classifications Network Annual Virtual Meeting (WHO-FIC 2020). The head of Argentine’s CC was designated as co-chair of the Education and Implementation Committee.

CACE took part at the PAHO/WHO Collaborating Centres (CCs) Regional Webinar “Engaging our partners to achieve SDGs together”, April 19-21th, 2021.

CACE participates in the regular virtual meetings of the PAHO/WHO Network of Collaborating Centers for the FIC in the Region. It collaborated in the activities coordinated by PAHO. This involved joint working with other collaborating centres from regional Spanish-speaking countries and national reference centres, such as Mexico (CEMECE) and Cuba (CECUCE).

Acknowledgements

CACE wishes to thank all staff members of PAHO/WHO, and PAHO-Arg for their continued assistance and support to achieve its activities. www.deis.msal.gov.ar/index.php/cace-centro-argentina-de-clasificacion-de-enfermedades/
The Korean WHO-FIC Collaborating Center was relocated to the Ministry of Health and Welfare on July 2021 and its operation responsibility is being shared with the Korea Health Information Service. We contributes to the WHO-FIC network activities through experts participation in committees and reference groups, and conducts research and domestic dissemination activities related to the WHO international classifications. This poster briefly outlines the activities of the Korean WHO-FIC Collaborating Center 2021.

**WHODAS 2.0 Implementation**
- Supporting domestic users
Recently there has been several use cases of WHODAS 2.0 in Korea at the population level. It was adapted as a functional disability evaluation tool in the Integrated Care Project of Seoul Metropolitan. And it also has been included in the National Health Insurance reimbursement list since July 2020.

**Publication**
Korea CC officially published the Korean translation of WHODAS 2.0 User Manual

**Korean Translation of WHODAS 2.0 User Manual (July, 2021)**
- Translated by: Haejung Lee (Korea CC)
- Publisher: Ministry of Health and Welfare, Korea

**WHODAS 2.0 Educational Video**
WHODAS 2.0 educational video was produced to provide guidance of using WHODAS 2.0 36-item interview version in a proper manner.

This video is focused on the practical contents necessary for the interviewers who apply WHODAS 2.0 questionnaires and also includes the basic concept of functional disability and ICF.

The contents were reviewed by ICF experts group including National Rehabilitation Center throughout the whole process.

This video is posted on K-HIS YouTube channel freely accessible.

**ICM**

**Activity Report on International Classification of Traditional Medicine**
The Korean Working Group for TMRG has been working closely with the Korea Institute of Oriental Medicine(KIOM) to facilitate discussion on status and future plan for the implementation of ICD-11 TM Chapter in Korea, including technical review of translation guideline and preparation of TMRG annual meeting. The Korean CC is also expecting to organize an teleconference in order to raise awareness of ICTM in line with ICHI-11 for its and to better understand requirement of relevant domestic stakeholders.

**ICHI**

**Application of ontology tool for the local mapping of ICHI**
For the improved representation of the Korean intervention, a mapping study was conducted on the Chinese Classification of Health Intervention based on the ICHI axis. Ontology tool Protégé was introduced.

**Mapping of ICHI and Korean Dental(Oral) Health Interventions**
Improvement for a more efficient and scalable axial structure of ICHI’s oral health intervention is proposed through the mapping of ICHI and Korean Classification of Health Interventions (KCHI).

**Acknowledgements**
As a new Korean WHO-FIC CC, the Ministry of Health and Welfare(MOHW) and the Korea Health Information Service(K-HIS) will make efforts to link HIS: www.khis.or.kr

**ICD**

**Digitization of WHODAS 2.0: structured and standardized term sets**
To support the standardized digitization of WHODAS 2.0, we developed the structured and standardized term sets of all 7 versions of WHODAS 2.0. These are opened to the public through the standard terminology service k-HIS provides.

**Clinical use of Korean version of the ICD-11 Chapter V generic functioning domains**
The National Rehabilitation Center developed functioning properties of ICD-11 Chapter V 47 categories as a Simple Intuitive Description (SID) last year, and developed a rating reference guide to use in clinical fields in Korea. As a next step, NRC plans to develop Korean version of functioning documents through field test and present basic data for domestic introduction of the ICD-11 Chapter V generic functioning domains and its application to clinical environment.
Abstract
Peking Union Medical College Hospital (PUMCH) has been prioritizing the preparation for the implementation of ICD-11 in China, since its re-designation as the Collaborating Centre for the WHO-FIC in 2019. This poster presents the annual report of the centre, highlighting ICD-11 related activities conducted between September 2020 and July 2021.

Introduction
Peking Union Medical College Hospital (PUMCH) has been designated as the Collaborating Centre for the WHO (PUMCH) has been designated as the Collaborating Centre for the WHO since 1981, and re-designated in March 2019. This is a summary of the activities of the Centre between September 2020 and July 2021.

ICD-11 Translation

Release and Maintenance
ICD-11 Browser Chinese version was released for the first time by WHO in September 2020, and then updated in May 2021. The Chinese Centre has been continuously contributing to the maintenance of ICD-11 Chinese version on the translation platform.

Education Tool
A draft translation of the word documents of ICD-11 Education Tool was finished in December 2020.

Share Experience
The centre was invited to make a presentation on the ICD-11 translation webinar, which was held by the WHO on 14 April 2021, to share the experiences and lessons learned in the translation process.

ICD-11 Implementation

ICD-11 Piloting in PUMCH
A coding tool in Chinese was developed and integrated into EMR and Coding System in PUMCH in 2020.

ICD-11 User Role A: Coders
Clinical Coders in PUMCH have been conducting ICD-10 Chinese Modification and ICD-11 dual coding since Dec 2020. Some issues in ICD-11 were identified in the piloting and submitted to the ICD-11 Proposal Platform for processing.

ICD-11 User Role B: Physicians
Physicians from Department of Thoracic Surgery, Dermatology, Infectious Diseases, Endocrinology and E.N.T in PUMCH started using ICD-11 for clinical documentation of diagnoses for every discharge from Nov 2020, Jan 2021, Mar 2021, April 2021 and May 2021, respectively.

ICD-11 Piloting in Other Hospitals
The Centre reached out to a tertiary A hospital in Shandong Province, China for integrating ICD-11 coding tool in their hospital information systems.

ICD-11 User Role C: Physicians
The centre provided the CSAC co-chair and TMRG co-chair. Members participated the meetings of CSAC and MSAC, and mid-year meetings of MRG, MBRG, FDRG, EIC, TMRG, and submitted reports or comments required by the C&RGs.

ICD-11 Education

Introduction Sessions
The centre conducted two sessions, to share ICD-11 overview and use of coding tool in October 2020.

Training Courses Development
The centre has been developing training courses based on the ICD-11 Reference Guide and Education Tool. Three training sessions on ICD-11 were planned to be held this year. Two rounds of trial lectures were conducted. The first round was conducted on 29 April. A total of 14 trainer candidates were required to prepare a syllabus for a specific unit in ICD-11. A second round of trial lectures were conducted between 20 July to 9 August. During this round, Each trainer was required to deliver complete training sessions for 4-5 chapters.

Other Activities
The centre provides the CSAC co-chair and TMRG co-chair. Members participated the meetings of CSAC and MSAC, and mid-year meetings of MRG, MBRG, FDRG, EIC, TMRG, and submitted reports or comments required by the C&RGs.

Acknowledgements
We are grateful for the support from PUMCH and National Health Commission of PR China, as well as the technical support from WHO CAT Team.
**Abstract**

This poster is a summary of the activities of the French Collaborating Center during 2020-2021 in relation to the different classifications of the WHO-FIC: ICD-10, ICD-11, ICF and ICHI. The French WHOFIC CC has revised its organisation and members list. An enhanced coordination of all the participants and initiatives has been implemented.

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<td>The French WHOFIC CC has revised its organization and members list. It is now headed by the French e-health agency (ANS). The purpose of this change is to gain in efficiency, the e-health agency being in charge to disseminate health terminologies in France, including WHOFIC. An enhanced coordination of all the participants (INSERM CépiDc, ATIH, EHESP, INSERM Orphanet, Cnam and ANS) and initiatives has been implemented to develop synergies. The ICD-11 translation in French, coordinated by ATIH, has been one important piece of work during these past months. ICF activities, worked on by EHESP, focused on the promotion of ICF related tools. ICHI activities have been worked on by ATIH and Cnam and focused on ICHI mapping. CépiDc mainly focused on mortality related activities.</td>
<td>The ICD-11 translation in French, coordinated by ATIH, has been one important piece of work during these past months. Initiated in 2019 for the 1st phase, the project is still ongoing, with some changes in methodology. For the second phase, ATIH translated the interfaces of the browser and maintenance platform and reviewed a part of the labels with improved automated translation using the tools of the French Agency for e-health (ANS) based on the neural network. Most of the remaining labels was then transmitted to an external translation service provider to be validated a second time by ATIH. A complete ICD-11 will be available at the end of September 2021, the start date of the quality control process which will be carried out until the end of the year, to provide a stabilized version of the French ICD-11. The Reference Guide and the Implementation or Transition Guide will also be translated in 2021. In the meantime, the Francophonie is working on adding synonyms on the translation.</td>
<td>In relation to ICHI, the French Collaborating Center worked on the matching of medical and surgical procedures between ICHI Beta3 version and the national classification CCAM. ATIH and Cnam also participated in a research project at Charité Berlin conducting a Delphi-survey mapping 30 procedure codes of the French national classification system to ICHI-Codes.</td>
<td>The Center participated in the ICF related works, in the FDRG, FDC online meetings, in the CSAC works as co-chair, in the MSAC meetings. EHESP presented an ICF use case in France and prepared a publication about the mapping of the GEVA on to the ICF. Implemented ICF updates have been translated. The WHOHAS Manual is being translated into French. Courses about the ICF made for Master students and professionals in the disability field.</td>
<td>The arrival of new members in French WHO-FIC CC is a good opportunity to disseminate more widely WHO-FIC terminologies in France and in French-speaking countries.</td>
</tr>
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Colleagues associated with the WHO-FIC Collaborating Centre in South Africa are continuing their activities in support of the development and maintenance of the WHO-FIC internationally; in WHO-FIC network structures; in the development, implementation and use of ICD, ICHI and ICF in Africa; and in support of strengthening civil registration and vital statistics (CRVS) in the WHO African region.

**INTRODUCTION**

As the only WHO-FIC Collaborating Centre in the WHO African region - hosted by the South African Medical Research Council (SAMRC) in Cape Town - the Centre supports the development, implementation and maintenance of the WHO-FIC in South Africa, across the Region, and through the WHO-FIC network. Our term as collaborating centre ended in 2020 and we are currently under designation for a further term as a WHO CC.

**WORKPLANS 2020-2021**

Despite the ongoing limitation placed on our activities by the COVID-19 pandemic during the past year, we continued to implement our Strategic Workplan 2018-2020, and our operational work plan 2021-2022, in close collaboration with key stakeholders in South Africa and the WHO Regional Office for Africa.

**Values:** The WHO-FIC Collaborating Centre in South Africa shares the values of Equity, Excellence, Solidarity, Respect, Integrity, Ubuntu and Social responsibility.

**Mission:** To cooperate with countries and other stakeholders in the WHO African region to develop and advance WHO-FIC.

**Vision:** Coordinate and share experiences, knowledge, and the production of scientific evidence on WHO-FIC to contribute to Universal Health Coverage and strong health information systems in the WHO African region.

**KEY RESULTS 2020-2021**

- The CC is engaging with key stakeholders in South Africa on how to support the transition from ICD-10 to ICD-11 for morbidity and mortality coding and support the strengthening of births and deaths registration processes in country.
- We supported the efforts of the WHO Regional Office to promote WHO-FIC through monthly virtual meetings.
- The CC is actively represented in most of the WHO-FIC Committees and Reference Groups, including the Verbal Autopsy Reference Group (VARG). Representatives of the CC participate in working meetings, projects, and the mid-year meetings of the WHO-FIC structures.
- Prof Soraya Maart (FDC Secretary and FDRG Voting member): Attended virtual FDC midyear meeting, and meets regularly with the FDC co-chairs. The SAMRC provided technical support in setting up the FDC mid-year meeting.
- Dr Warrick Sive and Prof Soraya Maart made a presentation on the joint use of the WHO-FIC at a virtual International Labour Organization (ILO) Workshop on Standardisation of Occupational Injuries and Diseases Reporting in June 2021.
- Prof Debbie Bradshaw contributes to multiple activities related to coding and certification of Cause of Death, and strengthening of processes for registration of births and deaths at national, regional and international levels.

**ICF:**

- We continued to participate in the ICF update process (Prof Soraya Maart and Dr Stefanus Snyman)
- Stefanus Snyman serves on the Board of ICFeducation.org and participates in the mICF initiative.

**ICHI:**

- The successful development of ICHI is of relevance for South Africa, since the country does not currently have a national procedure coding standard. Accurate data on procedures are essential for the planned implementation of a National Health Insurance (NHI) system, which is currently under way.
- A project to investigate the use of ICHI in a South African public sector regional hospital is planned at the University of the Witwatersrand.

**Develop, deliver and evaluate education relating to the WHO classifications and Cause of Death certification**

- An online course on Certification of Death (4 modules) was developed, piloted and rolled out. A fifth module, to support Certification of Covid-19 related deaths, is under development: http://www.deathcertification.org/
- WHO guidelines on coding of morbidity and mortality due to Covid-19 are distributed.
- We are collaborating with the WHO Regional Office for Africa on comprehensive CRVS training.
- Training for ICF training facilitators is ongoing.

**CONTRIBUTE TO DEVELOPMENT AND MAINTENANCE OF WHO-FIC CLASSIFICATIONS ALIGNED TO NEEDS OF REGION**

- An ICD-10 and ICD-11 course on Certification of Death was developed, piloted and rolled out. A fifth module, to support Certification of Covid-19 related deaths, is under development: http://www.deathcertification.org/
- WHO guidelines on coding of morbidity and mortality due to Covid-19 are distributed.
- We are collaborating with the WHO Regional Office for Africa on comprehensive CRVS training.
- Training for ICF training facilitators is ongoing.

**ICD-10 & ICD-11:**

- The ongoing implementation and maintenance of ICD-10 for mortality and morbidity coding remain a core focus. Inputs to the further development of ICD-11 are essential to ensure that the classification meets regional needs.
- We continued to participate in the ICD-11 update process (Dr Oluwatoyin Awotiwon and Dr Lyn Hanmer)
- We are collaborating with WHO Regional Office for Africa, in planning and supporting ICD-11 training for the region.
- A project using the WHO ICD-11 encoder in a South African public sector regional hospital is planned at the University of the Witwatersrand.

**STAY INFORMED**

www.whofic.org.za
Twitter: @WHOFICafrica
Facebook: WHOFICafrica
Abstract
This poster presents the annual report of the WHO-FIC Network Collaborating Centre in Canada and highlights some of activities related to mortality and morbidity statistics, including preparation for implementation of ICD-11.

Introduction
The Collaborating Centre for the WHO Family of International Classifications (WHO-FIC) in Canada attained designation in March 2021. The Collaborating Centre is hosted by the Canadian Institute for Health Information (CIHI) in strategic partnership with Statistics Canada.

Contributions to the WHO-FIC Network
Canada provides active membership on all WHO-FIC network Committees and Reference Groups:
• The Head of the Collaborating Centre serves on the WHO FIC Network Council

Canada serves as:
• Co-Chair of the Education and Implementation Committee (EIC)
• Co-Chair of Morbidity Reference Group (MbRG)
• Secretariat of MbRG

Canada participates actively on:
• Mortality Reference Group (MRG)
• Classification Scientific Advisory Committee (CSAC) for ICD and ICF,
• ICHI task force,
• Informatics and Terminology Committee (ITC),
• Family Development Committee (FDC); and
• Functioning and Disability Reference Group (FDRG)

Mid-year meetings were attended for all the listed committees.

ICD

Mortality data:
Statistics Canada promotes the use of ICD-10 for a class of death registration systems (EDRS), including electronic cause of death certification, in provincial and territorial vital statistics systems

• contributing to the Iris Users’ Group and continuing to pursue membership in the Iris Core Group

Morbidity data:
ICD-10-CA, the Canadian clinical modification is used in Canadian hospitals. ICD-9 continues to be used by ministries of health across Canada for physician reimbursement. ICD-coded hospital and physician data are used for national disease surveillance. ICD-10-CA is used in clinical assessments for home and continuing care, and for rehabilitation reporting. ICD-10-CA codes are used nationally in case mix tools and for privately and publicly reported health system performance indicators. ICD-0-3 is used for national cancer registration.

Recent work to support the application of ICD-10-CA in Canada includes:
• Canada’s V2018 of the ICD-10-CA and CCI classifications and the Canadian Coding Standards are available in English and French.
• The next version release of ICD-10-CA was deferred due to COVID-19 to April 1, 2022
• CIHI provides client support via an electronic coding question service
• CIHI participated in mapping activities with WHO-FIC.

Education and Technical Assistance
Canada provides ongoing education opportunities for experienced coding staff:
• In fiscal year 2019-2020 and 2020-2021 CIHI held four new Education web conferences and redesigned three courses to support accurate and consistent code assignment. All education is delivered in both English and French through the CIHI website (www.cihi.ca)
• Nearly 10,000 health information professionals have attended ICD-10-CA/CCI courses since April 1, 2019
• Since 2002, health information professionals have posted more than 29,000 coding queries to the CIHI eQuery Service. The most current questions are accessible via a searchable online database
• Since April 1, 2019, CIHI has released 4 Coding Tips and 9 bulletins outlining new coding direction (including COVID-19 and Vaping emergency use codes and direction for use)
• Statistics Canada conducts bi-annual national cause of death coding exercises for federal and provincial mortality classification staff and has redeveloped multiple causes of death coding training material focused on resolving rejects from the Iris system.

• In collaboration with the WHO-FIC Network Collaborating Centre in the Nordic Countries, Statistics Canada contributes to the analysis of the results of tri-annual cause of death coding exercises.

ICF
Canada supports WHO-FIC efforts in maintaining, updating and promoting international implementation of the International Classification of Functioning (ICF) through:
• Membership and participation in the Functioning and Disability Reference Group (FDRG) work plan
• Contributing expertise to international efforts to update ICF, in particular, finalisation of the ICF 2020 version and through membership in the Statistical Advisory Committee for the International Classification of Functioning (CSAC)
• Participation in FDRG teleconferences and attendance at mid-year and annual WHO-FIC meetings.

ICD-11
Canada continues to contribute to the WHO’s work towards the preparation for implementation of ICD-11.

CIHI staff are assessing the statistical and business implications of ICD-11 for morbidity statistics in Canada and determining the decision-making process for adoption and implementation. Due to the pandemic, there has been a delay in bringing an update/recommendation on the decision-making process for ICD-11 to the Conference of Federal-Provincial-Territorial Deputy Ministers of Health (CDM).

CIHI continues to socialize ICD-11, through hosting webinars and inviting stakeholders to participate in ICD-11 coding studies. Two phases have been completed with great success. Planning is underway for Phase 3, which will include complex case scenarios.

Work has begun to understand the impact of ICD-11 on case mix grouping methodologies and related products, in addition to assessing the requirement for a Canadian linearization.

Plans are underway to establish a Pan-Canadian Implementation Task Force to provide advice to CIHI about implementation.

Statistics Canada staff are assessing the statistical implications of ICD-11 for mortality statistics in Canada and determining the decision-making process for adoption and implementation. Due to the pandemic, there have been some delays in advancing international work related to updating Iris. In collaboration with the WHO-FIC Network Collaborating Centre in France, Canada is working on the French translation of ICD-11.

ICHI
CIHI continues to assess ICHI for use in Canada, including an assessment of the comparability of the Canadian Classification of Health Interventions (CCI) and ICHI. A poster abstract outlining the project and the results thereof has been submitted for the WHO-FIC Annual Network Meeting 2021.
The aim of this work is to present a summary of the activities carried out over the last year (July 2020-July 2021) by the Italian WHO-FIC CC according to its workplan and the WHO-FIC Network Strategic Work Plan.

**Introduction**

In July 2019, the Central Health Directorate – Classification Area – Friuli Venezia Giulia Region was re-designated for the fourth time as a WHO-FIC Collaborating Centre. The new quadrennium started under redefined TORs (Table 1). Lucilla Frattura was confirmed as Center Head. In the fourth year of activity of the Italian WHO-FIC CC was mainly active on 4 lines of work:

1. Support ICD-11 implementation
2. Management of the WHO-FIC maintenance process
3. Support ICF implementation and modernization
4. Supporting WHO-FIC cross-cutting activities

**Support ICD-11 implementation:** Italian experts participated in the work on WHO-FIC harmonization by designing a content model and building a software to extract and compare candidate concepts for harmonizing ICD-11 and ICF. The software was also exploited the ICD-11 API.

**Management of the WHO-FIC maintenance process:** WHO FIC maintenance policy and maintenance work are supported by the CSAC. The CSAC work is mainly conducted through the update platform for ICF, and the maintenance platform for ICD-11. Activities of CSAC are carried out according to the WHO-FIC Strategic Work Plan. In the period 2020-2021, the Italian CC has assisted WHO with the 2020 ICF update process chairing the CSAC ICF and providing CSAC ICF Secretariat. Moreover since ICF has been moved to a new environment, in 2021 the CSAC ICF secretariat participated in the work on ICF linearization in the new platform (checking of automatically generated residual codes .8 and .9) and in the work on a new ICF workflow document (review of the document). The CSAC ICF secretariat also participated in various teleconferences with WHO, with WHO and FDRG co-chairs in FDRG meetings, and in CSAC ICF meetings in relation to ICF and the transition to a new platform and also participated in some WHO teleconferences related to COVID-19 coding organized in the second part of 2020.

**CSAC annual report:** The 2020 report was published on the 2020 WHO-FIC Network annual posters booklet. The 2021 report was submitted on the 2021 Annual meeting website.

**Supporting WHO-FIC cross-cutting activities:** The Italian CC has been covering the function of Co-chair (Andrea Martinuzzi) of the ICHI technical working group and revised the functioning intervention and the public health sections in view of the final consensus review held in September 2021. Under the chairmanship of Andrea Martinuzzi and Richard Madden the ICHI mid year meeting was held virtually on May 3rd 2021 addressing the steps along the path towards ICHI finalization. Posters at the 2020 and 2021 Whofic Network annual meeting were presented on all the carried out activities.

**Acknowledgements**

To: Friuli Venezia Giulia Regional Administration for funding the CC activities; ISTAT, University of Udine, Fondazione IRCCS Carlo Besta (Milano), IRCCS Nosta Famiglia (Conegliano) for their fruitful collaboration.
Report from the German Collaborating Centre
BfArM-Germany

Abstract
The German Collaborating Centre (CC) is a designated WHO-FIC Collaborating Centre since 2003. In 2020, the German CC was re-designated and is now hosted by the Federal Institute for Drugs and Medical Devices (BfArM) after its merger with the former German Institute of Medical Documentation and Information (DIMDI). This poster reports on the activities that took place since the last WHO-FIC-Meeting in 2020.

Introduction
After its initial designation in 2003 the German Collaborating Centre (CC) was hosted by the former DIMDI. From its re-designation in 2020 on it is now hosted by the German Institute for Drugs and Medical Devices (BfArM) after a merger of the both institutes. In association with the merger and legislation to strengthen information management and interoperability in health care, the scope of the unit had been extended to terminologies, ontologies and semantics. Transitioning the use of current WHO classifications into future.

ICD-11: BfArM provided significant contribution to the work of the Classification and Statistical Advisory Committee (CSAC) to process proposals on the ICD-11 submission platform of WHO. Substantial input was given to the Small Triage Group of the CSAC in pre-processing proposals and providing recommendations to the CSAC secretariat and voting members.

Translating ICD-11 into German is currently on track. Completion of the initial translation of ICD-11 is still expected by the end of 2021 (see separate poster). Translation review by experts from medical societies will likely be an ongoing process over the next few years.

A Follow-up workshop had been conducted on a morbidity focused ICD-11 transition analysis with relevant stakeholders in health care, public health authorities and departments of the Ministry of Health carried out in 2019 and 2020. Key requirements and related action needed to prepare a plan for further evaluation of and preparation for introducing ICD-11 in Germany were identified. The Variety and complexity of morbidity use cases in Germany, related statutory regulations and individual agreements, overarching interactions and existing standards for data exchange between users and institutions need to be taken into account in developing a proper transition plan.

Political decision making on a concrete transition date is in principle needed to foster the process. At the same time it is extremely challenging due to the complexity and inponderabilities of the effects the transition will have on the single use case.

ICF: The BfArM contributed to the WHO proposal mechanism and voting process of the CSAC and therefore consulted with national ICF experts to provide perspective from the field. The book edition of the ICF in German continued to be widely ordered, so that the printing of 1500 copies was almost sold out within one year by the end of 2020. A reprint was initiated, since a new version of the ICF including all adopted updates (“ICF 2020”) is still pending.

Work at BfArM
ICD-10: Substantial contribution was given to consultations of WHO-FIC network bodies on introducing new emergency codes into the ICD-10 with regard to the COVID-19 pandemic. The new emergency codes made it necessary to update the ICD-10-GM 2021 release right after its official publication and before it became effective on January, 1st, 2022. Additional emergency codes announced by the WHO were introduced during early spring 2021 to support specific COVID-19 vaccination related coding.

In the realm of the national annual submission process BfArM worked on updating ICD-10-GM to better support the needs of the various morbidity use cases, e.g. case mix, reimbursements, quality and patient safety. Publication of the 2022 release of ICD-10-GM is scheduled for the end of September, together with an updated index. Implementation is expected by 1st January 2022.

Together with the Federal Statistical Office an expert training for mortality coders was conducted to support consistent death certificate coding.

ICHI: ICHI was further developed by the WHO to prepare for adoption and publication on the WHO website and also the transition from the ICHI development environment to the same infrastructure used for ICD-11, which included the adaptation of the overall content model of WHO-FIC classifications. The BfArM participated in the discussions of the relevant committee meetings held virtually.

Conclusions
Committee work: BfArM has actively participated in mid-year and ad-hoc meetings of the MbRG, the MRG, the FDRG, the CSAC for ICD and ICF matters and within the annual submission process, the ITC and the FDC. Holding one of the both co-chairs of the Council, BfArM also contributed to monthly and ad-hoc meeting calls of the Small Executive Group (SEG) of the WHO-FIC network.

In the reported period the German Collaborating Centre (CC) at BfArM had a very strong focus on all ICD-11 matters nationally and internationally, in particular on the translation into the German.

The German CC expects future synergies in the field of integrating WHO classifications and other terminologies and standards in healthcare as this will crucial for the implementation of the various systems. It is also an additional focal point in the scope of the unit the CC is now related to. In January 2021 the BfArM became the National Release Centre for SNOMED CT and also serves as Orphanet Germany. In 2022 the BfArM will reinforce its work on terminologies and interoperability, nationally (e.g. Medical Informatics Initiative) and internationally (e.g. in the EU). It will also support the joint effort of WHO, SNOMED International and several countries in mapping ICD-11 and SNOMED-CT on the foundation level.

The CC is very much looking forward to continuing the cooperative work with WHO, the WHO-FIC network and other partners and will input to the network lessons learned from the various new tasks.

Outlook
During the last year, the Mexican WHO-FIC CC (CEMECE) has worked in the dissemination, promotion and surveillance of the correct use of the WHO-FIC in Mexico and supports countries in the Region of the Americas. The main ones are shown below:

**Terms of Reference**

Assist WHO in the development, maintenance and revision of the Classifications, Terminologies and Standards (CTS) products, in particular the International Classification of Diseases (ICD), the International Classification of Functioning, Disability and Health (ICF), the International Classification of Health Interventions (ICHI).

**Activities**

In 2020, Mexican WHO-FIC CC supported PAHO in the training of codes related to COVID-19 with virtual sessions for the countries of the Region of the Americas. During the months of August and September, Mexican WHO-FIC CC conducted training on the ICD-10 in the 2018 updates (in Spanish) for the Institute of Statistics of Guatemala. After this training, the experience of Mexico on the use of the Iris Automated Coding System for mortality was shared.

It has also participated in the WHO-FIC Network for the Region of the Americas, where Mexican WHO-FIC CC actively participates every two weeks in virtual meetings coordinated by PAHO.

On the other hand, participation in the reference groups of MRG, MbRG, FDRG is maintained. Particularly 2020 had the virtual representation in the sessions that were carried out. Within the FDRG, a member of the Mexican Center assumed the duties of secretary since October 2020.

In August, the Mexican WHO-FIC CC in collaboration with the Argentine WHO-FIC CC (CACE) and coordinated by PAHO, carried out the first basic introductory course on the ICD-11 in a virtual way. In this course 50 interested people from the following countries participated: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela.

After this course, PAHO plans to carry out an intermediate course with the same participants. These activities add to the work being done in the Region for the prompt implementation of the ICD-11. It is important to mention that the PAHO has an implementation plan to support the countries in the necessary processes.

Related with the ICHI and as a project under develop, WHO asked to the Mexican WHO-FIC CC follow their engagement in reviewing the ICHI surgical-medical interventions. So, they invited us to participate in the review of the ICHI Functioning intervention.

The main objective of this review is to compare existing into Mexico, specific functioning intervention and procedure catalogues (e.g., list of rehabilitation interventions performed in rehabilitation facilities in Mexico) with the ICHI tabular list in order to identify missing and/or problematic ICHI Functioning intervention categories (Chapter 13-21); provide additional inclusion terms for ICHI Functioning intervention categories (Chapter 13-21). In July, Mexican WHO-FIC worked on the translation of the 2019 ICD-10 updates, which are used formally in Mexico in 2021. This material in Spanish was sent to PAHO for dissemination and adoption in the countries. In addition, during the last year, material, catalogs, lists, agreements for coding and consultancies have been shared throughout the Region of the Americas.

**Conclusion**

Although it has been a difficult year due to the pandemic, the Mexican Center has remained very active regarding the issues established in its Terms of Reference, in order to be of use to the countries of the Region of the Americas.

**Acknowledgement**

The Ministry of Health of the government of Mexico thanks PAHO for all the technical support provided during the last year. All these tasks would not have been possible without this support.
Canadian WHO Collaborating Centre for Classification, Terminology and Standards

Authors: Danielle A Southern, Cathy A Eastwood, Nishan Sharma, Hude Quan, William A Ghali
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Abstract: Canadian WHO Collaborating Centre for Classification, Terminology and Standards Update

Activities

1. Support refinement and maintenance of ICD-11 Reference Guide and knowledge Base for other members of the WHO Family of International Classifications
   - Have attended and participated in MbRG meetings.
   - Have assigned a member to participate in areas of need for the EIC in relation to Q&S use case.
   - Provided content for a White Paper by IFHIMA on ICD-11
   - Lead and executed a Delphi exercise for the development of ICD-11 comorbidity definitions. A manuscript has been drafted for publication.
   - Primary Care evaluation of Canadian context (co-applicant on grant submitted to Canadian Institutes for Health Research)

2. Pilot testing and implementation preparation of Q&S use case for ICD-11
   - Extended meeting grant from the AHRQ around value proposition and knowledge translation around Q&S use case to 2022. Held 2 virtual meetings with plans of face to face in Spring 2022.

3. Strengthen the research work on Classifications, Terminologies & Standards and its integration in the WHO FIC Network
   - Secured a manuscript supplement series of approximately 15 articles related to reference guide, objective being to provide short briefs on sections of the reference guide that highlight the strengths of ICD11. Nine submitted, with 2 accepted after peer review.

4. Developing, refining, validating and piloting ICD-11 based Quality and Safety indicators
   - Received funding grant related to Adverse Event definitions in EMR systems. This will provide natural language processing algorithms to enhance index searches for ICD-11 Q&S use case.
   - Translation of PSI work in ICD10 by the Q&S group to ICD11 has begun.
   - Validating COVID ICD-codes through comparing coded data and laboratory testing data

Future Plans

- Knowledge translation activities in collaboration with CIHI regarding implementation & use of ICD-11
- Mortality case groupings and reporting technologies to analyze trends and causes of death;
- Development of International Indicators for Assessing the Quality of ICD-coded Administrative Health Data

Acknowledgements or Notes

Canadian WHO-CC for Classification, Terminology & Standards Head: Dr. Hude Quan
WHO-CC is supported by the O’Brien Institute for Public Health at the University of Calgary
THAI WHO-FIC CC Annual Report 2021

Authors: Wansa Paoin, Maliwan Yuenyongsuwan
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Abstract
This report includes 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 2020-September 2021.

Introduction
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. Six main activities in 2021 are:

1. ICD-10 Training for Thai Coders
During 2018 to 2021, the center conducted three basic ICD-10 coding courses and six advance ICD-10 coding courses which 1,600 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 course focused on the use of the standard coding guideline (ICD-10-TM volume 5) to solve complex problems in clinical coding. In 2021, all training plans were temporarily suspended due to pandemic situation.

2. ICD-10-TM Update and Maintenance
The center helped the Ministry of Health to update the ICD-10-TM to integrate all change until 2019, so the latest version of ICD-10-TM is now ICD-10-TM 2019. The center also updated the Thai Classification of Health Intervention to be 2021 version as well.

3. Thai Translation of ICD-11 in Foundation Database Layer
The center restarted Thai Translation of ICD-11 in January 2021 after three year suspension due to lack of manpower. However, the translation work did not include all details in the foundation layer. Only chapter, block, category and rubric titles were translated from English to Thai language. We also translate all synonyms, inclusion, exclusion notes as well.

ICD Activities (cont.)

5. Creation of the Standard Coding Guideline for Health Intervention
Standard coding guideline for diseases coding was published as volume 5 of the ICD-10-TM since 2010. The Thai clinical coders gave positive feedback about the usefulness of the guideline to facilitate and educate coders on complex cases coding. The demands for the guideline for coding health intervention was sent to the THAI WHO-FIC center in 2019. In late 2021 a working group for standard coding guidelines for health intervention was set. The work starts from 2020 to October 2021. This new standard coding guideline will be published as volume 6 of the ICD-10-TM book set.

4. Updating of the Thai Classification of Health Intervention
The Thai Classification of Health Intervention was published as volume 3 and 4 of the ICD-10 Thai Modification since 2010. The contents were updated regularly and The Thai Medical Council used the classification to monitor doctor fee charge for intervention conducted by the doctor in private hospitals. In 2020, the Thai Medical Council needed an updated version of the classification, so the THAI WHO-FIC Center working group updated the latest version (2016) to the 2021 version. In this version all ICD-10-TM intervention codes were mapped to ICD-10-CM 2021 intervention codes.

The feasibility of using IRIS software version 5.7.0 to help clinical coders in the Ministry of Public Health, Thailand for International Classification of Diseases (ICD) coding and selection of cause of death from medical death certificates was conducted during November to December 2020. A lot of death certificates from 162,702 in-hospital death data in 2018 were tested. Batch processing of ICD coding and selecting the cause of deaths by IRIS yields successful results for 1,308 cases (11.3%). The clinical coders had to assign ICD codes using semi-automated ICD coding and selecting the cause of deaths by IRIS for 10,274 cases. However, after adding more common causes of death into the dictionary the second batch processing yielded successful results for 3,692 (31.9%). The Thai clinical coders could use the software to do semi-automated ICD coding effectively. No significant problems of software usage were found. This feasibility study demonstrated that the IRIS software could be used as a tool to reduce manual work of the clinical coders effectively. So the Ministry of Public Health started using IRIS for routine use in April 2021.
**1. Introduction**

**1.1 About the Re-designation**

National Health Development and Research Center, National Health Commission of P.R China (NHDRC) was re-designated as WHO Collaborating Center for Classification, Terminologies and Standards (CHN-125) in April, 2021. In the new round term of re-designation, our CC for CTS are required to development and maintenance and testing of WHO classification, terminology and standards products, particularly to:

a. Promote the development, trial test and related work of ICHI, ICD case-mix and related local classifications, e.g.: CCHI.

b. Integrate the WHO Family of International Classifications (e.g. ICD, ICHI, ICF, and others) into research;

c. Develop relevant terminologies and ontologies that serve different practical health information systems and function harmoniously in multiple environments;

d. Ensure linkages and interoperability with other health information systems and standards.

**1.2 CC head and team member adjustment**

Prof. Yuhui Zhang, Vice DG of NHDRC, and Prof. Qin Jiang were nominated as co-heads of the China CC of CTS in this new term, and new members were joined in the CC as part-time experts and piloting hospitals.

**1.3 Work plan in 2021**

Based on ToR by WHO, in 2021, CHN-125’s major work focus on following issues:

a. Gap analysis of ICHI with CCHI (2018 version) in China;

b. Revision of CCHI and its classification and coding;

c. Revision of CCHI and its classification and coding;

d. Promotion of WHO-FIC related work.

**2. Working Progress in 2021**

**2.1 Gap analysis of ICHI with CCHI (2018 version) in China**

Since 2019, our center launched a continuous comparison work on the medical and surgical parts of ICHI (B3 Version) with CCHI (V. 2018) which is being implemented in China. By translating ICHI (B3 Version) into Chinese, we conducted the comparison study + GAP analysis in 5 tertiary hospitals in China, both coders and clinicians were involved. We submitted a poster introducing our recent comparison work. By comparing the differences, we concluded:

- ICHI should keep upgrading since new technologies are constantly emerging.
- CCHI is carrying out the largest revision since the 2012 revision, and hopes to continue to contribute its own strength in the revision of ICHI in the future.
- CCHI built a fine structural framework which covered a quite comprehensive scope.
- Details should be added in the future --- Extension codes need to be applied in ICHI based on foundation --- Detail information should be added in “inclusion”
- GAP analysis should be an ongoing process

**2.2 Revision of CCHI and its classification and coding.**

CCHI is widely covered almost all latest medical and surgical procedures in China mainland healthcare facilities for fee charging purpose. CCHI is being revised since 2020, quite a lot of new items added, it’s an ongoing process. By the end of September 2021, the first draft of the revised version of CCHI has been completed, and comments are being sought across the country. This revision has corrected the inconsistencies in granularity, omissions and errors between the original entries, the structure of classification has been fine-tuned and the coding has been optimized. Based on WHO-FIC’s philosophy, we began to establish our foundation in Chinese and we now are doing some mapping work between ICD-9-CM-3.

**2.3 Participating in revision and piloting of DRG system in China.**

Our CC continuously participates in the revision of DRG manual work and piloting of DRG payment system reform in more than 30 cities nationwide in China.

**2.4 Promotion of WHO-FIC related works.**

The Fifth C-DRG Pricing and Payment Congress was held in Beijing in October. This virtual + face-to-face meeting is open to the whole country. Policy makers, hospital and facility managers, physicians, researchers and related stakeholders are welcomed to join this congress. As important tools for building DRG system, ICHI and ICD-11 were also included in the meeting, Professor Richard Madden presented the development progress and future application of ICHI by video-broadcasting due to COVID-19’s epidemic, we also invited expert to present ICD-11. In addition, a group of classification and coding experts are preparing a textbook, and CC has participated in the writing of the ICHI part.

**3. Work plan in 2022**

**3.1 Continue to support ICHI test work.**

We will continue to support the ICHI work in 2022.

**3.2 Development of CCHI and other Casemix piloting in China.**

NHDRC will continue the revision of CCHI and its classification and coding work. Since ambulatory patient classification is a future trend in China, our cc is contributing in doing this work.

**3.3 Expanding the influence of CC and strengthen communication and promotion.**

NHDRC is utilizing the existing network and platform of NHDRC to increase external communication and exchange, our collaborating center is planning to working closer with other CCs in China and other working partners.

**4. Acknowledgements or notes**

Thanks for Dr. Robert Jacob’s support for CC’s work. Thanks for Prof. Richard Madden, Megan Cumerlato and other ICHI team members’ support and contribution. Thanks for all team members who work for CC of CTS in China.
Abstract: Central Bureau of Health Intelligence (CBHI), Government of India became WHO Collaborating Centre for FIC in 2008 with the objective to promote ICD-10 implementation in India. Since then, CBHI is consistently working and striving towards achieving the desired outcomes. Reliable, consistent and timely health information is a key for evidence based policy, planning, interventions and monitoring the national and global public health goals/targets including the Sustainable Development Goals (SDGs). Data generated from different sources including census, survey, facilities, surveillance sites, administrative records, civil registration system, national health accounts and health research among others should be comparable over time within and between populations. Standard coding is a key to address within and between country disparities and facilitate seamless health information exchange. Ministry of Health and Family Welfare (MoHFW), Government of India has been gradually scaling up implementation of WHO family of international classifications in India. Regular assessments are essential to track progress, identify gaps, tweak strategies and develop action plan for strengthening WHO FIC implementation. Therefore, Central Bureau of Health Intelligence (CBHI) under MoHFW embarked on a project to assess WHO FIC implementation in the country and develop a strategic action plan thereof to improve its coverage and quality.

Introduction
Central Bureau of Health Intelligence (CBHI), established in 1961, is the Health Intelligence Wing of the Directorate General of Health Services in the Ministry of Health & Family Welfare, Government of India and WHO- FIC CC in India. CBHI promotes implementation of WHO FIC across different settings and geographies in India. This is done by carrying out various assessments, capacity building of human resources, advocacy and developing strategies for strengthening the coverage and quality of reference classifications.

1. CBHI conducted many capacity building activities for different cadres of healthcare professionals during the year 2019-20.
2. CBHI undertook an assessment of coverage and quality of WHO FIC (ICD, ICF and ICHI) implementation in India with the objective to develop a strategic action plan for strengthening WHO FIC implementation in India.

Methods and Materials for assessment of WHO FIC implementation

Assessment domains: Both qualitative and quantitative assessments were carried out at all levels of healthcare to assess the availability of resources; (infrastructure, human resources etc.); knowledge and understanding among stakeholders; capacity building initiatives; ‘As-is’ business process for recording, reporting, coding, collating and analysis of health information; information use for evidence informed decision making; use of information standards; quality assurance; quality checks and SOPs and feedback mechanisms.

Sample selection: Primary, Secondary and Tertiary Level of healthcare, and Civil Registration System were assessed in two selected districts as described below

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Raipur</th>
<th>Faridabad</th>
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</thead>
<tbody>
<tr>
<td>Government Medical College</td>
<td>Pt. Ravindra Ranjana Medical College</td>
<td>ESIC Medical College</td>
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<tr>
<td>Private Medical College</td>
<td>Raipur Institute of Medical Sciences (RIMS)</td>
<td>AIIMS Medical College</td>
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<td>District Hospital</td>
<td>DH Mandla/Kamalapur</td>
<td>DH Faridabad</td>
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<td>PHC</td>
<td>PHC Khilaora</td>
<td>PHC Chhindwara</td>
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<td>Total</td>
<td>5</td>
<td>5</td>
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</table>

Conclusion
Data analysis for the assessment is underway, and therefore results will be published later.

The assessment will provide an in-depth analysis of the implementation status of the WHO FIC and capture the bottlenecks and challenges at all levels of health system.

The findings will inform stakeholders for evidence based decision making and assist to develop a well-balanced and robust Strategic Action Plan for implementing WHO-FIC standards in health system.

Acknowledgements or Notes
CBHI acknowledges the technical advice of Dr Hilde De Graeve (Team Leader–Health Systems) and Dr Ved Prakash Yadav (NPO-Health Information) from WHO Country Office for India. We also acknowledge the support of Dr Pawan Pathak and Mr Saumyadripta Chaudhuri from Society of Community Health Oriented Operational Links (SCHOOL) for carrying out the assessment exercise in two states of India.
WHO-FIC 2021 virtual

WHO-FIC Poster Booklet

Chapter 3 – International Classification of Diseases - ICD-11
WHO - FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK ANNUAL MEETING 2021
Implementation and Translation Process of the Czech Version of the ICD-11
Authors: Dana Krejčová1, Miroslav Zvolský2, Šárka Daňková4, Aleš Beran2, Jan Hříbal2
1Institute of Health Information and Statistics of the Czech Republic (IHIS), Prague
2Charles University, First Faculty of Medicine, Institute for History of Medicine and Foreign Languages, Prague, Czech Republic
3Czech Medical Association of J. E. Purkyně, Prague, Czech Republic

Abstract
The Institute of Health Information and Statistics of the Czech Republic (IHIS CR) within the project of the National Center for Medical Nomenclatures and Classifications (NCMNC) is working on the implementation process of the ICD-11 into the Czech health care system and so for the IHIS CR is taking necessary steps to successfully create and implement the classification in the Czech Republic.

Introduction
IHIS CR created Pre-Implementation analysis and it serves as an information base for deciding on the deployment of ICD-11 in the Czech Republic, determining the time estimate, planning capacities and resources, creating the necessary procedures, etc. From the representatives of key institutions in the implementation process, an Inter-ministerial working commission was set up, which ensures information of individual institutions about the 11th revision of ICD, provides basic training of key persons from individual institutions, identifies specific needs of individual institutions/agendas for transition to ICD-11 and takes steps to implement ICD-11 in practice.

Translation of the ICD-11
An internal team including 12 members of the Department of Clinical Classification has been working on the translation since summer 2020 and is cooperating with experts from the Institute for History of Medicine and Foreign Languages to ensure the correct terminology and language consistency. The terms from the Maintenance platforms are exported to a spreadsheet (in MS Office format) and distributed in individual parts by expertise to clinical experts for the validation. The aim is to verify integrity, consistency and correctness of the translation and to add and complete missing terms or synonyms. These validated parts are then passed back to the chapter editors who deal with the comments and edit the terms in the Maintenance platform. Finally, the chapters thus prepared undergo a final language check and stylization by language experts.

Inter-ministerial Committee
For the purpose of information, participation and communication with the actors involved in the implementation of the ICD-11, an inter-ministerial working committee was established. The Committee is composed of representatives of concerned institutions that use the ICD in data collection or are involved in the electronification of health care, data collection and exchange in health care or at the health-social interface.

Main tasks of the Committee is to:
- ensure institutional awareness of the 11th revision of the ICD, build staff capacity and provide training for institutional experts
- identify the specific needs of each institution for the transition to ICD-11, including technical support requirements, and identify possible timelines for the transition to ICD-11
- actively discuss and implement steps towards the implementation of ICD-11 in practice, together with an assessment of the risks and challenges involved
- ensure the collection of ideas for actions and process changes required for the transition to ICD-11 from individual institutions
- identify potential problems, risks and conflicts in the implementation of the ICD-11.

Conclusions
The first version of the translation process is ongoing using the ICD-11 Platform from WHO and is planned to be done at the end of 2021 up to beginning of the 2022. During the process of translation, some issues arise which complicates the work on the Czech version of the ICD-11 and time of completion. In collaboration with experts nominated by the Czech Medical Association of J. E. Purkyně, the translated chapters of the Czech version of ICD-11 are being validated and completed and after will be reviewed by other institutions, such as Ministry of Health of the Czech Republic and the Czech Statistical Office at the final stage.

The completion of the first Czech version of the ICD-11 is scheduled for 2022 and a regular update process will be launched thereafter. This will be followed by content testing and further steps towards the implementation of ICD-11 in the Czech Republic.

The efforts to implement ICD-11 in the Czech Republic have also led to international cooperation activities with other countries (Poland, Slovakia) and closer cooperation with the WHO.

Table 1: Timetable of the activities related to the translation and implementation of the ICD-11 in the Czech Republic

<table>
<thead>
<tr>
<th>Activity</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
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<th>Week 8</th>
<th>Week 9</th>
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<td>Preparations</td>
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<td>Chapters validation</td>
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<td>Chapters feedback</td>
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<td>Chapters approval</td>
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<td>Implementation</td>
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</table>

Table 2: List of chapters undergoing opposition process from clinical experts (dark blue) or ready for opposition (light blue)

Acknowledgements or Notes
IHIS CR, specifically the DCC has been entrusted by the Ministry of Health to manage the implementation of the ICD-11 in the Czech Republic. The implementation and translation of the ICD-11 is funded by the European Social Fund within the project of National Center for Medical Nomenclatures and Classifications, CZ.03.4.74/0.0/0.0/15_025/0016089.
Real time ICD-11 and SNOMED CT coding of health problems in an outpatient hospital setting

Elisa Asensio-Blasco, Artur Conesa, Xavier Pastor-Durán, Raimundo Lozano-Rubi
University of Barcelona-Hospital Clinic (Spain)

Abstract

In order to achieve an automated coding to build a health problems list based on natural language processing (NLP), our first step three years ago was to check the completeness and agreement between ICD-11 and SNOMED-CT in a real-world scenario. Currently, the project is ongoing. It aims to have a health problems list coded with SNOMED CT, ICD-11 and ICD-10-CM by means of NLP and a terminology server. In this study we have evaluated the natural language clinical expressions filled by clinicians in the outpatient setting of our university hospital. Our objective is to check whether these expressions meet the necessary criteria for their standardization, by applying NLP technologies supervised by expert coders, avoiding furthermore interferences with clinical practice.

Introduction

The relevant information derived from each healthcare episode is recorded in the clinical history as part of the clinical process, which focuses on the resolution of the patient’s health problems. Two challenges arise to recover the information recorded in the medical history without losing its original meaning:

- Usually, health professionals express themselves in NATURAL LANGUAGE.
- It is convenient the registered information to be available IN REAL TIME from the moment of its generation.

In order to respond to the above needs, it is necessary to have a standardized catalogue of health problems with reference to clinical terminologies.

A project has been initiated to encode the health problems list for patients at the beginning of the process using natural language processing (NLP) technology. Furthermore, a terminology server will allow SNOMED-CT codes to be assigned and mapped to ICD-11 and ICD-10-CM codes.

In this poster we present a preliminary study done to evaluate the natural language clinical expressions proposed by clinicians in the outpatient hospital setting of a university hospital. Our proposal is to evaluate if these expressions meet the necessary criteria for their standardization without interfering with clinical practice.

Methods & Materials

1. Manual coding with ICD-11 and SNOMED-CT of clinical textual expressions filled by 16 clinicians as health problems of patients visited over two months. We have used the WHO ICD-11 Coding Tool and Browser and the SNOMED International Browser.

2. Sharing and reviewing the results of the filled textual expressions by a second group of clinicians for evaluation purposes.

3. Based on this evaluation and the analysis of the coding process and results, recommendations were defined to improve the writing of health problems using free text in the clinical workstation.

Results

The percentages of clinical expressions coded with ICD11 (86.9%) and SNOMED CT (87.5%) are very close.

Differences have been found in certain cases in the granularity between the two due to their different nature.

Conclusions

In order to achieve a standardized health problems list based on clinician proposals it is important to consider:

1.- In our experience, the use of more than one clinical terminology in the healthcare setting seems to facilitate the clinicians work and the secondary use of the data, providing a quick overview of the patient’s situation in real time.

Coding health problems with ICD11 and SNOMED CT offers an open solution to clinicians since its use allows the recording of information with little interference in their practice. It also enables the use of registered clinical information for management, statistical, epidemiological and public health purposes.

2.- In addition, it seems to be necessary to establish a series of recommendations in order to standardize the natural language registration of patient’s health problems in the EHR to make possible their automated coding. Each record should include a single health problem with the essential information for patient care, excluding details for later registration in clinical progress notes. Furthermore, it is advisable not to include presumptive contexts.

3.- Review and validation by expert coders should also be ensured to guarantee the final quality of the list of health problems.

Acknowledgements or Notes

Background of this project in: WHO/FIC meeting 2019
“Establishing a relation-ship between ICD and SNOMED-CT”
Poster Id. 327

Browsers references:
https://icd.who.int/browse11/l-w/en
https://browser.uintdotools.org
Abstract

The ICD-11 includes a comprehensive classification of chronic pain. The field study evaluated this ICD-11 classification with regard to its inter-rater reliability and clinical utility. The field study was implemented in India, Cuba, and New Zealand. Kappa values of the new diagnoses ranged between $\kappa=0.956$ and $\kappa=0.783$. The mean clinical utility was rated as 8.45±1.69/10. These results are first indicators of the global applicability of the ICD-11 chronic pain classification.

Methods & Materials

Data collection in 4 pain clinics:
1. Kolkata, India (lower-middle-income country)
2. Hyderabad, India (lower-middle-income country)
3. Havana, Cuba (upper-middle-income country)
4. Dunedin, New Zealand (high-income country)

Participants
N = 350 patients with chronic pain
K = 21 pain specialists ("clinicians")
All participants gave their informed consent prior to data collection.

Procedure

1. On-site training course for clinicians
   - Introduction to the ICD-11 chronic pain classification
   - Review of study protocol and material
2. Diagnostic assessment of consecutive patients with chronic pain and code assignment (current classification system & ICD-11)
   - Guided by algorithm
3. Clinical utility rating (e.g., communication, data collection)
   - Numerical rating scale 0–10
   - Current classification system & ICD-11

Introduction

The complete results have been published by Korwisi et al. 7

Inter-rater reliability

- Fleiss' kappa ($\kappa$) was computed as a measure of inter-rater reliability for the 11 most frequent diagnoses in the sample (5- and 6-digit level as well as foundation entry only).
- Kappa values ranged from $\kappa=0.596$ (MG30.02 Chronic primary musculoskeletal pain) to $\kappa=0.783$ (MG30.3 Chronic secondary musculoskeletal pain).

Diagnosis | Fleiss' $\kappa$ | 95% CI
--- | --- | ---
MG30.0 Chronic primary pain | 0.738 | 0.552–0.924
MG30.2 Chronic postsurgical or posttraumatic pain | 0.734 | 0.548–0.920
MG30.3 Chronic secondary musculoskeletal pain | 0.783 | 0.597–0.969
MG30.4 Chronic secondary visceral pain | 0.720 | 0.534–0.906
MG30.5 Chronic neuropathic pain | 0.649 | 0.463–0.835

Chart 1: Kappa values and 95% confidence intervals for diagnoses on the 5-digit level.

Clinical utility

- Mean clinical utility of the ICD-11 diagnoses: 8.45 ± 1.69/10
- 2 x 4 mixed ANOVA:
  - Classification system: $F(1,345) = 113.08, p < 0.001, \eta^2 = 0.25$
  - Pain clinic: $F(3,345) = 172.95, p < 0.001, \eta^2 = 0.60$
  - Classification system x pain clinic: $F(3,345) = 35.43, p < 0.001, \eta^2 = 0.24$

Chart 2: Comparison of clinical utility ratings across the pain clinics.

Results

- 10 of 11 analysed ICD-11 chronic pain diagnoses were shown to have substantial inter-rater reliability with the remaining diagnosis having moderate reliability.
- On the 5-digit level, all diagnoses that were analysed showed substantial inter-rater reliability.
- The clinical utility of the ICD-11 chronic pain diagnoses was rated as high to very high across settings.
- In Havana and Dunedin, the ICD-11 diagnoses were rated as more useful than the currently used textual diagnoses.
- At both Indian pain clinics, the ICD-11 diagnoses were rated as equally useful compared to the currently used textbook diagnoses.
- Importantly, these results were obtained in specialized clinical settings in two middle- and one high-income country.
- Minimal training was sufficient to obtain these high reliability and clinical utility results.
- The results need to be corroborated in a second study phase that will include more countries and different settings (e.g., primary care).
- In conclusion, the results are a first indicator of the global applicability of the new ICD-11 chronic pain diagnoses in specialised pain treatment contexts.

Conclusions

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References
Assessing ICD-11’s potential for improved mental health reporting in Canada

Authors: E. Valente, S. Sabljakovic, J. MacNeil, S. Baker, Canadian Institute for Health Information

Abstract

As part of CIHI’s assessment of ICD-11’s fitness for use in Canada, a comparison project created a draft crosswalk of DSM-5 clinical concepts to ICD-11’s “Chapter 06: Mental, behavioural or neurodevelopmental disorders.” With ICD-11’s new structure and updated clinical content, the data derived from DSM-5 and ICD-11 will be much more comparable.

Background and objectives

The Canadian Institute for Health Information (CIHI) reports on mental health using data from different sources coded with the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada (ICD-10-CA) and the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). For pan-Canadian reporting, conversion algorithms are needed to ensure comparability of ICD-10-CA and DSM-5 information.

CIHI is assessing the implications of implementing ICD-11 in Canada. This project contributes to the assessment by comparing the content in ICD-11’s “Chapter 06: Mental, behavioural or neurodevelopmental disorders” with that in DSM-5.

Results

Of the 820 DSM-5 clinical concepts assessed, 77.4% (n = 635) were found to be an equivalent conceptual match with ICD-11 when mapped to a single or combination of ICD-11 codes. 19.9% (n = 163) of DSM-5 concepts were less specific in ICD-11 when mapped to a single or combination of ICD-11 codes, representing a loss of detail. Conversely, 2% (n = 16) of DSM-5 concepts were more specific in ICD-11. For the remaining 0.7% (n = 6) of DSM-5 concepts, there was no match, meaning that the DSM-5 concept could not be found in ICD-11.

Of the 77.4% (n = 635) of DSM-5 concepts that were an exact match, 48.3% (n = 396) were a match to a single ICD-11 code, while 37.6% (n = 239) were a match when multiple stem and/or extension codes were combined with the target ICD-11 code. Of the 163 (19.9%) DSM-5 concepts that are less specific in ICD-11, 51.5% (n = 84) resulted in a partial match when multiple stem and/or extension codes were assigned, and no additional ICD-11 codes could be added for 48.4% (n = 79) concepts.

Approach

In Phase 1, a sample of DSM-5 clinical concepts were assessed for comparability in ICD-11. DSM-5 concepts were mapped using DSM-5 concept titles to ICD-11 target codes and titles, with the specificity of the match assigned an outcome type as follows:

- **Conceptual match**: An exact match at the ICD-11 stem code level (equivalent)
- **Lesser specificity**: An ICD-11 code that is less specific than the DSM-5 concept at the stem code level
- **Greater specificity**: An ICD-11 code that is more specific than the DSM-5 concept at the stem code level
- **No match**: No match found in a single or multiple ICD-11 codes

In Phase 2, for cases where the ICD-11 code was less specific than the DSM-5 concept, the concept was assessed to determine whether combining the target stem code with additional ICD-11 codes via post-coordination could improve the outcome type. Each concept was then assigned one of the following outcome types after post-coordination:

- **Exact specificity match**: An exact match to the DSM-5 concept after post-coordination
- **Partial specificity match**: Less specific than the DSM-5 concept after post-coordination
- **Not applicable**: Not applicable to post-coordination of this concept

Reliability was assessed through dual mapping and validation during both phases of the project. When there was no map agreement and/or outcome type agreement, each concept was assessed and discussed for resolution.

Table: Examples of a comparison of DSM-5 concepts with ICD-11 target stem codes

<table>
<thead>
<tr>
<th>Outcome type</th>
<th>DSM-5 concept</th>
<th>ICD-11 target stem code and title</th>
<th>ICD-11 post-coordination (target stem and additional stem codes and/or extension codes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conceptual match at ICD-11 stem code level (equivalent)</td>
<td>Adjustment disorder, unspecified</td>
<td>6843 Adjustment disorder Not applicable</td>
</tr>
<tr>
<td>2</td>
<td>Lesser specificity in ICD-11 at stem code level</td>
<td>Opioid-induced anxiety disorder, With mild use disorder</td>
<td>6C43.7.1 Opioid-induced anxiety disorder 6C43.71/6C43.1Z 6C43.71 Opioid-induced anxiety disorder 6C43.12 Harmful pattern of use of opioids, unspecified</td>
</tr>
<tr>
<td>3</td>
<td>Greater specificity in ICD-11 at stem code level</td>
<td>Bipolar I disorder, Current or most recent episode depressed, with psychotic features</td>
<td>6A60.5 Bipolar type I disorder, current episode depressive, moderate with psychotic symptoms Not applicable</td>
</tr>
<tr>
<td>4</td>
<td>No match in ICD-11 (no map possible to a single stem code)</td>
<td>Personal history of military deployment</td>
<td>Personal history of military deployment Not applicable</td>
</tr>
</tbody>
</table>

Limitations

These findings represent preliminary results; further analysis and validation are required as new ICD-11 updates are released. During the project, there were challenges with the assignment of outcome type and post-coordination, and in some cases, clinical input was required. Updates to the ICD-11 implementation browser are in progress, including recently added definitions, inclusions and exclusions, post-coordination and post-coordination options at the code level, and there are plans for further enhancements that will continue to evolve the coding tool and support code assignment.

Conclusions

Based on this sample, we found that only 20.6% (n = 169) of DSM-5 concepts are less specific or have no equivalency in ICD-11. This level of alignment is sufficient for pan-Canadian reporting purposes, and it suggests that the current model of conversion algorithms may no longer be required to ensure comparability. With ICD-11’s new structure and updated clinical content, DSM-5 and ICD-11 information will be much more comparable.

Better coding can support improved capture of mental health data for research and for policy- and decision-making in Canada. With the improved clinical content coverage of ICD-11, there will be potential opportunities for enhanced reporting of mental health data. The results of this project will contribute to the preparation for ICD-11 implementation in Canada.

Reference

Development of a Clinical Data Collection Tool for Chapter V of ICD-11 and Cross-sectional Functioning Survey of Patients in Japanese Rehabilitation Wards

Masahiko Mukaino1, Shin Yamada2, Emiko Oikawa3 & Shin-Ichi Izumi4

1) Department of Rehabilitation Medicine 1, School of Medicine, Fujita Health University; 2) Department of Rehabilitation Medicine, Kyorin University School of Medicine; 3) General Incorporated Association Japan ICF Association; 4) Department of Rehabilitation Medicine, Tohoku University

Abstract

In the 11th revision of the ICD (ICD-11), released in 2018, the World Health Organization introduced a supplementary section for functioning assessments (Chapter V). In addition to the existing questionnaires which are already linked to Chapter V, we have developed a rating reference guide for ‘generic functioning domains’ of Chapter V of ICD-11 which can be used by clinicians. The results of the field test using the tool support the need for a comprehensive evaluation of functioning problems in patients with disabilities.

Introduction

In the 11th revision of the ICD (ICD-11), released in 2018, the World Health Organization (WHO) introduced a supplementary section for functioning assessments (Chapter V). In Japan, the ICF Implementation Working Group (ICFWG, 2019 April-2021 March) of the Japanese Ministry of Health, Labor and Welfare (MHLW) has worked to develop clinical tools for implementing ICD-11 Chapter V and the International Classification of Functioning, Disability and Health (ICF). Here, we introduce the efforts to date to prepare tools for collection of data related to functioning.

The development of a rating reference guide for ‘generic functioning domains’

There are three components of ICD-11 Chapter V: the categories derived from 1) WHO-DAS 2.0, 2) the Brief Model Disability Survey (BMDS), and 3) the generic functioning domains based on ICF Annex 9. The ICF Implementation Working Group has specified the clinical tools that can be used for clinical data collection in the use of ICF in Japan. For 1) and 2), there are already linked instruments (WHO-DAS2.0 and BMDS), for the generic functioning domains, the ICFWG developed a rating reference guide as an extension of the rating reference guide for the ICF Generic-30 set that had previously been developed (1,2) was determined.

The extension of the reference guide was developed based on cognitive interviews with clinicians experienced with ICF ratings, as defined in the previous study (1,2; Figure 1).

Figure 1: The process for developing a rating reference guide

Reliability of the ratings

An inter-rater reliability study was conducted on 84 patients using the expanded part of the rating reference guide. The raters were four experienced rehabilitation professionals, and each patient was evaluated by two of the four raters. Each rater evaluated 42 patients. All of the weighted kappa coefficients with the linear weight were greater than 0.6 (Table 1).

Table 1: The results of the inter-rater reliability study

Testing in real clinical practice

A field test of the newly developed clinical tools was conducted with 1102 patients (499 male/ 603 female) from 20 hospitals. The mean age of the patients was 77±29, and the median days after onset was 57 (range 1-417). The majority of the patients had neurological diseases (n=562) or musculoskeletal diseases, including trauma (n=429).

Problems were observed in various aspects of functioning in the rehabilitation patients. In addition to activities such as walking, dressing, and toileting, which fall into categories related to daily living that are usually assessed in Japanese rehabilitation practice, problems were also commonly found in items that have not been frequently assessed, such as energy and drive functions, sleep functions, and the carrying out of daily routines (Figure 3,4). The categories in which more than half of the patients presented problems (scored 2 or more in WHODAS 2.0 and BMDS and 1 or more in the generic functioning domains) included 83.3% of the total. These may indicate the need for comprehensive assessment of functioning in the rehabilitation practice.

Conclusions

The projects conducted in Japan to promote the use of ICD-11 Chapter V, including the development of the clinical tools for Chapter V and its clinical testing, were introduced.

References

Medical terminologies resources are primordial in healthcare activities, reporting, and analysis. WHO resources (ICD, ICHI, ICF) translations in local languages are an absolute priority to start their deployment. To speed up the process, a method for automated translation based on AI was developed in French by the Agence du Numérique en Santé. The initial method was presented to WHO FIC 2020. This poster presents the 2021 enhancements that eased the ICD human translation performed by ATIH (agence technique de l'information sur l'hospitalisation).

**Introduction**

ICD is widely used across France addressing several medical domains’ use cases (mortality-statistics, chronic diseases monitoring, data exchange of electronic patients’ files).

The first challenge for future ICD 11 deployment is to obtain a translation in the native language, to initiate testing and evaluating, as soon as possible, towards a national validation. A full manual translation process requires lot of resources but gives trustful results; whereas automatic translation speeds up the process but necessitates human expertise to validate the proposals. An automated method was designed for accelerating the global process via machine translation techniques. It also provides quality metrics to ease human validation. It was designed to be generalized to any other medical terminologies.

This poster presents the ongoing progress of the automated translation process. The contributive objectives of this work are as follows:

- Measured improvements outcomes:
  - New BLEU2VEC translation models, with transfer learning, using a pretrained neural model
  - of successive finetuning with different training medical datasets.
- Produced an improved translated version - based on previous work (Skianis et al, 2020) that will ease human validation required by the official WHO FIC translation procedure.
- In-depth development: a live web tool for translating short sentences or with the presented models: https://3y3nk0.github.io/demos/medical-xml.html

**NLP Developed Methods**

Neural machine translation methods were tested, using large parallel text corpora and medical terminologies, for ICD human translation processes:

- Use of deep neural networks to learn correspondences between large bilingual textual data via vector machines. As continuous space representations for words (embending).
- Use of FAIRSEQ (Ott et al., 2019), a sequence modeling toolkit that allows researchers and developers to train Sequence-to-Sequence models for automating translation (Skianis et al. 2020). This toolkit offers a plethora of NMT models.
- Use of transfer FAQSEQ (Ott et al., 2019) to leverage knowledge in pretrained models (Khan et al. 2018).
- 3 CNN models (Convolutional Neural Networks), 1 Transformer and 1 ensemble of CNNs were developed.

In blue color we show the enhancements of our new pipeline compared to the old one.

**Table 1: Successive models developed during 2021**

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st and 2nd round</td>
<td>2000 datasets: ICD-19, CHU Rouen, ORGD, ACAD 2019, MEDDRA, AYG, MED, ICD-19, DOPHA, EPC, ICF, ICHI, ICD-11 models</td>
</tr>
<tr>
<td>3rd round</td>
<td>Cleaning of corpus to remove bilingual corpus leading to ambiguities (e.g. ICD-10 is not relevantly structured for use in a set training).</td>
</tr>
<tr>
<td>4th round</td>
<td>3rd round, plus the FAIRSEQ pipeline (patents data base).</td>
</tr>
<tr>
<td>5th round</td>
<td>5th, with transformer architecture</td>
</tr>
<tr>
<td>Ensemble</td>
<td>Ensemble of the 3 CNN models created was trained: 3rd, 4th, 5th rounds</td>
</tr>
</tbody>
</table>

**Setup**

1. We tuned the process by changing the training datasets corpora (1) between rounds. The combination of different sizes of datasets enables the capacity of the translation pipeline by improving the quality of general medical domain expression (within large data sets) or specific domains vocabulary (found in smaller datasets).
2. We used Facebook’s largely pretrained model which is trained on general data domain with FAIRSEQ, and fine-tune it (2) on, with medical terminologies, via transfer learning, improving the quality of the translation (3).
3. We use CNNs (with attention mechanisms that capture dependencies) and Transformer (a fully attention-based model) and examined an Ensemble of CNNs (combine and score models via probabilities) (2) in our pipeline.
4. We performed the fine tuning on medical terminologyMedical datasets, via transfer learning, improving the quality of the translation (3).

**Summary**

A powerful, due to its generalization capability and power of translating larger sentences in faster time, introduce lower complexity, very effective for smaller sentences (but not only).

**Translation metrics**

- BLEU (Bilingual Evaluation Understudy) (Papineni et al., 2002) is calculated for individual translated segments (n-grams) by comparing them with a dataset of reference translations, BLEU is a dimensionless metric varying between 0 (possible wrong translation) to 1 (exact match).

20 BLEU fields pointed on finalized human translations that may carry side effects, which is applicable in cases where reference is limited. Therefore a relevant improvement of machine translation performance.

**Results**

**Metrics**

- **Metrics evaluation : BLEU2VEC vs BLEU Score**
- Metrics evaluations were carried out on 575 terms and taking the ATIH reference set as ground truth. Exact match with reference was found for 22.3% (1695 terms). In that case BLEU and BLEU2VEC were equal to 1.
- For a same translation BLEU2VEC scores were:
  - improved by more than 0.4 than BLEU in 40.1% of cases (30 4220 terms) (red bubble)
  - similar with difference between 0-0.4 for 36.5% of reference set (27 668 terms) (green bubble)
  - decreased for 1.1 of terms (821 terms) (orange point)
  - blue points: Linear regression coefficient (BLEU2VEC vs BLEU scores) are similar for long chains and short chains (<101 characters) (1.27 vs 1.2).

**Conclusions**

**Conclusions**

- BLEU2VEC can be used to automatically translate and/or assist the manually translation of medical terminologies.
- BLEU2VEC scores does improve automatic translation evaluations compared to BLEU score.
- 57% of the translation are correct and only 4% considered as wrong (divergent to the ATIH ref).

**Future work**

- We evaluate the progress vs regressions in each model.
- We apply the model to other translation languages to French such as NCT or FHA.
- Evaluate the translation approach applied to medical AI.
- Improve the existing model using a user feedback.
- Investigate new metrics without using a validated corpus references.

**Acknowledgments**


**References**

Abstract

The French death certificates consists of free text death certificates collected from physicians and hospitals in France by the Epidemiological Center for the Medical Causes of Death (Inserm -CépiDc) and coded according to the 10th revision of the International Classification of Diseases (ICD-10). In this work, we proposed a combination of lexical and clustering approaches to align CépiDc with ICD-11 French translation in order to enrich ICD-11 with French synonyms and to facilitate the transition to cause of death coding in ICD-11.

Introduction

In 2019, the ICD-11 was adopted by the World Health Assembly to be effectively used from 2022. Compared to ICD-10, it integrates many updates and improvements including new architecture which allows the creation of multiple linearization, a new content with more additional chapters, and new techniques such as post-coordination, and an index of 120k clinical terms, critical for its use. French death certificates (CépiDc) consists of free text death certificates collected from physicians and hospitals in France (n=139,490) and coded using a French ICD-10 index (n=6,510). The present work aims at aligning CépiDc with ICD-11 index French translation in order to enrich ICD-11 with French synonyms and facilitate the transition to cause of death coding in ICD-11.

Methods & Materials

In this work, we used a lexical based approach and two clustering approaches combined with the existing mapping between CépiDc and ICD-10.

The lexical approach (Lex) is based on some Natural Language Processing (NLP) tools in French combined with a TF-IDF based relevance ranking to find the most lexically similar term. According to this approach, two (2) initial sets were provided:

1. **Exact set (set_lex1)** which contains only exact similar terms from ICD-11 and the CépiDc.
2. **Close set (set_lex2)** which contains close similar ICD-11 terms to all CépiDc terms not belonging to the first set (not considered as lexically exact).

To refine the **set_lex2**, three clustering approaches were applied to map CépiDc terms to one only ICD-11 term (see Figure 1):

1. In this first, a “k-means” based approach **ClustLex_mean** was used to map CépiDc terms to ICD-11 terms, the “k-means” refers to a simple unsupervised machine learning algorithm that allows to find groups (clusters) of similar terms. In this work, the scikit-learn implementation was used [1].
2. The existing mapping between CépiDc and ICD-10 was used. According to this approach, an orphan CépiDc term (tCépiDc,1) and a ICD-11 term (tICD11) can be associated using two sub-methods:
   a. **ClustLexICD11**: if it exists a tCépiDc2 term which correspond exactly to tICD11 where
      i. CépiDc2 is different from tCépiDc1.
      ii. CépiDc2 and tICD11 are mapped to the same ICD-10 code.
   b. **ClustICD11** : if combined with the MappingLexICD10 (see Figure 1) from ICD-10 to ICD-11 created by WHO (OMSMappingICD10), a connection exists between the tCépiDc1 and tICD11 by passing both.

Results

**Quantitative analysis:**

Besides the exact set containing 8,716 terms (6% of the CépiDc), multiple sets were created combining **set_lex** with clustering approaches described above to match the remaining terms. A total of seven (7) sets were obtained starting from the 1st set which combines all the approaches (lexical and clustering) until the last one (7th) where only the close matching was applied.

Nevertheless, A total of 100,689 (73%) of the remaining terms obtained can be classified according to three (3) relationships: 1)broader/narrower (bt/mt), 2) synonym (syn) and post-coordination (postCoord) (see Table 3).

Qualitative analysis:

The qualitative analysis of the results shows that relations between CépiDc and ICD-11 terms obtained can be classified according to three (3) relationships: 1)broader/narrower (bt/mt), 2) synonym (syn) and post-coordination (postCoord) (see Table 3).

Table 1. Examples of clustering approaches applied.

<table>
<thead>
<tr>
<th>Clustering approach</th>
<th>CépiDc term</th>
<th>ICD-11 Term (ICD-11 ID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ClustLex_mean</td>
<td>Attaque ischémique transitoire (Transit ischemic attack)</td>
<td>Accident ischémique transitoire (Transit ischemic accident)</td>
</tr>
<tr>
<td>ClustICD2</td>
<td>infection probable au covid-19 (Probable COVID-19 infection)</td>
<td>COVID-19 probable (Probable COVID-19) (563410536)</td>
</tr>
<tr>
<td>ClustICD3</td>
<td>démenee type vasculaire (dementia, vascular type)</td>
<td>demence vasculaire (dementia, vascular) (1365258270)</td>
</tr>
</tbody>
</table>

Table 2. Number of CépiDc terms aligned to ICD-11 according to the first fourth sets.

<table>
<thead>
<tr>
<th>Set</th>
<th>Approaches # CépiDc terms (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set1</td>
<td>Lex (set_lex1) 10,241 (7%)</td>
</tr>
<tr>
<td>Set2</td>
<td>Lex (set_lex2), ClustICD11 24,210 (17%)</td>
</tr>
<tr>
<td>Set3</td>
<td>ClustICD11, ClustICD2 4,056 (5%)</td>
</tr>
<tr>
<td>Set4</td>
<td>ClustICD11, ClustICD2 62,182 (44%)</td>
</tr>
</tbody>
</table>

Table 3. Examples for the possible relations observed.

In parallel to this qualitative analysis, we proposed an approach to deduce automatically post-coordination relations. Hence, for each relation, we identify ICD-11 terms included in CépiDc terms+post-coordination axis. As shown in Table 3, the “AVC ischémique aigu” include the “AVC ischémique” + the post-coordination axis « aigu ». Most of post-coordination relations that we obtained are from set1, (48%) and set2, (37%). This is explainable since the set 3 and 4 were based only on the relation based on clustering only without any possible lexical similarity.

In conclusion, this first approach is promising and can be used to enrich ICD11 French index to guarantee its usability for coding death certificates. It can be improved in many levels: lexical, clustering and relationships automatically deduced.

Figure 1. Illustration of the three clustering approaches applied.
Abstract
Orphanet has developed and maintains the only nomenclature specific to rare diseases, structured using ORPHAcodes. The alignment of ICD-11 and Orphanet nomenclature is essential to achieve interoperability between ORPHAcodes and ICD-11 codes as well as making sure that the rare diseases domain is fully described and consistently represented in both terminologies. To these ends, Orphanet, within the French WHO Collaborating Center (CC), has developed a combination of semantic and syntactic mapping approaches, the initial results of which allow the prefiguration of a complete ICD-11/Orphanet synchronization strategy.

Introduction
The Orphanet nomenclature of rare diseases is a unique and multilingual standardized system aimed at providing a specific terminology for rare diseases. Each clinical entity is assigned a unique and time-stable ORPHAcode, around which all the data are structured. There are currently 9293 active ORPHAcodes, classified as either Groups of disorders, Disorders or Subtypes of disorders and which are aligned with other international terminologies enabling interoperability between different information systems (Fig. 1).

The aim of this communication is to present the current approach under the auspices of the French WHO CC (ccOMS) led by the Agence du Numérique en Santé (ANS), consisting in an Orphanet/ICD-11 two-tiered alignment process combining both i. a semantic, code-based approach and ii. a syntactic, lexical-based approach. Completion and maintenance of this alignment is crucial to provide a common language across healthcare and research systems for effective monitoring and reporting on rare diseases, thus improving their visibility.

Methods & Materials
We investigated two complementary approaches, which will be fine-tuned throughout the mapping completion:

Semantic (code-based) mapping:
- Revision of the ICD-11 and integration of rare diseases was carried out by the Topic advisory group for rare diseases, led by Orphanet. This work yielded an initial manual mapping between ORPHAcodes and ICD-11 codes.
- This alignment was then semi-automatically validated using the ICD API with the latter became available.

Syntactic (lexical-based) mapping:
- A lexical-based approach was deployed to investigate correspondence between Orphanet disease labels and ICD-11 terms.
- This lexical approach is based on Natural Language Processing (NLP) tools in French and English combined with a TF-IDF-based relevance ranking to find the most lexically similar term. For both approaches, two types of correspondences between codes were provided: exact and close matching.

Results
Advancement of the semantic mapping:
- The code-based approach yielded a total of 5,333 rare clinical entities (57.6%) mapped to ICD-11 codes (Table 1).
- The remaining 3,935 ORPHAcodes are being manually validated the closest matching ICD-11 codes.
- Initial matching qualifications (exact or close) are being replaced by manually curated proximity (Exact mapping, Narrower term to narrower term, Broader term to narrower term) and specificity (Specific code, Index term, Attributed relationships).

Advancement of the syntactic mapping:
- Starting from an ORPHAcode, which contains one preferred label (bref) and zero or more synonyms (syn1, syn2, ..., syni) it is possible to observe five mapping cases (Table 2). The lexical-based approach yielded a total of 5,178 ORPHAcodes (55.7%) that were mapped to ICD-11 term (3,946 in French and 4,545 in English).

Table 1: Advancement of the semantic mapping. Mapping coverage is calculated based on the total number of Orphanet clinical entities (n=9,293).

Table 2: Number of ORPHAcodes in each mapping case for Orphanet French and English labels mapped to at least one ICD-11 term.

Conclusions
The intended purpose of this collaborative project is to achieve an exhaustive representation of rare diseases in the WHO-FIC Foundation.

Proposal of a collaborative enrichment strategy of the ICD-11: Rare clinical entities that are not present in the ICD-11 (i.e. “Attributed” codes) will be submitted for integration to the WHO-FIC Foundation (Fig. 2A). Detection of inconsistencies in mappings between sets of preferred labels/synonyms will be reviewed in order to propose the integration of absent terms to the ICD-11 (Fig 2B).

Acknowledgements or Notes
The authors gratefully acknowledge the contributions of the following people: ...
Translating ICD-11 in Germany: a status report

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Abstract: The German Collaborating Center of WHO-FIC continued translating ICD-11 into German and has set-up related measures in cooperation with the medical scientific societies in Germany. This poster reports on settings and challenges off the project as well as on results. Challenges arise in both organizational and technical areas, and therefore sound planning and oversight of the extensive translation effort of currently approximately 1,230,000 words is needed. This information may help countries to translate the ICD-11 into their respective languages.

Introduction

In Mai 2019 ICD-11 was adopted by the World Health Assembly (WHA) for implementation in member states, starting from 2022 on. A transition period of five years has been agreed for taking necessary measures to prepare implementation in complex settings, e.g., when using the ICD software for automated mortality coding or in national morbidity use cases. Challenges of transitions in former revisions of the ICD primarily concerned mortality related time trends, which remain a major challenge in the transition to ICD-11. Main differences to former transitions are characterized by the way documentation and coding is based on and the integration of ICD in more advanced morbidity related use cases (e.g., case mix, quality & patient safety, reimbursement, epidemiology etc.). National modifications of ICD-10 have been developed to address country specific needs and IT systems have been introduced for electronic coding and data processing for various applications. This poster gives an overview about the ongoing translation of ICD-11 into German conducted by BfArM to prepare for future implementation.

Translating ICD-11 into German

From late 2018 onwards BfArM conducted translation of ICD-11 with varying resources. Translation focus has been given on the ICD-11 MMS hierarchy until the endpoint of coding, which has been identified as a key component for further evaluation and transition. Mid of August 2021, translation of the titles of the hierarchy of ICD-11 MMS chapters 1 to 25 have been completed, for Chapters 2 to 5, 7 to 14, and 16, 18, 19, 21, 23, 24, 25 related Foundation terms (synonyms and titles of lower entities) as well. In addition to internal personnel a cooperation with the Federal Statistical Office of Switzerland was established to organize translation of chapter 22 and a substantial part of extension codes. A competitive tendering was also launched to recruit additional external resources for the translation. This concerns subsections of chapters 01, 15 and 20.

Table 1: Raw translation rates by chapters from Translation Output as of 01 August, 2021.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Number of Entries</th>
<th>Quality adjusted completion rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.042</td>
<td>42%</td>
</tr>
<tr>
<td>2</td>
<td>7.836</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>1.768</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>1.658</td>
<td>100%</td>
</tr>
<tr>
<td>5</td>
<td>6.037</td>
<td>100%</td>
</tr>
<tr>
<td>6</td>
<td>3.630</td>
<td>74%</td>
</tr>
<tr>
<td>7</td>
<td>239</td>
<td>100%</td>
</tr>
<tr>
<td>8</td>
<td>5.498</td>
<td>100%</td>
</tr>
<tr>
<td>9</td>
<td>3.680</td>
<td>100%</td>
</tr>
<tr>
<td>10</td>
<td>625</td>
<td>100%</td>
</tr>
<tr>
<td>11</td>
<td>4.033</td>
<td>99%</td>
</tr>
<tr>
<td>12</td>
<td>2.737</td>
<td>99%</td>
</tr>
<tr>
<td>13</td>
<td>5.792</td>
<td>100%</td>
</tr>
<tr>
<td>14</td>
<td>4.786</td>
<td>98%</td>
</tr>
<tr>
<td>15</td>
<td>6.766</td>
<td>8%</td>
</tr>
<tr>
<td>16</td>
<td>4.075</td>
<td>99%</td>
</tr>
<tr>
<td>17</td>
<td>163</td>
<td>69%</td>
</tr>
<tr>
<td>18</td>
<td>2.206</td>
<td>100%</td>
</tr>
<tr>
<td>19</td>
<td>2.302</td>
<td>100%</td>
</tr>
<tr>
<td>20</td>
<td>10.129</td>
<td>41%</td>
</tr>
<tr>
<td>21</td>
<td>4.568</td>
<td>100%</td>
</tr>
<tr>
<td>22</td>
<td>7.722</td>
<td>26%</td>
</tr>
<tr>
<td>23</td>
<td>5.721</td>
<td>100%</td>
</tr>
<tr>
<td>24</td>
<td>2.979</td>
<td>100%</td>
</tr>
<tr>
<td>25</td>
<td>57</td>
<td>95%</td>
</tr>
<tr>
<td>26</td>
<td>1.102</td>
<td>2%</td>
</tr>
<tr>
<td>V</td>
<td>1.712</td>
<td>3%</td>
</tr>
<tr>
<td>X</td>
<td>25.263</td>
<td>16%</td>
</tr>
<tr>
<td>Total</td>
<td>131.106</td>
<td>64%</td>
</tr>
</tbody>
</table>

Challenges

A quality assurance process has been initiated in consultation with experts from the respective medical societies (MS) for titles of the hierarchy. So far 18 medical societies agreed to participate. Due to limitations of the translation tool regarding managing external reviewers, an Access database and form have been developed to allow for a more structured approach. In consequence individual contracts with reviewers had to be signed to sort out intellectual property rights. Through the further development of the translation platform by the WHO and subsequent improvements in the administration of external partners the translation process is now less resourse intensive. In this regard the possibility to limit the access rights to a certain area was very helpful as it allows external partners to work directly in the assigned area of the ICD-11 on the platform. As a further improvement to the translation platform, implementation of a "validator" role should be considered to support validation tasks without translation rights.

Conclusion & Outlook

The initial translation of ICD-11 is expected to be completed by the end of 2021. Quality assurance by experts from medical societies will be an ongoing process over the next few years. Translating ICD-11 into German and creating a specific crosswalk for ICD-10-GM are key for further evaluation and for preparing implementation. Stakeholders need a more concrete due date and roadmap for introducing ICD-11 in respective use cases in Germany.

Bridge vocabularies like ICD-10-GM Alpha-ID (alphabetical index with unique identifiers for every single entry) or SNOMED-CT might be considered to support transition and to generate additional value after implementation with regard to interoperability.
Abstract

The usefulness of dashboards as a means of disseminating information of public interest finds a niche in the pandemic environment for the socialization of information and social participation in knowledge management. The Excess Mortality Dashboard shows basic indicators that are easy to interpret by decision makers and the general public.

Introduction

The Covid-19 pandemic has faced us with challenges for its management and containment. The need for transparent and timely data for monitoring and control accelerated innovative technical and technological responses so that information could flow and be available in real time. The monitoring of mortality from Covid-19 challenges us to the daily use of real data for decision-making based on dynamic reports and indicators that are simple and easy to understand for everyone, including ordinary citizens. This poster describes the Excess Mortality dashboard as an example of optimization of information systems and paradigm shifts in relation to the socialization of health information and the effective use of data.

Methods & Materials

The declaration of deaths confirmed by COVID-19 in Colombia is daily, but its count is conditioned by the opportunity in the medical certification and effective reporting to the surveillance system (SIVIGILA) and to the death registry (RUAF-ND). Likewise, the follow-up of the suspected deaths of COVID-19 that are registered, are compared with other administrative records and are completed with verbal autopsies. Then, the reclassification of the cases attributed to COVID-19 is obtained from the contrasted analysis of the clinical-epidemiological and laboratory evidence, with the causes of death coded with the IRIS application. The data sources are updated daily and arranged in weekly counts to feed the dashboard. Raw data is revealed without any type of default or underreporting.

The monitoring of excess deaths compares the weekly count of all deaths from any cause for the current year, with the expected thresholds defined between the upper and lower limits of their confidence intervals 95% of a historical average of 5 previous years.

Results

The Business Intelligence tool Power BI was used as a platform to provide information through easy-to-read and interpret graphs, tables and charts, which are updated automatically from the sources integrated in the Integrated Information System of Social Protection SISPRO, eliminating human errors and facilitating interaction with users.

It has 4 pages. The first two correspond to the year 2021 and the last two to the year 2020. All pages present the RUAF-ND count of non-fetal deaths for all causes of death and the count of confirmed and suspected deaths by COVID-19, disaggregated by international week of death, geographic area of occurrence (pages 1&3) or residence (pages 2&4), group age and sex, in order to facilitate the calculation of indicators related to excess mortality by different aggregations.

The initial report is a table that displays the data corresponding to the selected international week interval (ISO8601 standard). This filter allows the user to segment the data from the excess mortality dashboard, indicating Start and End from week 1 to week 52 according to the required query. All the information, except the channel graph, is updated according to the selected range (Graph 1).

Each sheet (downloadable as infographic in format pdf) presents detailed information disaggregated by other variables of interest:

- Chart of the endemic channel by international weeks.
- Heat map according to percentage of Excess mortality in the departments of Colombia.
- Death distribution graph by year, compared with the historical averages of the last 5 years (2015–2019) and percentage of excess mortality by Department and Municipality.
- Non-Fetal Deaths by Site of Death.
- Cumulative cases of COVID-19-related deaths disaggregated by classification as confirmed or suspected COVID-19 deaths.
- Distribution of non-fetal deaths related to COVID-19, disaggregated by group age and sex.
- Summary of the mortality trend of non-fetal and related deaths by COVID-19, identification of the mortality trend by Department and Municipality.

Conclusions

The control dashboard for Excess Mortality from all causes and covid-19, using basic methods of comparison with historical mortality averages, added to the evaluation of suspected deceased cases of Covid-19 for their subsequent reclassification, have become in one of the main management tools for managing and monitoring the evolution of the pandemic, used by national and local authorities. Excess mortality is the simplest way to measure the impact of the burden of disease and any other factor that modifies normal levels of mortality simply by comparing the total death count from all causes to the baseline of expected mortality.

Acknowledgments or Notes

Acknowledgments to the team technical and computer scientist of the cooperation from Data for the Health from Bloomberg-Vital Strategies; to the members of the community from practice from Vital Strategies; Katherine Russi and to the team technical of the Office of Tecnology Information and Communication of the Ministry of Health and Social Protection - Data Management System SGD-SISPRO.
**Introduction**

In Mexico there is a notorious interest in the knowledge and implementation of the new ICD-11 classification. Within the country there is the advantage of having a WHO-FIC CC, who has started with the activities of virtual basic courses aimed at coders and users.

**Methods & Materials**

This task requires coordinated planning, and the training of coded staff, who will play a very important role in this area in the years to come. The Mexican WHO-FIC CC programmed in 2021 a series of trainings where the 32 entities of the country and the institutions that belong to the national health system were summoned. During the second semester of 2021, the basic introductory course on the ICD-11 was carried out, as part of phase 1 of the implementation plan in Mexico. 250 coders were trained who, after taking the course, undertook to develop term coding tasks.

**Objective:**

Disseminate general information and train at a basic level on ICD-11 to coders from the 32 Federal Entities, the Institutions of the National Health System and the National Institute of Statistics.

**Specific objectives:**

1. Use the coding tool to validate your performance with various terms obtained from records in Mexico. Subsequently inform PAHO.
2. Involve the ICT areas in the implementation of the ICD-11 both in mortality and morbidity (health information systems and related areas).
3. Identify the key coders and users within the Entities and Institutions.
4. Comply with the Terms of Reference as WHO-CC in the Region.

**Results**

Participating coders will receive throughout the second half of 2021 (one basis per month) around 100 medical terms to code. It is worth mentioning that the training was carried out for two days and virtually, which may influence the teaching modality. Among the basic doubts they expressed was the use of code ordering and the use of clusters and their length. Following this training, follow-up sessions have been held to clarify doubts. Below are some results (terms in Spanish) that are available until the second delivery of the database:

**Table 1. Medical term “Insuficiencia cardíaca y respiratoria” (heart and respiratory failure) of 18 coders there was a match of 4 in a correct way. However, the differences are minimal and it was the handling of the / and the & or the order.**

<table>
<thead>
<tr>
<th>CODE</th>
<th>TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>Insuficiencia cardíaca y respiratoria</td>
</tr>
</tbody>
</table>

**Table 2. Medical term "Síndrome metabólico" (metabolic syndrome) of 18 coders had 100% coincidence.**

<table>
<thead>
<tr>
<th>CODE</th>
<th>TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>Síndrome metabólico</td>
</tr>
</tbody>
</table>

**Table 3. Medical term “Obstrucción intestinal” Insuficiencia cardíaca y respiratoria (intestinal obstruction) of 18 coders there was a match of 8 in a correct way.**

<table>
<thead>
<tr>
<th>CODE</th>
<th>TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>Obstrucción intestinal</td>
</tr>
</tbody>
</table>

**Table 4. Medical term “Enfermedad pulmonar obstructiva” (Obstructive lung disease) of 17 coders just one of them coded in a different way.**

<table>
<thead>
<tr>
<th>CODE</th>
<th>TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>Enfermedad pulmonar obstructiva</td>
</tr>
</tbody>
</table>

**Conclusions**

Although this is a project in development, the following points stand out: 1) Knowledge at the national level with coders and users is a fundamental piece in the dissemination process. 2) The coding coincidence was around 75%, which is a good point in a first exercise of this type in the country. 3) At the end of the second semester of 2021 there will be more information and evidence on the advantages of the ICD-11.

**Acknowledgements**

It gratefully acknowledges coders institutions of the National Health System in Mexico who are participating in this important activity.
Introduction

Abnormalities of dynamic labour progression in some pregnancy conditions (such as spontaneous onset of labour, regular and rhythmic contractions, cervical dilation, duration of labour; etc.) can complicate labour and delivery at different times of pregnancy.

Methods & Materials

In order to apply the new Italian casemix system (It.DRG), the authors developed the Italian clinical modification of ICD-10 (ICD-10-IM) for the above-mentioned pathological conditions. For this purpose, the authors examined ICD-10, ICD-10-CM, ICD-11 MMS and the literature (e.g. 1, 2, 3).

Results

ICD-10 and ICD-11 MMS classify the abnormalities of dynamic labour progression. However, ICD-10 does not have modifiers for duration of pregnancy and the current ICD-11 MMS does not allow to use Duration of pregnancy extension codes (XT--). The Italian modification of the ICD-10 (at December 2020 beta version - ICD-10-IM beta), taking into account the ICD-10 and the ICD-11 MMS, classifies the abnormalities of the dynamic progression of labour. ICD-10-IM beta considers some conditions for which induction of labour during delivery may be required in different periods of late pregnancy and takes into account that precipitous or long labour and abnormalities of propulsion forces can occur in different moments of pregnancy. For these reasons, ICD-10-IM beta applies extensions regarding labour and delivery during the second and third trimesters of pregnancy and proposes 62 new codes at the highest level of specification. As an example, the poster presents only the classification of precipitate labour and prolonged second stage of labour.

Conclusions

Since ICD-11 MMS does not consider the use of temporality extension codes (XT--) for the above-mentioned abnormalities of dynamic labour progression, it is suggested to introduce in ICD-11 MMS the use of the appropriate temporality extension codes for some categories concerning the dynamic labour progression: JB01 Failed induction of labour; JB02.3 Precipitate labour; JB02.Y Other specified abnormalities of forces of labour; JB03 Long labour.

Acknowledgements

Thanks to Paula Tonel for language revision of the paper.

References

A Trial of Acupuncture Clinical Data Collection Based on WHO-FIC

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Department of Acupuncture and Moxibustion, Faculty of Health Science,
Suzuka University of Medical Science, Japan

Abstract
In order to prepare for ICD-11 to enter into force in 2022, it is necessary to establish a basis for collecting clinical data on traditional medicine. Therefore, we attempted to aggregate the disease names and interventions. Due to the development of the Japanese translation of ICD10, it is necessary to enter into force in 2022, it is necessary to establish a basis for collecting clinical data on traditional medicine. Therefore, we attempted to aggregate the disease names and interventions.

Introduction
Acupuncture and moxibustion are a type of traditional medicine; according to the WHO global report on traditional and complementary medicine 2019, they are used in at least 113 countries worldwide.

Methods & Materials
The design of the study was descriptive epidemiology. The subjects were a total of 2,044 patients (actual number: 165 males and 234 females, average age: 55.6 years) treated by 14 acupuncturists (10 males and 4 females) at the acupuncture center, Suzuka University of Medical Science from January 12 to June 11, 2021. Each acupuncturist classified the patients in his or her charge by Western medicine disease name (ICD-10 code), traditional medicine disorder name and pattern name (ICD-11 code), and intervention (acupuncture- percutaneous, acupuncture- external, moxibustion, cupping, electrical stimulation, and others). As the Japanese translation of ICD-10 has not been finalized, ICD-10 was used for the Western medicine names. One classification for each disease name, and multiple classifications for interventions were allowed, and entered into a tabulation system we are developing.

Results
The top three Western medicine disease names were low back pain (M5456) and female sterility (N979) in 192 patients, and spinal stenosis (M4806) in 112 patients. There were many orthopedic diseases.

The most frequently used puncture was the main one, and it was characterized by a combination of other treatments.

Conclusions
As for the disease names and interventions, the data collection and coding can be done based on the world common rule, and it is thought to be useful for the grasp of the standardized acupuncture clinical data.

Acknowledgements
The most frequently used puncture was the main one, and it was characterized by a combination of other treatments.
Abstract
In ICD-10 there are categories reserved for emergency use under direction from the World Health Organization (WHO) for provisional assignment of new diseases of uncertain aetiology. The WHO designated emergency codes for classification of COVID-19 and NHS Digital released COVID-19 National Clinical Coding Standards and guidance for use by the coding community. This poster outlines the UK implementation of the WHO emergency codes including analysis of compliance with the codes and guidance in England.

UK COVID-19 Codes

<table>
<thead>
<tr>
<th>Codes used in UK</th>
<th>WHO codes</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>U07.1 COVID-19, virus identified</td>
<td>U07.1 COVID-19, virus identified</td>
<td>March 2020</td>
</tr>
<tr>
<td>U07.2 COVID-19, virus not identified</td>
<td>U07.2 COVID-19, virus not identified</td>
<td>March 2020</td>
</tr>
<tr>
<td>U08 Personal History of COVID-19</td>
<td>U07.3 Personal history of COVID-19</td>
<td>Nov 2020</td>
</tr>
<tr>
<td>U09 Post COVID-19 condition</td>
<td>U07.4 Post COVID-19 condition</td>
<td>Nov 2020</td>
</tr>
<tr>
<td>U10 Multisystem inflammatory syndrome associated with COVID-19</td>
<td>U07.5 Multisystem inflammatory syndrome associated with COVID-19</td>
<td>Nov 2020</td>
</tr>
<tr>
<td>U11 Need for immunization against COVID-19</td>
<td>U07.6 Need for immunization against COVID-19</td>
<td>Feb 2021</td>
</tr>
<tr>
<td>U12 COVID-19 vaccines causing adverse effects in therapeutic use</td>
<td>U07.7 COVID-19 vaccines causing adverse effects in therapeutic use</td>
<td>Feb 2021</td>
</tr>
</tbody>
</table>

Table 1: ICD-10 codes and implementation dates of COVID-19 codes used in the UK.

COVID-19 Coding Standards
National Clinical Coding Standards in England are published as Reference Books on a yearly basis with in-year guidance published in the Coding Clinic. These are pdf publications that involve manual update and release. In response to the changing situation with the pandemic and increased coding queries the COVID-19 coding standards were published as a stand-alone web page to provide quicker feedback with a clear and accessible audit trail of changes - COVID-19 National Clinical Coding Standards and Guidance.

Analysis of compliance with COVID-19 pneumonia UK guidance
To assess compliance with the COVID-19 National Clinical Coding Standards and guidance the published monthly provisional Hospital Episode Statistics data for England from April 2020 to March 2021 (extracted in June 2021) was analysed. One of the areas investigated was the coding of COVID-19 pneumonia. The code combination U07.1 + J12.8 + B97.2 supports accurate counting of episodes of laboratory confirmed COVID-19 pneumonia against the COVID-19 National Clinical Coding Standards and is used to generate the appropriate Casemix Healthcare Resource Group (HRG). Analysis of the data for laboratory confirmed COVID-19 pneumonia indicated that 97.6% of COVID-19 pneumonia episodes complied with the issued national standards and guidance. (Other combinations such as U07.1 + J12.8 could not be definitively counted as COVID-19 pneumonia as the virus causing pneumonia had not been specified as coronavirus).

Acknowledgements or Notes

REPORTING COVID-19 ACTIVITY IN AUSTRALIA

Authors: Anne Elswoy, James Katte, Susan Claessen, Connie Cai, Heon Lee
Independent Hospital Pricing Authority, Australia

Abstract
The first case of novel coronavirus (then 2019-nCoV, now known as SARS-CoV-2) was confirmed in Australia on 25 January 2020. In March 2020 the Australian government activated an emergency response plan for COVID-19. WHO ICD-10 emergency use codes were used to support the collection of hospital activity data and the public health system response. As at 14 September 2021, Australia reported 75,324 cases of SARS-CoV-2 infection, and 1,098 deaths.1

Introduction
The Independent Hospital Pricing Authority is responsible for developing classifications used for reporting hospital activity in Australia. In the admitted setting Australia uses a national modification of the World Health Organization’s (WHO’s) International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), that is known as ICD-10-AM. A subset of ICD-10-AM is also used to report presentations to emergency and the current non-admitted classification is clinic based. This poster focuses on emergency use codes implemented to report COVID-19 admitted hospital activity.

Updating the Classifications
The national classifications used in admitted and non-admitted care were updated to capture COVID-19 activity. In the admitted setting all emergency use codes issued by WHO, were implemented, except for one - need for immunisation against COVID-19 – as Australia elected to report all vaccinations in the hospital setting using a different classification.

An additional Australian code was implemented for ‘COVID-19, ruled out’, to capture activity related to the testing for COVID-19, in the absence of a unique code in the Australian intervention classification.

In the non-admitted setting the classifications were also updated to report COVID-19 presentations to emergency and clinics for COVID-19 testing and vaccination.

Admitted Patient Care
In the admitted hospital setting all codes were implemented through national coding advice - Coding Rules. The first COVID-19 codes were implemented through the March 2020 publication, but backdated for implementation from 1 January 2020. COVID-19 emergency use codes must not be sequenced as principal diagnosis (Australian equivalent to main diagnosis) – with the exception of U07.5. This facilitated the capture of both symptomatic and asymptomatic COVID-19 episodes of care and also ensured appropriate grouping in the Australian Refined Diagnosis Related Groups (AR-DRGs). COVID-19 coding advice was also published for obstetrics, transfers for suspected COVID-19 and use of the existing ICD-10-AM codes for exposure to communicable diseases and isolation. COVID-19 frequently asked questions were responded to and a dedicated webpage – ‘How to Classify COVID-19’ was established (www.ihpa.gov.au).

Limited availability of COVID-19 vaccines causing adverse effects in therapeutic use

COVID-19 Data

Disclaimers: Sources and analysis of Australian COVID-19 data may vary depending on the project.

Frequency data from the Australian national morbidity data collection.

Table 2: COVID-19 emergency use codes implemented in Australia

<table>
<thead>
<tr>
<th>COVID-19 codes [1 January 2020 to 31 March 2021]</th>
<th>Total episodes (%) of total episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>U07.1 COVID-19, virus identified</td>
<td>6,200 (26.5%)</td>
</tr>
<tr>
<td>U07.2 COVID-19, virus not identified</td>
<td>351</td>
</tr>
<tr>
<td>Total episodes with COVID-19</td>
<td>6,551 (26.7%)</td>
</tr>
<tr>
<td>U06.0 COVID-19, ruled out</td>
<td>331,421</td>
</tr>
</tbody>
</table>

Table 3: Symptomatic and asymptomatic COVID-19 codes [1 January 2020 to 31 March 2021]

<table>
<thead>
<tr>
<th>Symptomatic COVID-19</th>
<th>Total episodes (%) of total episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>J12.8 Other viral pneumonia</td>
<td>1,386 (26.5%)</td>
</tr>
<tr>
<td>R05 Lough</td>
<td>899 (15.3%)</td>
</tr>
<tr>
<td>R30 Fever unspecified</td>
<td>456 (8.7%)</td>
</tr>
<tr>
<td>R06 Dyspnoea</td>
<td>206 (5.7%)</td>
</tr>
<tr>
<td>Total symptomatic COVID-19</td>
<td>5,266</td>
</tr>
<tr>
<td>Asymptomatic COVID-19</td>
<td>1,285</td>
</tr>
</tbody>
</table>

Technical constraints due to release of emergency use codes outside the ranges originally specified in ICD-10, meant codes were unavailable in the electronic code list for the current edition of ICD-10-AM. Emergency use codes had to be implemented from those ranges still available in ICD-10-AM. ICD-10-AM codes may be mapped to ICD-10 for international reporting purposes.

Next Steps
Emergency use COVID-19 codes (virus identified/not identified) will be used in ICD-10-AM until COVID-19 is confirmed within ICD-11. The code U07.1 will use a fifth character to discern symptomatic from asymptomatic COVID-19.

A new COVID-19 intervention code for testing for SARS-CoV-2 will be used to capture testing activity.

Recent emergency use codes specified in ICD-10 will be included along with national use codes that will allow Australia to collect morbidity data in the national interest.
Online training on medical certification of cause of death according to WHO ICD principles

Authors: Oluwatoyin Awotiwon, Pamela Groenewald, Stefanus Snyman, Darelle van Greunen, and Debbie Bradshaw
2. Centre for Community Technologies, Nelson Mandela University

Abstract
The quality of medical certification of cause of death in South Africa is not ideal. To address the lack of training of medical students and doctors in the ICD principles of identifying underlying cause of death and correctly completing a medical certificate, an online training platform that enables self-learning and assessment linked to Continuing Education Units has been developed (http://www.deathcertification.org/). A beta version was launched in September 2020.

Introduction
South Africa has a well-established Civil Registration and Vital Statistics System (CRVS) with a high proportion of deaths being registered. The quality of the cause of death statistics that arise from the death notification forms completed by medical doctors, however, is poor, making it difficult to obtain a reliable cause of death profile.

To address the lack of training of medical students and doctors in the ICD principles of identifying underlying cause of death and correctly completing the medical certificate.

Methods & Materials
We developed a free online training platform that enables self-learning with an accredited assessment providing Continuing Education Units (CEU). The curriculum prepared by the Education and Implementation Committee of WHO-FIC was used to guide the development of the training materials, which have been used for several face-to-face training initiatives. After reviewing several online training platforms, it was decided to contextualise the training in the South African setting and supplement with locally relevant examples.

We divided the training into four (4) modules and made use of a platform that is compatible with computers, tablets and mobile phones. Furthermore, this platform includes voice-over recordings and downloadable reading materials.

A beta version was launched in September 2020. A total of 492 participants have registered on the online training platform (16 Aug 2021).

Of the 492 participants, 423 (86%) have successfully completed the final assessment, with a minimum score of 80%, and 410 (97%) have received their certificates of completion with CEU points.

Of the 423 participants that have completed the course, 418 (99%) provided feedback via the evaluation survey.

Eighty three percent (83%) of the respondents indicated the course educated them very well on the importance of mortality statistics, 318 (76%) said the course equipped them very well to correctly certify a cause of death, 405 (97%) indicated that the content learned will impact their practice.

Over 80% of the respondents were medical students (41%), medical officers (23%) and interns (19%).

Conclusions
Accurate certification of cause of death aids proper ICD coding and allows for comparability of accurate mortality statistics. The COVID-19 pandemic has highlighted the importance of correct, reliable, and timely mortality statistics for an effective surveillance. Plans are currently underway for an additional module on certification of COVID-19 deaths to the platform.

Acknowledgements
The initiative developed out of a collaborative project with the Centres for Disease Control supported President's Emergency Plan for AIDS Relief with financial support from Bloomberg Philanthropies Data for Health.
Low back pain (LBP) is a common and costly problem throughout the United States. The general diagnosis of lower back pain is universally covered by health insurance in the United States, including Medicare, the national coverage program for seniors (age 65 and over), and some disabled persons. This poster outlines some examples of the specific ICD-11 TM1 disorders and patterns that can interface with the standard ICD-11 western medical coding for lower back pain. Combinations of various TM1 diagnoses with the same Western diagnosis of low back pain may be included to demonstrate the practical application of double coding. These differences can be integral in differentiating the necessity of care by types and length of care for traditional acupuncture interventions of care. These ICD-11 TM1 disorders and patterns can be correlated with necessity, cost and reimbursement under the insurance fee for service model.

**Introduction**

- Back pain is the single leading cause of disability worldwide.(1)
- Back pain accounts for more than 264 million lost workdays in one year—that’s two workdays for every full-time worker in the United States.(2)
- Back pain costs Americans at least $50 billion in health care costs each year. (3)
- Back pain has several identified risk factors. Including occupational posture, depressive moods, obesity, body height and age. The causes of the onset of low back pain remain obscure and diagnosis difficult to make. Back pain is not a disease but a constellation of symptoms. In most cases, the origins remain unknown.(4)
- Back pain with a granular approach of utilizing ICD-11 TM1 may identify specific approaches and outcomes based on the pattern differentiation and TM disorders that may be used to identify severity, need of care, and costs.
- The Traditional Medicine codes, Chapter 26, are a new code set to be included in ICD-11.

**Methods & Materials**

This project will involve data collection of low back pain cases in the US from treatments provided by Licensed Acupuncturists. Low back pain cases will be collected from the chart notes in various clinical and facility settings.

The documentation will implement a double coding system to include 1) The ICD-11 Western Medicine Diagnosis and 2) The TM1 Diagnosis (disorder and pattern) differentiation. These codes represent a union set of harmonized traditional medicine conditions derived from national classifications from China, Korea and Japan.

Data collection in the US will look primarily at coding with comparable western diagnosis, TM disorder, and pattern differentiation. The following coding will be tracked: 1) Western Medical Diagnosis ME84.22 Low Back Pain and 2) Traditional Medicine Diagnosis: Disorder SC53 Lumbago, and Patterns: SF01 Blood Stasis Pattern, SF57 LV Qi Stagnation Pattern, SF97 KD Yang Deficiency Pattern.

**Results & Discussion**

Using the above methodology, the anticipated outcome is further granulation of the diagnostic process. This will aid in the prediction of the type, level, and intensity of care necessary. It may allow the systematic development of patient centered care including point selection and lifestyle advice.

SF01 Blood Stasis Pattern is often acute in nature, marked by stabbing or sharp pain. SF57 LV Qi Stagnation is often aggravated by stress, and SF97 KD Yang Deficiency Pattern is often chronic in nature, aggravated by cold or too much activity. Each of these unique patterns, even with the same Western Diagnosis and Traditional Medicine Disorder, have varying prognosis.

Due to the variation in prognosis, a difference in the number of sessions needed for symptom resolution is anticipated. A correlation of the number of sessions needed based on pattern differentiation is expected. For example, SF01 Blood Stasis Pattern and SF57 LV Qi Stagnation to require fewer sessions for reduction of pain than SF97 KD Yang Deficiency Pattern.

This data may provide insurance payers information that could be used to anticipate the costs based on the more specified TM coding.

**Conclusions**

Acupuncture has been demonstrated to be an effective method of care for low back pain. However, it has not been systematically differentiated into how the management and outcomes may vary based on more detailed descriptions. The goal is to create accounting for acupuncture services by utilizing the ICD-11 TM1 diagnosis codes to differentiate the broad symptom diagnosis of low back pain. This accounting can further help us understand how lower back pain can be managed effectively with acupuncture.

Continued differentiation of the prevalence of patterns and associated prognosis/outcomes may create additional opportunities for further exploration. These could include an eventual cost analysis of different treatment plans based on the TM coding. While this initial analysis will be US-based, international partnership and cooperation will be critical to gaining accurate and meaningful insight to triple coding at large.

**References**


2. The Hidden Impact of Musculoskeletal Disorders on Americans, United States Bone and Joint Initiative, 2018.


Abstract

The Office for National Statistics (ONS) is investigating methods to increase the volume of death certificates that can be automatically assigned ICD-10 codes to reduce the clerical burden of manual mortality coding and facilitate the transition to ICD-11. In our exploratory work we have built a prototype text standardisation process resulting in approximately 20–34% of certificates initially rejected by the Iris software (v5.5) to become fully automatically codable. We have also trained a machine learning classification model (logistic regression) that shows strong potential for assigning ICD-10 codes to death certificates that contain free-text inquest findings and are incompatible with Iris (F1-score 0.914).

Introduction

ONS regularly publishes mortality statistics for deaths registered in England and Wales. ONS uses the Iris software v5.5 to automatically assign ICD-10 codes to death certificates followed by manual coding to complete any residual certificates. The introduction of ICD-11 will require manual coders to maintain quality and throughput while learning the new framework. In preparation for the implementation of ICD-11 in Iris, ONS is assessing methods to increase the volume of automatic coding. Initial investigation has focussed on (1) cleaning and standardising certificate text before automatic coding via Iris, and (2) the use of machine learning to code certificates subject to coroner inquest, which are incompatible with Iris due to free-text coroner findings containing information relating to manner and cause of death.

Methods & Materials

Certificate text standardisation

*Comma insertion*

A Conditional Random Fields (CRF) model was trained to classify words on certificates according to whether or not they should be followed by a comma. Commas (a structural separator character used by Iris) are inserted where they are predicted but missing. The model was trained and tested on all fully-coded certificates from 2019 and 2020 (80/20% split for training/testing) under the assumption that comma placement in these certificates is correct.

*Spellchecking*

A noisy channel model spellchecker was implemented using a bespoke biomedical dictionary. Errors are identified by comparing certificate text to the dictionary, and the noisy channel model assigns a score to candidate correction c for misspelled word m by:

\[ \text{score} = \frac{P(m|c)P(c)}{P(c)} \]

Where \(P(c)\) is the probability of c being present in the text, and \(P(m|c)\) is the probability that c would be misspelled as m. The candidate with the highest score is chosen as the correction.

ICD-10 classifier

A logistic regression classifier was trained to assign manner and cause of death codes to certificates for deaths subject to coroner inquest. The model was trained using all fully-coded certificates from 2018 (split 80/20% for training and testing). Codes were predicted for whole certificate text (including inquest findings) converted to TF-IDF in a multi-label approach, with age and sex as additional features. The model was only allowed to predict codes that occurred at least 100 times in the training set.

Methods & Materials cont.

Certificate text standardisation

*Comma insertion* (Table 1).

<table>
<thead>
<tr>
<th>Method</th>
<th>Precision</th>
<th>Recall</th>
<th>F1</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRF comma-inserter</td>
<td>0.997</td>
<td>0.997</td>
<td>0.997</td>
</tr>
<tr>
<td>Noisy channel spellchecker</td>
<td>0.935</td>
<td>0.931</td>
<td>0.933</td>
</tr>
<tr>
<td>Logistic regression</td>
<td>0.927</td>
<td>0.909</td>
<td>0.914</td>
</tr>
</tbody>
</table>

Table 1: Performance metrics for the developed methods.

Results

In a test sample it correctly inserted 99.7% of missing commas, and 99.7% of all the commas it inserted were correct (Table 1).

Conclusions

The noisy-channel spellchecker was likewise able to correct certificate text with high quality. It corrected 93.1% of all errors in a manually corrected sample corpus, and 93.5% of its supplied candidates were correct (Table 1). Incorrect candidates were a mixture of the spellchecker supplying the wrong candidate and incorrectly identifying valid terms as errors.

The standardisation process resulted in 19.4%–34% of initially-rejected certificates being fully codable by Iris when applied to rejected certificates after an initial coding run (Figure 1). This includes some steps not described here that contribute relatively little to overall performance. Preliminary work suggests the quality of codes on standardised certificates is high but not as good as those on certificates that Iris can code without standardisation.

These methods could result in improvements in automatic coding throughput if the quality of codes can be improved, or could be used to pre-code residual certificates to facilitate speedier manual coding.

ICD-10 classifier

The model was able to assign 90.9% of ICD-10 codes present on final inquest certificates, and 92.7% of all the codes it assigned were correct (when comparing against manually-assigned codes; Table 1).

There was good separation between prediction probabilities underlying correct and incorrect codes (Figure 2). The default threshold to assign a code is 0.5. Here we use 0.7 due to high quality requirements. In the future a hybrid approach utilising machine learning with manual coding may be able to yield a similar overall accuracy and clerical burden for inquest certificates as the equivalent approach for routine certificates when using Iris.
What is the most appropriate way to analyse the WHODAS 2.0 score?

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¹Universidade Federal do Ceará – UFC; ²Universidade Federal de Pernambuco – UFPE; ³Universidade Federal do Rio Grande do Norte - UFRN

Abstract

This study aims to compare different ways of expressing the WHODAS score and give elements for the researcher to understand and choose the most appropriate way to statistically analyse the WHODAS scores. A methodological study with secondary data of one hundred ninety-five women. The WHODAS score was analysed in different ways and associated with sociodemographic characteristics, lifestyle, and health aspects. The Poisson regression was chosen with the final WHODAS score in four variations (continuous, dichotomous, polytomous, and quartiles), and the presence of chronic disease.

Introduction

• Generic tool
• 6 domains (cognition; mobility; self-care; getting along with people; life activities; participation)
• Domain scores ranging from 0 to 100

WHODAS

Scoring process (scientific literature)

• Continuous;
• Y/N
• Categorized (no, mild, moderate, severe, extreme)

What should be the best way to analyze the scores?

Methods & Materials

• Methodological study which discusses strategies for appropriate statistical analysis and clinical use of WHODAS scores;
• Databank from the “Evaluation of the functioning of women at reproductive age in the city of Santa Cruz, RN” project;
• Sample: 195 women from primary healthcare services;
• Ethical approval;
• Scores variation for analysis: continuous, dichotomous (No – variation in the WHODAS score from 0 to 4, and Yes > 4), polytomous (disability categorized ordinally: 1 (0 to 4), 2 (5 to 24), 3 (25 to 49), and 4 (> 49)), and quartiles: quartile 1 (0 to 5.43), quartile 2 (6.52 to 13.04), quartile 3 (14.13 to 25.0), and quartile 4 (26.08 to 64.13);
• Statistical analysis: Poisson regression models;
• Comparison criteria: Confidence Intervals – 95%; Adjusted Prevalence Ratio; area under the Receiver Operating Characteristic (ROC) curve, and Akaike Information Criterion (AIC);

Results

Discussion

• Statistical approach - the comparison criteria showed that the variable in its continuous form would be the best analysis alternative;
• Clinical approach – 1) the categorization of scores can lead to loss of the perspective of more refined analysis of scores; 2) people with different levels of functioning can belong to the same while others with similar levels can be separated by the cutoff point; 3) how to choose the cutoff points?
Introduction

During 2020 the importance of online continuing education and the availability of quality resources came to the fore as people were locked out of usual educational opportunities. Additionally, functioning status information to record the effects of COVID-19, especially the long form, showed the importance of ICF. The ICF Education Portal has continued to provide access to ICF teaching and learning resources, a forum for discussion of ICF coding and classification issues and a register of ICF advisors and educators available to support implementation of ICF.

Portal update

The portal has undergone significant technical updating to improve the search experience during the latter part of 2020 and early 2021. The portal continues to be managed through the Collaborating Centre in South Africa and supported by the Centre for Community Technologies at Nelson Mandela University.

New in 2021

Added in 2020 were the presentations from two International Symposia: ICF Education; one hosted online by the collaborating centre (seeking redesignation) in Brazil and the other hosted by the collaborating centre in Russia. Around 200 people were able to develop their knowledge about the ICF and its use through these events. The resources remain available. A blended programme for ICF educators was promoted on the portal. The programme initiated in the Dutch Collaborating Centre involved 2 days face-to-face workshopping and a further three to four months online learning and coaching and culminated in the presentation of projects to show the ICF applied to a particular information requirement. A total of 35 people completed the programme in 2020. The programme is being adapted to be entirely online.

Abstract

The ICF Education portal has continued to provide access to (1) quality educational resources, (2) the Functioning Forum for discussing ICF coding and classification issues and (3) a register of ICF advisors and educators to support ICF implementation. This poster presents an update on the ICF Education portal.

Use of the platform 2020-2021

| Total users | 19,309 |
| Total page views | 91,175 |
| Verified users | 863 |
| Contributors of resources | 48 |
| ICF advisors/educators | 24 |
| ICF educational resources | 137 |
| Forum posts | 23 |

Users per top 5 countries:

1. United States 4,052 (21.10%)
2. South Africa 3,098 (16.13%)
3. Australia 2,361 (12.29%)
4. Brazil 886 (4.61%)
5. Indonesia 853 (4.44%)

Acknowledgements

The Italian Collaborating Centre through the Fondazione IRCCS Istituto Neurologico Carlo Besta has provided funding for period 2021/2022 and to update the ICF Educators course.

The editorial team:

- conducts an initial fast evaluation of educational resources, news items and applications to the register of ICF advisors/educators
- enables publication on the site
- conducts or arranges subsequent reviews to enable rating of educational resources
- seeks to ensure coverage of the main topic areas and contributions from all regions of the world
- Periodically reviews overall contents and analyses feedback, commentary and use patterns

The educational and coding related questions and issues are forwarded to the EIC and FDRG for improvement of the classification.
### Abstract

We intend here to describe the process of developing and creating a eco-friendly, easy to use and low cost mobile application for cell phones to facilitate the application of WHODAS. The app has been developed since 2020. The first step was the selection of a free and user-friendly platform for developing applications. The following functionalities have been implemented in e-WHODAS: data registration of the evaluating professional and evaluated subject; history of subjects assessed with information retrieval; automatic calculation of weighted scores; presentation of a report with identification data of professional evaluators and evaluated subjects and WHODAS scores shown numerically and in graphs; and sending the report via email. The process has been completed and the Portuguese version of the app will be available for use soon. Next steps will involve making versions in other languages available and validating the app.

### Introduction

**Barriers in the WHODAS application process**

- Printing and storage costs
- Portability
- Application time
- Score calculation process

**How to overcome these barriers?**

Mobile application

### Aims

**To describe the process of developing and creating a eco-friendly, easy to use and low cost mobile application for cell phones to facilitate the application of WHODAS**

### Methods

- Project start: 2020 (WHO authorization);
- Selection of a free and user-friendly platform for developing: Flutter;
- Story board design;
- Interface (front end) creation;
- Back end building;
- Translation into other languages (english)

### Next steps

- Front end completion;
- Back end building;
- Translation into other languages (english)
Update of the Czech translation of the International Classification of Functioning, Disability and Health

Authors: Jakub Hrkal, Petra Sládková, Karla Kotková, Zuzana Rodová, Kateřina Svěcená, Aleš Beran, Jan Hříbal, Miroslav Zvolský

1. Institute of Health Information and Statistics of the Czech Republic, Prague
2. Charles University, First Faculty of Medicine, Department of Rehabilitation Medicine, Prague
3. Charles University, First Faculty of Medicine, Institute for History of Medicine and Foreign Languages, Prague

Abstract
The International Classification of Functioning, Disability and Health (ICF) was first translated into Czech and published in the Czech Republic in 2008. The update of the Czech version of the ICF, performed as part of the National Center for Medical Nomenclatures and Classifications project, was completed in December 2020. The work consisted in the incorporation of the WHO official ICF updates for the years 2011-2018 as well as in the overall revision of the original Czech translation of the classification and text part of the ICF publication. Activities on the Czech translation of ICF will further continue, mainly by translating latest official ICF updates but also by improving existing translations. These activities are part of a range of activities aiming at facilitating the implementation of ICF in the Czech Republic and including the maintenance of existing and development of new tools and educational materials.

Introduction
The International Classification of Functioning, Disability and Health (ICF) was issued by the World Health Organization (WHO) in 2001. In 2007, a derived classification, the ICF: Children & Youth Version (ICF-CY) was published. Since 2011, WHO in collaboration with the WHO Family of International Classification Network has updated ICF by issuing annual lists of changes. The first Czech translation of ICF was published in 2008. It was issued by the Czech National Disability Council (translated by prof. MUDr. J. Pfeiffer, DrSc. and prof. MUDr. O. Švestková, Ph.D.). It was published as a book in paper form by Grada Publishing and is also available in electronic form.

Methods & Materials
The work on the update of the Czech translation of the ICF started in 2016 on behalf of the Ministry of Health. Since 2020, it became a part of the activities of the newly established National Center for Medical Nomenclatures and Classifications (NCMNK). The work was performed in cooperation between the Institute of Health Information and Statistics of the Czech Republic and two institutes of the First Faculty of Medicine of the Charles University in Prague: the Department of Rehabilitation Medicine and the Institute for History of Medicine and Foreign Languages.

The update of the Czech translation of the ICF consisted in:
• the incorporation of official WHO revisions for the years 2011 to 2018
• the overall revision of the original Czech translation of the classification and text part of the ICF publication.

The process of translation involved several steps: first translation into Czech, the revision by health professionals and linguists, and the preparation of the consolidated final version.

Results
The update of the Czech version of the ICF classification was completed in December 2020.

The incorporation of official WHO revisions comprised the translation of all 134 comprehensive revisions (each one consisting of several changes), which included 125 new ICF categories. In addition, a revision of all 1548 ICF categories and respective definitions and notes was performed.

The translation of some key terms is presented in the following table:

<table>
<thead>
<tr>
<th>English</th>
<th>Czech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functioning</td>
<td>Funkční schopnosti</td>
</tr>
<tr>
<td>Disability</td>
<td>Disabilita</td>
</tr>
<tr>
<td>Body functions</td>
<td>Tělesné funkce</td>
</tr>
<tr>
<td>Body structures</td>
<td>Tělesné struktury</td>
</tr>
<tr>
<td>Activities</td>
<td>Aktivity</td>
</tr>
<tr>
<td>Participation</td>
<td>Participace</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>Faktory prostředí</td>
</tr>
<tr>
<td>Personal factors</td>
<td>Osobní faktory</td>
</tr>
</tbody>
</table>

The following documents were produced as part of the revision of the Czech translation of ICF:
• the full ICF publication (in PDF format)
• the electronic version of the classification (in CSV format)
• the list of changes (in XLS format)
• the document explaining the structure of the electronic version of the classification.

Conclusions
Activities on the Czech translation of ICF will further continue, mainly by translating latest official ICF updates but also by improving existing translations. These activities are part of a range of activities aiming at facilitating the implementation of ICF in the Czech Republic and including the maintenance of existing and development of new tools and educational materials.

At present, the following tools and documents in Czech related to ICF are available:
• ICF checklist and 86 ICF coresets
• WHODAS 2.0 questionnaire
• Preparation of WHODAS 2.0 e-learning course.

More information about the activities relating to implementation of ICF in Czech Republic can be found at: www.uzis.cz/mkf

Acknowledgements
The creation of this poster was supported by the National Centre for Medical Nomenclatures and Classifications project, CZ.03.4.74 / 0.0 / 0.0 / 15_025 / 0016089
Restructuration of the rehabilitation process in AACD/Brazil based on the ICF

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Abstract
Implementation of a restructuring on the process based on the ICF codes and qualifiers in a rehabilitation center in Brazil. It is a descriptive study reporting an instrument creation process and the implementation of ICF categories and qualifiers in the patient's initial evaluation in the rehabilitation center.

Introduction
Aware of the benefits of using the International Classification of Functioning, Disability and Health (ICF) to analyze the patient from a biopsychosocial concept and understanding the importance of bringing its use into a practical context, a Brazilian referral rehabilitation center, the Association of Assistance for Children with Disability - AACD implemented a restructuring on the rehabilitation process based on the ICF codes and qualifiers.

Objective
To report the restructuring of the rehabilitation process in a referral center in Sao Paulo and how the use of ICF codes and qualifiers guided and enabled better patient follow-up within this new, multidisciplinary context.

Methods & Materials
It is a descriptive study reporting the instrument creation process and the implementation of ICF categories and qualifiers in multidisciplinary context in the patients initial evaluation in the rehabilitation center.

After evaluation by professionals, the possible objectives and goals for this individual in rehabilitation in the various areas are identified. At this stage, based on the individual's assessment, the categories and qualifiers are determined and indicated what possible goals can be achieved in the rehabilitation program (Chart 1).

The instrument allowed a more standardized and universal language among professionals in the institution and enabled a more global view of the patient’s general condition in the rehabilitation program, as shown in Chart 2.

Conclusions
The ICF and its qualifiers were an important and effective tool in restructuring patient assessment and follow-up at the institution, guiding therapeutic planning for each patient and providing quantitative data to measure and improve de quality of the care provided.

Although the use of ICF categories and qualifiers in the institution has already been implemented, validation of the instrument is necessary, and this is the new stage of this study.

By using the ICF categories and validating their qualifiers, we hope to promote a universal language among therapists involved in the individual’s rehabilitation process, providing a broader view of their current picture and potentialities.

Acknowledgements or Notes
We thank the entire team and patients who made this work possible.


Abstract

The Burnout Syndrome (BS) has become a worldwide phenomenon and the lack of understanding and lack of consensus about the diagnostic criteria by health professionals obscures its recognition. The proposition of a facilitating instrument (questionnaire) can guide and lead health professionals to reasoning. A practical instrument was designed, containing 24 questions that address the complexity of BS through the components of the ICF, the average application time is 15 minutes.

Introduction

In the corporate world, changes such as the globalization of the economy, new technologies, competition in the work environment, the need to produce more and faster, avoiding waste, among many other factors, end up causing physical and emotional wear on workers and this new organizational configuration, requires different degrees of qualification and skills of the worker. As a result, new illnesses arise as a result of these changes. Mental health problems occupy a prominent place. Among them is the Burnout Syndrome. The biomedical model conceptualizes that disability begins where health ends, that is, does the presence of a disability (visible or known) make it different from others, conditioning it as unequal, but unequal to what or to whom? It is to this conceptual paradigm that the ICF makes the difference, avoiding the reductionism of biomedical and social models, by promoting an integrative, multidimensional and universal perspective of functionality and disability, where the individual interacts with the physical, social and attitudinal environment.

Biopsychosocial assessment can bring innovation capable of accelerating the recognition process in the initial phase of BS development, after all, it is based on the multidimensional, multidirectional and dynamic conceptual model known as the "biopsychosocial model" synthesized by the ICF, capable of organizing the information of in order to identify, monitor and evaluate the evolution of the functional health condition of patients with BS from different perspectives and not only from human biology.

Methods & Materials

Three instruments were selected to measure aspects that interact in BS: pain, patient sensitivity and stress perception. The Brief Pain Inventory is the short form (BPI), The Brazilian Portuguese Central Sensitization Inventory (BP-CSI) is a questionnaire that recognizes current health symptoms and investigates whether the patient has been previously diagnosed with any of the diseases included in the central sensitivity syndrome and the year of diagnosis. Finally, the Health Professionals Stress Questionnaire (HPSQ) is an instrument that was applied to assess potential sources of stress in the exercise of professional activity and their perception of stress in each of the evaluated fields.

The Biopsychosocial assessment was structured based on the "check list" model of the ICF, designed to assess functionality with the challenge of being practical. The set of categories selected through the Check List describes the functionality of people addressing the essential and characteristic items to a given health condition in order to describe the typical spectrum of functionality problems related to BS.

Results

The inventory for biopsychosocial assessment comprises 24 questions in total: 08 for Environmental Factors components, 08 for Activities and Participation and 08 for Body Functions and respectively answers that refer to frequency: never, rarely, sometimes, often and always.

The evaluation metrics are still being built by measuring instruments that are still being selected as the questions are not binary. It is estimated that the application time is approximately 15 minutes.

Conclusions

BS has multiple technical conceptions and often antagonistic approaches, however a complete clinical-occupational assessment in this case is essential. In fact, the effects of the syndrome can harm the individual at three levels: individual, professional and organizational. The existence of a facilitating instrument with a biopsychosocial approach can enable a more accurate diagnosis, as it may be able to guide clinical reasoning through a more effective inquiry into the close relationship between bodily functions, activities and participation, and environmental factors as opposed to biomedical approach often partial and segmented.

Notes

The instrument (questionnaire) must still be applied by professionals and/or health specialist on a large scale to assess its applicability and psychometric properties.
In the last year, the SARS-VOC-2 pandemic, popularly known as COVID-19, has directly affected the lives of people around the world, infected or not. Due to its molecular characteristic, this virus can easily bind to different types of cells, which leads to different manifestations. It is already known that SARS-COV-2 in most symptomatic cases mainly affects organs and functions of the respiratory system, and can lead to death in more acute cases. However, other symptoms have been reported by people who have already had the infection, such as Hyposmia, Anosmia and Dysnomia. In addition, different medications are being used to reduce symptoms and prevent worsening cases. Some of these medications are being used without prescription and/or in high dosage administrate, which can lead to worsening or triggering other signs, symptoms and dysfunction, including Hearing Loss and Tinnitus.

Methods & Materials

This is a multicentric and international study with WHODAS 2.0 self-applied version instrument to evaluation of patients with otoneurologic symptoms after COVID19. The instrument is already validated for the Portuguese and Italian languages by OMS, but it has not yet been validated for people with tinnitus. To use the instrument to research in Brazil and Italy, the group have been authorized by WHO. The research have permission of ethics committee of Brazil and have collaboration with research of UNIBA in Italy. In the initial stage, responses from 150 participants were analyzed, with the inclusion criteria being a positive test for COVID-19 and having otoneurologic symptoms (transient or permanent) after the disease. We also obtained the clinical profile through a sociodemographic form for possible correlations with the functional profile. Another instrument used for correlations with WHODAS 2.0 was the Tinnitus Handicap Inventory, but we do not address its results at this time due to the objectivity of the discussion.
ICF subsets in the Insurance Medicine Decision Support (IMDS) to assess workability

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Abstract: The Swedish National Board of Health and Welfare provides the "Insurance Medicine Decision Support" (IMDS), for 116 diagnoses. Subsets of ICF are developed for 114 diagnosis to support the physicians to assess workability. The aim was do describe the most frequently used ICF-categories in IMDS and to develop a generic ICF subsets for diagnosis without IMDS. Eight ICF-categories are used for describing impairment and ten for activity limitations in more than 50 percent of IMDS. The developed generic ICF subsets for IMDS consist of totally 38 ICF-categories, of which 16 ICF-categories for impairment and 22 for activity limitations. These subsets can be used for diagnosis, which do not have any IMDS.

Introduction

The Swedish National Board of Health and Welfare (NBHW) provides evidence-based national guidelines, called “Insurance Medicine Decision Support” (IMDS), for 116 diagnoses in 15 groups of diseases. The IMDS includes recommendations of expected duration of sickness absence, information about symptoms, prognosis, impairment, activity limitation and rehabilitation. These guidelines are used by physicians to assess workability and the duration of sickness absence in electronic medical certificates sent to the Swedish Social Insurance Agency (FSSA). All IMDS have been updated regarding the information about functioning impairment and activity limitation. Subsets of ICF-categories was developed for 114 of the 116 diagnosis during 2016-2019. The ICF-categories are divided in “central” (most common) and “complementary” in the subsets. Moreover, Sweden has a national application for issuing medical certificates electronically which continuously being enhanced. In this electronic application the subsets of ICF-categories are available and can be used by the physicians to support the assessment of workability by describing the patient’s functional impairment and activity limitations in relation to the patient’s work.

The aim of this poster is to describe the most frequently used ICF-categories in the 114 IMDS. Another aim is to develop a generic ICF subsets for other diagnosis without any IMDS.

Methods & Materials

The 114 subsets of ICF categories for each IMDS (diagnosis) both the “central” and the “complementary” are summarized to describe the most frequently used for functional impairments and activity limitations in all IMDS.

To develop a generic ICF subsets for the diagnosis, which do not have any IMDS, are the most frequently used ICF-categories. These are compared and validated to the ICF core sets for Vocational Rehabilitation.

Results

The result show that eight ICF-categories of body functions occur in more than 50 percent of the IMDS/diagnosis. The most frequently used are b130 Energy and drive functions, b280 Sensation of pain and b152 Emotional functions (Chart 1).

Ten ICF-categories of A & P occur in more than 50 percent of the IMDS/diagnosis (Chart 2). The mostly frequently used are d240 Handling stress and other psychological demands, d430 Lifting and carrying objects, d470 Using transportation, d495 Moving around, d415 Maintaining body position, d450 Walking, d410 Changing basic body position, d720 Engaging in complex interpersonal interactions, d220 Undertaking multiple tasks, and d475 Driving.

Table 1: ICF-categories for body functions

<table>
<thead>
<tr>
<th>ICF code</th>
<th>ICF title</th>
<th>Percent of IMDS</th>
<th>In Voc Rehab</th>
<th>Generic subsets for IMDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>b130</td>
<td>Energy and drive functions</td>
<td>100%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b280</td>
<td>Sensation of pain</td>
<td>84%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b152</td>
<td>Emotional functions</td>
<td>76%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b134</td>
<td>Sleep functions</td>
<td>71%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b455</td>
<td>Exercise tolerance functions</td>
<td>71%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b140</td>
<td>Attention functions</td>
<td>54%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b730</td>
<td>Muscle power functions</td>
<td>54%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b164</td>
<td>Higher-level cognitive functions</td>
<td>51%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>b710</td>
<td>Mobility of joints functions</td>
<td>44%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>b126</td>
<td>Temperament and personality functions</td>
<td>30%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>b740</td>
<td>Muscle endurance functions</td>
<td>28%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>b790</td>
<td>Sensations related to muscles and movement functions</td>
<td>25%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>b650</td>
<td>Weight maintenance functions</td>
<td>25%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>b144</td>
<td>Memory functions</td>
<td>23%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>b160</td>
<td>Thought functions</td>
<td>22%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>b265</td>
<td>Touch function</td>
<td>22%</td>
<td>no</td>
<td>comp</td>
</tr>
</tbody>
</table>

Table 2: ICF-categories for A & P

<table>
<thead>
<tr>
<th>ICF code</th>
<th>ICF title</th>
<th>Percent of IMDS</th>
<th>In Voc Rehab</th>
<th>Generic subsets for IMDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>d240</td>
<td>Handling stress and other psychological demands</td>
<td>79%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d310</td>
<td>Making out daily routines</td>
<td>75%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d430</td>
<td>Lifting and carrying objects</td>
<td>68%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d470</td>
<td>Using transportation</td>
<td>63%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d495</td>
<td>Moving around</td>
<td>60%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d160</td>
<td>Focusing attention</td>
<td>55%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d415</td>
<td>Maintaining body position</td>
<td>54%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d450</td>
<td>Walking</td>
<td>54%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d410</td>
<td>Changing basic body position</td>
<td>53%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d720</td>
<td>Engaging in complex interpersonal interactions</td>
<td>53%</td>
<td>yes</td>
<td>central</td>
</tr>
<tr>
<td>d220</td>
<td>Undertaking multiple tasks</td>
<td>46%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d475</td>
<td>Driving</td>
<td>43%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d440</td>
<td>Using hand for fine movements</td>
<td>41%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d177</td>
<td>Making decisions</td>
<td>34%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d445</td>
<td>Using hand and arm</td>
<td>34%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d155</td>
<td>Acquiring skills</td>
<td>31%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d740</td>
<td>Engaging in formal relationships</td>
<td>31%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d350</td>
<td>Having a conversation</td>
<td>30%</td>
<td>yes</td>
<td>comp</td>
</tr>
<tr>
<td>d640</td>
<td>Doing housework</td>
<td>30%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>d330</td>
<td>Speaking</td>
<td>27%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>d630</td>
<td>Preparing meals</td>
<td>26%</td>
<td>no</td>
<td>comp</td>
</tr>
<tr>
<td>d570</td>
<td>Looking after own health</td>
<td>24%</td>
<td>yes</td>
<td>comp</td>
</tr>
</tbody>
</table>

Chart 1: Most frequently used ICF-codes to describe functional impairment

Chart 2: Most frequently used ICF-codes to describe activity limitations

Generic subsets for IMDS

The developed generic ICF subsets use the ICF-categories occurring in more than 50 percent of the IMDS as “central”. The ICF-categories occurring in more than 20 percent of the IMDS are “complementary” (comp).

The generic ICF subsets for IMDS consist of 38 ICF-categories. 16 ICF-categories for body functions, eight are “central” and eight are “complementary” (Table 1). For describing activity limitations are 22 ICF-categories included, 10 as “central” and 12 as “complementary” (Table 2).

Conclusions

Several ICF categories occur frequently in the IMDS. There are more used ICF-categories for A & P then for body functions. The ICF-categories in the generic subsets for IMDS have high conformance with the ICF core sets for Vocational Rehabilitation. The developed ICF subsets for IMDS can be used for diagnosis, which do not have any specific IMDS.

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ICF-based rehabilitation programs: a clinical experience turning use case resource.

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Abstract

The tertiary care neurorehabilitation unit of the Medea Institute in the Italian region of Veneto introduced in 2014 a computerized version of the individual rehabilitation project and program (IRPP) based on the biopsychosocial model and associating at each functional description the appropriate ICF code and qualifier. In almost 7 years of implementation over 2000 IRPP were filled up. The data are now stored in a single database accessible for evaluation and research. The database contains the full list of ICF codes and qualifiers attached to each functioning profile and associated to the patient’s ICD diagnosis, as well as a free textual description of the ICF category applied to the specific subject. The study of this database just now stated could represent a powerful example of real-world clinical implementation of ICF, and inform as such more widespread application of ICF in the field.

Methods & Materials

The tertiary care unit of the IRCCS Medea Scientific Institute in the Veneto Region is a neurorehabilitation hospital unit within the Italian NHS with a capacity of 65 hospital beds for children (35) and adults (30). Starting in 2014 and following an extensive ICF training among the involved professionals, the Institute introduced a novel approach in the building of the personalized rehabilitation project and program in which ICF categories and qualifiers were used to describe the functioning profile of the patients. The whole ICF (2007 ICF-CY version) was embedded in the platform, allowing the choice of any of ICF category whenever appropriate. A&P were qualified with 3 qualifiers (performance, performance without assistance, capacity). Each project is realized through programs that are object to end-check (pre-post treatment comparison) and dismissal indications. The development of the ICF project on a web based dedicated platform allowed the storage and retrieval of all filled forms and data. These now can be mined for information on several key questions related to the clinical ICF use.

Introduction

The World Health Organization’s Family of International Classifications (WHO-FIC or Family) is a set of products that can be used to support the production of health information nationally and internationally to inform health system financing and resource allocation, evidence-based practice, monitoring of health outcomes and access to services, and the assessment of the health of individuals and populations. The use in the real world is an essential step that can feedback information on utility, usability, efficiency of the WHO-FIC products as well as providing indications for their update and revision.

ICF is now more that 20 years old, but still the experiences of real world use in the clinical practice are sparse. We here describe a multiannual experience of systematic clinical use of ICF.

Results

Records from 2046 Projects, 2012 Programs, 855 Checks and 1114 indications at dismissal are available for analysis for a total of 6027 Functioning profiles.

Features potentially exploitable for analysis are:
- Each ICF category is accompanied by an explicative box of free text where a description of the item in plain language is provided;
- Each profile is linked to the patient’s ICD codes, thus providing a case of WHO FIC joint use;
- Most profiles show the scores of specific pathology or function specific assement tools (e.g. FIM, WAIS/WISC, Ashworth, GMFM, MRC, …), thus allowing a comparison with the attached ICF categories & qualifiers;
- Frequency of use of selected ICF categories can be evaluated;
- Sensitivity to change of the qualifiers can be assessed;
- The free text associated to categories could be used for experimenting natural language processing techniques.

Acknowledgements

Thanks are extended to all the professionals who filled up the records and to the patients who are the final recipient of our work.

Conclusions

The extensive records file available for analysis represents a formidable resource for, on one side, understanding the process of rehabilitation basing on the biopsychosocial model, and from the other side, to investigate internal connections among the ICF components, and external connections to assessment tools.
Reflections on the WHODAS layout

The World Health Organization Disability Assessment Schedule 2 (WHODAS 2.0): remarks on the need to revise the WHODAS

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Abstract
Functioning and disability are concepts in increasing use in clinical settings and in public health. From the public health perspective, the use of functioning as a third health indicator could show more than the frequency of a disease and its death rates, offering information on how the population performs its activities and participation. Clinically, the functioning assessment can provide information for patient-centered health care and specific clinical interventions according to their functioning profile. WHODAS 2.0 is a generic tool to assess health and functioning according to the ICF functioning model. It is an alternative to assess functioning in a less time-consuming way, whereas the duration of the application is one of the main ICF critiques. This paper aims to present some of WHODAS 2.0 inconsistencies and weaknesses as well as strategies to cope with them. In this paper, we present some weaknesses related to the WHODAS layout; wording and scoring process. Some suggestions for strategies to correct these weaknesses are presented, as well.

Comments on the WHODAS wording

#1 questions (D6.4; D6.5; D6.6 starting with “How much...”), presenting inconsistency with the answers that are “None; Mild; Moderate; Severe; Extreme or cannot do”;
#2 The questions D5.6; D5.7 and D5.8 cannot be found at the “Recode of polytomous items” section;
#2 the questions D5.9 to D5.11 are in the SPSS syntax and they do not have the WHODAS pattern of answers;
#3 “Not Applicable – N/A” variables are treated in the SPSS syntax as “missing data”

Sugestions

#1 printing color material for data collection as recommended by the manual can make the process more expensive and limit its execution in less financially privileged countries or researchers;
#2 the use of flashcards for visual clues may be impractical for people with visual impairment or blindness or even illiterate;
#1 the use of the standard print in bold; italic; caps lock; or in grey color
#2 the use of cards printed in Braille or the interviewer reads the cards to the interviewee;
#1 reformulation of the wording of the questions
#1 the syntax correction;
#2 an excel file for automatic calculation was made available in the paper

Conclusions

Our poster provides remarks on weaknesses or inconsistencies of the WHODAS 2.0 that became evident in the translation, cross-cultural adaptation and in the daily use of the tool in the research and clinical settings in Brazil. The remarks are related to the WHODAS layout, wording and scoring process. Strategies such as layout updating, sentence reformulation, and scoring process suitability can work around these problems. Although the remarks do not question the overall advantages in the usage of WHODAS, they should be taken into account when revising the WHODAS and its Manual as well as its syntax.
**Abstract**

In Mexico, efforts are being made to consolidate the disability certificate at the national level. It is currently mandatory within the General Health Law, which must be based on the ICF. This work shows the selection of domains for this activity.

**Introduction**

In Mexico, is necessary to have a unique process for the certification of disability under the integrative vision of the biopsychosocial model, for which a Reform of the General Health Law of July 2018 was carried out, for this purpose. Based on the work carried out in Mexico for this task, an instrument has been developed based on the ICF. During last year a work group focused to choose domains of each component to create this instrument. The core is identify impairment in body functions and structures and WHODAS 2.0 (36), addition to this environmental and personal factors.

**Methods & Materials**

The instrument has been developed based on the selection of domains for each component. They were determined taking the experience and the core sets, mainly the generic set and the document How to use ICF. For the activity and participation components, the Mexican working group opted for the use of WHODAS 2.0 in its 36-question version. Regarding the component of environmental factors, part of the minimal set of environmental factors were selected. After a technical discussion, it was determined to eliminate some domains to prioritize the elements from which they would be evaluated (for example, b860 Functions of nails, were not necessary after the revision).

For activity and participation, it was agreed to take the WHODAS 2.0 in its 36-question version, applied by the interviewer and we took elements from the manual provided by WHO. Regarding environmental factors, a selection of specific domains was made in order to have the complete picture of the interaction of the components. All of the above is based on a section of sociodemographic data and with the information obtained, the data for personal factors will be established. It is important recognize that the choose of all domains in each component were from involved in the working group where are participating different institutions from the Government and civil society organizations related with persons with disability.

Nowadays, it is timely and necessary to carry out a series of pilot tests within Institutions or Centers where applicants for the certificate of disability currently attend to carry out tests of the instrument, from the arrival of the applicant to the final determination. It is important to mention that part of the methodology does not intend to modify the processes that are currently being carried out on a regular basis within the center.

To begin testing the instrument, these field tests are scheduled to take place from September to November 2021 at two sites within Mexico (North and Central).

The role of ICF training will be critical. On the one hand, move towards the biopsychosocial model from an integrative approach for health professionals who are currently developing functioning and disability asses.

With this, there will be a single disability certificate and an approved procedure throughout the national territory; Likewise, this information will be concentrated in the National Health Information System of the Ministry of Health and, in turn, will be the basis for having accurate data for care and better decision-making in public health.

**Conclusion**

The working group that has been dedicated to this activity is aware that the application of this instrument in real settings and within the national context represents a challenge; however, it is certain that it is necessary to take this first step towards a modern vision of functioning and disability.

**Acknowledgement**

The Ministry of Health wish to acknowledge the work of the institutions (civil society and government) for their collaboration to advance these important tasks in Mexico.
ICF Education in Japanese Training Institutions for Allied Health Professionals

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1) National Rehabilitation Center for Persons with Disabilities, Tokozawa, Japan
2) Ibaraki Prefectural University of Health Science, Ami, Japan

Abstract ICF codes were expected to clarify the relationship between functioning and environmental factors, but they are still unknown among healthcare professionals. In this study, a survey of ICF-related lectures was conducted in training institutions for allied health professionals. As a result, we found that almost all of the responding courses taught ICF, but education on ICF coding was not sufficient. In addition, about 80% of the courses were using ICF in clinical practices.

Introduction
ICF has been widely recognized in the health service space. The inclusion of functioning into ICD11 is also expected to accelerate the global spread of ICF. Although ICF codes have the potential to statistically analyze functioning and to clarify the relationship between functioning and environmental factors, ICF codes are not yet well-known among healthcare professionals.

The purpose of this study is to clarify the current status of ICF education in Japanese training institutions for allied health professionals, as a first step toward the dissemination of ICF codes and their use in outcome measurement of environmental factors such as assistive products.

Methods & Materials
A survey of ICF-related lectures and practical training was conducted in colleges and departments training allied health professionals in Japan. The questionnaires were sent to the colleges and the departments with four-year education courses that train allied health professionals throughout Japan. The courses and the number of courses to which the questionnaires were sent are shown in Chart 1.

Questions were asked about the education system at each institution, ICF education programs, ICF-related content in lectures and the use of ICF in the clinical practices. Each question related to the content of the lectures is as follows,

1) Do you teach the interactions between the components of ICF?
2) Do you teach the meaning of the first alphabetic letters of ICF code?
3) Do you teach the ICF hierarchical code numbers; level 1 to 3?
4) Do you teach the existence of ICF qualifiers?
5) Do you teach ICF coding method?
6) Do you teach existence of ICF-CY?
7) Do you teach the existence of ICF core set according to diseases?
8) Do you teach how to use ICF for the assessment of the patients in clinical practices?

Only applicable responses were included in the analysis.

Results
The number of responses was 148 (Chart 1), with a response rate of 29.8%. Of the 148 total responses, 107 offered at least one lecture, 98% of these lectures were held as compulsory courses. In about 70% of the departments, the number of full-time teachers involved in ICF education was 6 or less, and the number of hours of relevant lectures was 20 or less.

The results regarding the contents of the lectures and clinical training are shown in Chart 2.

In the open-ended responses regarding the perception of challenges to ICF education, the following points were mainly pointed out:
1) Limitation of available teaching time.
2) Difficulties in coding due to the complexity of the code system.
3) Differences in the level of understanding and awareness of ICF among the facilities receiving training.

The survey on ICF education at training institutions revealed that ICF is incorporated into compulsory lectures and clinical exercises in the majority of departments.

The aggregate results of the survey indicated that ICF-related lectures/practices are included in the curriculum as compulsory subjects in the majority of training schools. On the other hand, it was suggested that the contents of the lectures were focused on promoting understanding of the conceptual model of the ICF. Details of code content and coding of specific cases are often limited due to the limited class time. However, the use of the ICF concept in clinical practice is taught in approximately 80% of departments, suggesting that the necessity and increasing importance of ICF is well recognized.

A comparison among the professional courses showed that the physiotherapist course and occupational therapist course taught ICF content in greater depth than the nursing course. For the speech therapist and audiologist course, orthoptist course and prosthetist and orthotist course, the number of data is small and further data collection is needed.

Conclusions
As a result of the survey on ICF education in training institutions for allied health professionals in Japan, almost all of the responding courses indicated that ICF was taught, but education on ICF coding was not sufficient. However, about 80% of the responding courses were using ICF in clinical practices. This suggests that many allied health professionals are aware of the use of ICF in clinical services. Based on the results, we are planning to develop guidelines for fitting assistive products using ICF.

Acknowledgements or Notes
This work was supported by MHLW Program Grant Number JPMH21GC003 and JPMH19GC002.

<table>
<thead>
<tr>
<th>Educational contents</th>
<th>Ns. (%)</th>
<th>PT (%)</th>
<th>OT (%)</th>
<th>ST (%)</th>
<th>OP (%)</th>
<th>FO (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Component interactions</td>
<td>97.5</td>
<td>100.0</td>
<td>97.3</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>98.6</td>
</tr>
<tr>
<td>2) Alphabet letters</td>
<td>38.5</td>
<td>77.4</td>
<td>80.6</td>
<td>100.0</td>
<td>0.0</td>
<td>100.0</td>
<td>68.1</td>
</tr>
<tr>
<td>3) Code numbers</td>
<td>25.6</td>
<td>75.5</td>
<td>75.0</td>
<td>83.3</td>
<td>0.0</td>
<td>100.0</td>
<td>61.8</td>
</tr>
<tr>
<td>4) Qualifiers</td>
<td>30.8</td>
<td>75.5</td>
<td>67.6</td>
<td>66.7</td>
<td>33.3</td>
<td>100.0</td>
<td>61.4</td>
</tr>
<tr>
<td>5) Coding method</td>
<td>28.2</td>
<td>56.6</td>
<td>69.4</td>
<td>33.3</td>
<td>33.3</td>
<td>0.0</td>
<td>51.4</td>
</tr>
<tr>
<td>6) ICF-CY</td>
<td>29.7</td>
<td>52.8</td>
<td>62.9</td>
<td>83.3</td>
<td>33.3</td>
<td>100.0</td>
<td>51.1</td>
</tr>
<tr>
<td>7) Core sets</td>
<td>30.8</td>
<td>71.2</td>
<td>44.4</td>
<td>66.7</td>
<td>33.3</td>
<td>0.0</td>
<td>51.7</td>
</tr>
<tr>
<td>8) Use in clinical practices</td>
<td>46.3</td>
<td>96.2</td>
<td>97.1</td>
<td>100.0</td>
<td>0.0</td>
<td>100.0</td>
<td>80.6</td>
</tr>
</tbody>
</table>

Chart 1: Courses and number of courses to which the survey was sent, and the number of courses that responded.

Chart 2: Results of the survey on ICF education in Japanese training institutions for allied health professionals.
Collection and ICF-based categorization of clinical terms used in Japanese rehabilitation practice

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Abstract
In spite of international efforts to implement ICF in clinics, there is still difficulty in applying it to clinical practice. The large number of categories has been one of the major reasons it is difficult to implement, hindering the use of ICF. To address this issue, we developed, in this study, a list of clinical terms and relevant ICF codes and a prototype of a word-search system to find the appropriate ICF category based on the clinical terms.

Introduction
Since the launch of the International Classification of Functioning, Disability and Health (ICF) in 2001, its use in clinical practice has been promoted. However, the implementation of the classification still has a way to go. One of the reasons that hinder the implementation of ICF in the clinical practice is the large number of ICF categories, which makes it difficult for clinicians to find the appropriate category that describes patients’ functioning problems. Therefore, in this study, we aimed to develop a word-search system to find the appropriate ICF category. Firstly, we conducted a study to collect clinical terms used in Japanese rehabilitation programs, described the patients’ functioning and then developed the prototype of the word search application.

Methods
A group of 186 clinicians, consisting of physiatrists, physical therapists, occupational therapists and speech therapists participated to this study. For the collection of words and phrases, each research participant was assigned 10 to 15 categories from the second level categories of the ICF. Participants were asked to describe the words and phrases used in clinical practice related to the assigned categories. The research team then checked the duplicates and apparent discrepancies between the categories. Finally, a review group of ten rehabilitation experts, with experience in ICF research, was formed to verify the words and phrases, and the consistency across the categories.

Ahlstrom or rehabilitation physicians were assigned to 10 teams, each of which were responsible for 10 to 15 categories of ICF.
Each participant was asked to list the words related to each category.

Table 1: An example of the list of words

<table>
<thead>
<tr>
<th>ICF Conceptual functions</th>
<th>ICF Participate functions</th>
<th>ICF Mental functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conciousness disorder</td>
<td>Disorientation</td>
<td>Intellectual disability</td>
</tr>
<tr>
<td>Delirium</td>
<td>Loss of orientation</td>
<td>Cognitive disorder</td>
</tr>
<tr>
<td>Post-annual</td>
<td>Cognitive disorientation</td>
<td>Developmental disability</td>
</tr>
<tr>
<td>Aroused disorder</td>
<td>Mental status</td>
<td></td>
</tr>
<tr>
<td>Impaired arousal</td>
<td>Language apraxia</td>
<td></td>
</tr>
<tr>
<td>Ambulation</td>
<td>Aprosodric disfunction</td>
<td></td>
</tr>
<tr>
<td>Anomia</td>
<td>Hearing disorientation</td>
<td></td>
</tr>
<tr>
<td>Coma</td>
<td>Data recognition</td>
<td></td>
</tr>
<tr>
<td>Recovery</td>
<td>True perceptions</td>
<td></td>
</tr>
<tr>
<td>Loss consciousness</td>
<td>Delayed intellectual development</td>
<td></td>
</tr>
<tr>
<td>Vegetative state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired alertness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the review process of the word list, the inclusion criteria for the terms was discussed. The collected terms included various types of phrases. The terms which were repeatedly discussed were the names of assessment scales (e.g., “Glasgow Coma Scale” for b110 Consciousness functions) and terms with multiple descriptive modifiers (e.g., “psychosocial functioning in personality disorders”). Since the main purpose of this study was to create a system to search for codes to describe patients’ problems, the review group decided to keep it simple. The assessment scales and terms with descriptive modifiers were subsequently excluded from the search terms.

After the development of the word lists, a prototype of the search application was created. It was developed as a web-based search application that could search for ICF categories using keywords in Japanese.

Discussion
The ICF is expected to play the role of the common language when describing clinical problems in patient’s functioning, and to be used for statistics of functional problems in a variety of settings, including medicine, welfare, and education. The development of a word search system will help clinicians to use the ICF in their daily practices. The prototype of the word list and the search system developed in this study will be further enhanced with input from the larger group of clinicians and researchers. Further, this attempt may contribute to the development of the ICF foundation, led by WHO, from a practical point of view.

In our project the ICF is supposed to be used in two ways; one is to compare the functioning across different individuals or populations with a common category set and another is to describe the patients’ comprehensive functioning profiles. For the former objective, the tools such as the WHODAS2.0[1] and the ICF core sets[2], would be used. Development of word-search system should contribute to the latter objective by making it easy to find the appropriate ICF category that describes the functioning profiles of the patients. The establishment of the methodology to describe the patients’ comprehensive functioning profiles should facilitate further implementation of the ICF in Japanese rehabilitation clinical practice.

Conclusions
The project to develop a word search system for ICF was conducted in Japan to promote the use of ICF by the clinicians it was introduced to. Further refinement and clinical implementation of the system is being planned.

References
Harmonizing ICF within the Family of International Classification: next steps

Authors: V. Della Mea, A. Martinuzzi, A. H. Almborg, C. van Gool, S. Tu
Italian, Nordic, Netherlands, and Stanford WHO FIC Collaborating Centers

Abstract In the last months, WHO did a significant effort towards the harmonization of the 3 reference classifications, which resulted in hosting all of them inside the same user-facing WHO-FIC platform already known for ICD-11, as well as in iCat for their maintenance. From the ICF side, this meant a more formal modeling of its components, adaptation of contents, and exploitation of the previously done itemization work to generate index terms. The present poster illustrates the next steps to be carried out.

Introduction

The joint use of the WHO FIC elements would greatly benefit from the definition of a common foundation where all the concepts included in the various classifications would be aligned and provided with univocal labels and identifiers. Such alignment would not only foster the implementation of the WHO-FIC products, especially in an electronic environment, but also ease their maintenance and future further development.

In 2019, general agreement was reached on the need to work from two complementary approaches:

1) Drafting a common content model where the various elements from the three reference classifications are represented and fully accounted for;
2) Reconciling the content elements of the three reference classifications wherever they diverge in any of the signifying labels.

A common content model has been developed, and work is ongoing to implement the second task. In the last months, WHO expended significant effort towards the harmonization of the 3 classifications, which resulted in hosting all of them inside the same user-facing platform already known for ICD-11, as well as in iCat for their maintenance.

From the ICF side, this meant a more formal modeling of its components, adaptation of contents, and exploitation of the previously done itemization work to generate index terms.

Next steps

The switch from the traditional ICF management to the ICD platform represents a great opportunity for ICF, yet also some challenges.

To ensure that the move to the platform is correct, quality control should be applied, by checking the ICF version hosted in the platform against the traditional one, and also by updating the platform-hosted ICF with the very last updates of ICF since 2018.

Some tests have already been done for this (e.g., automated cross-check of the ICF exported from the WHO-FIC platform against the last available ICF ClaML), however some issues remain to be resolved by experts:

a) Check all the residuals and correct inconsistencies.

b) Check the allocation of each term to the appropriate attribute.

c) Resolve the repetition of inclusion/child category names towards a unique index term list (although this can be partly automated with proper exports).

d) Address the issue of impairments of body functions indexed as categories.

e) The ICF qualifiers – need information about which should be use in conjunction with which component.

Furthermore, some steps are needed to ensure that the contents fit within the overall harmonised family of classifications, avoiding meaning conflicts, and possibly connecting concepts that, while belonging to different classifications, might be considered equivalent:

a) comparison of the main hierarchy of ICF Body Structures against the Anatomic Detail expressed in the ICD-11 Extension Codes: identification of similarities and gaps, and possibly filling gaps in the Extension Codes to create a unified view of human body structures.

b) identification of relationships between ICF qualified categories and ICD-11 signs and symptoms.

c) Add the linkage between the ICF-based Targets in ICHI and ICF-categories in the WHO-FIC Platform.

Conclusions

During the latest months substantial steps forward have been realised towards the actualisation of a common framework facilitating the joint use of the three WHO reference classifications. In particular, the alignment of the informatics platform supporting all the entities, but also projecting the various linearizations following the logic underlying the content models, holds the promise to greatly ease the practical implementation of the WHO FIC in the various aspects of health information management.
**Abstract**

In Japan, as social indicators for the persons with obstacles, the Convention on the Rights of Persons with Disabilities (CRPD), the fourth-plan, the ICF generic set(7 items), the UN Washington Group’s shortened version (UNWG-SS, 6items), WHO-DAS 2.0 (12 items), and improved version of the Minimum European Health Module (MEHM) for Japanese (iMEHM 4 items), have been proposed. However, the interrelationship between these social indicators is not clear. The purpose of this study is to organize ICF Generic Set (7 items), UNWG-SS (6 items), WHO-DAS2.0 (12 items), and iMEHM (4 items) from the viewpoint of ICF, and to consider items required for Japan’s social indicators.

**Introduction**

In Japan, the Convention on the Rights of Persons with Disabilities (CRPD) became effective (2014), and the fourth-plan (2018-2022) is currently underway based on the Basic Act for Persons with Disabilities. Concrete indicators are being proposed as visualization of the situation of the target items to be grasped in the plan and dealing with CRPD Article 31 (the preparation for statistical data) is also progressing. On the other hand, as social indicators for the persons with obstacles, the ICF Generic Set(7 items), the UN Washington Group’s shortened version (UNWG-SS, 6items), WHO-DAS 2.0 (12 items), and improved version of the Minimum European Health Module (MEHM) for Japanese applied in the Research on the enhancement of disability statistics in Japan (iMEHM 4 items), etc. have been proposed. The interrelationship between these social indicators is not clear. The purpose of this study is to organize CRPD, the fourth-plan, ICF Generic Set (7 items), UNWG-SS (6 items), WHO-DAS2.0 (12 items), and iMEHM (4 items) from the viewpoint of ICF, and to consider items required for Japan’s social indicators.

**Methods & Materials**

The questions of the Washington Group Short Set on Functioning (WG-SS; 6 items) are: 1. Do you have difficulty seeing, even if wearing glasses?, 2. Do you have difficulty hearing, even if using a hearing aid?, 3. Do you have difficulty walking or climbing steps?, 4. Do you have difficulty remembering or concentrating?, 5. Do you have difficulty (with self-care such as) washing all over or dressing?, 6. Using your usual (customary) language, do you have difficulty communicating, for example, understanding or being understood?

The questions of the ICF generic set (7 items) are: b130 Energy and drive functions, b152 Emotional functions b280 Sensation of pain, d230 Carrying out daily routine, d450 Walking, d455 Moving around, d850 Remunerative employment.

The questions of the WHO-DAS 2.0 (12 items) are:

1. Standing for long periods such as 30 minutes?,
2. Taking care of your household responsibilities?,
3. Learning a new task, for example, learning how to get to a new place?,
4. How much of a problem did you have joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?,
5. How much have you been emotionally affected by your health problems?,
6. Concentrating on doing something for ten minutes?,
7. Walking a long distance such as half a mile?,
8. Washing your whole body?
9. Getting dressed?,
10. Dealing with people you do not know?,
11. Maintaining a friendship?,
12. Your day-to-day work?

The questions of improved version of the Minimum European Health Module (MEHM) for Japanese applied in the Research on the enhancement of disability statistics in Japan (iMEHM 4 items) are:

1. What is your general state of health?,
2. Do you have any chronic physical or mental health problem, illness or disability?,
3. Are you hampered in your daily activities by this physical or mental health problems, chronic illness or disability?,
4. Would you say that you are healthy?

To visualize indicators by radar chart with mapping to the axis of ICF 0-level classification (classification level). From the clarified characteristics, we examine the points for social indicators.

**Results**

The radar charts of the 6 indicators were as follows:

**Conclusions**

When constructing social indicators, the objective we use them, and the unit of data collection (city, individual) are both important. If its purpose is to explore the degree of relevance of the items of environmental improvement to the behavior and life of persons with disabilities, Environmental (E) with individual unit or municipal unit and Activities and Participation (D) factors with individual unit are required. (This presentation is the opinion of the author, not of the Ministry of Health, Labor and Welfare, Japan).
WHO-FIC 2021 virtual

WHO-FIC Poster Booklet

Chapter 5 – International Classification of Health Interventions - ICHI
Abstract: Evidence-based data is provided to contribute to the implementation of the ICHI and ICD-11 through the allergy community supporting the dissemination of updates of allergy health interventions in the ICHI and the construction of the maintenance & tooling embedded classification tool.

Introduction

- Health Interventions are key to quality care of patients, but may not be all available or reimbursed.
- International Classification of Health Interventions (ICHI)
- common tool for reporting and analysing health interventions for statistical purposes
- proper classification and coding of allergy health interventions (AHI)
- Aim: In order to support a quality allergy management worldwide we proposed a global survey on AHI availability, frequency of use, costs and classifications in use in different countries.

Methods & Materials

- Web-based survey, 16 questions, in English
- Period: 8 weeks (March to May 2021)
- Anonymous and voluntary
- Dissemination: e-mail and by social media

Results

TOTAL RESPONSES: 302
79 countries, all WHO regions

Main audience:
- allergists with long-time professional experience working in private and/or public settings
- 98% performing/prescribing in vivo and in vitro tests (AHI)
- In vivo tests performed by participants in daily basis (e.g.; skin tests) are:
  - Completely or partially covered by the national security: 68% cases
  - 69% mentioned a national classification/coding used to billing AHI
    - 54% use the ICD-9 or -10
    - 27% use a specific national classification
  - 54% think that the classification/coding in use is not sufficient to cover AHI
    - mostly due to the under representation of the AHI.

Conclusions

- Current status: AHI are still not appropriately covered by the classification/coding tools in use.
- Most of countries utilise the ICD as the national classification/coding system for billing the AHI, but it was considered insufficient to cover the AHI performed in the daily basis.
- ICHI is still not known by the majority of the surveyed allergy community. However, due to the implementations of the AHI in ICHI and the current alignment of ICHI and ICD-11, there is a good perspective to have AHI in use in the forthcoming years.
- The engagement process supported the dissemination of updates of allergy health interventions in the ICHI and the construction of the maintenance & tooling embedded classification tool.
- The Montpellier WHO CC intends to run this same survey after the implementation of the ICD-11 during the surveillance step.
Improving the ICHI axis structure through Comparative Mapping of ICHI and Korean Dental(Oral) Health Interventions

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1 Korea Academy of Dental Science; 2 Statistics Korea, South Korea

Abstract

The International Classification of Health Interventions (ICHI), which presents the systematic classification for health interventions, is built around axes that can effectively classify health-related interventions practiced in clinical and real-life. For OMF as a non-ICHIClassification of Health Interventions (KCHI) groups, verify the efficiency of classifying and the validity of the newly listed items.

Introduction

The International Classification of Health Interventions (ICHI), which presents a systematic classification for health interventions, is built around axes that can effectively classify health-related interventions implemented in clinical and real-life. For OMF as a non-ICHIClassification of Health Interventions (KCHI) groups, verify the efficiency of classifying and the validity of the newly listed items.

Results

1) 468 Oral Health Interventions were pre-extracted from ICHI, and the extracted health interventions were divided into 225 maxillofacial areas, 135 oral and dental areas, 88 oral function improvement areas, 15 oral hygiene management areas, and 5 as others.

2) In order to compare the Korean Classification of Health Interventions (KCHI-OMF) with ICHI-OMF, Oral Health interventions implemented in South Korea were collected. A group of oral health interventions was created by collecting all oral health interventions implemented in Health Insurance Review and Assessment Service’s oral health interventions and the non-payable codes for oral health interventions implemented in dental university hospitals and high-ranking general hospitals. The collected Korean Classification of Health Interventions were subdivided into general dentistry interventions and 9 specialized dentistry interventions, then the classification and the index terms in order to map (83) or, if necessary, the ICHI-OMF descriptor was modified (7).

3) The collected Korean Classification of Health Interventions were subdivided into general dentistry interventions and 9 specialized dentistry interventions, then the classification and the index terms in order to map (83) or, if necessary, the ICHI-OMF descriptor was modified (7).

4) By additionally extracting 18 items of the oral health interventions in ICHI-OMF was able to constitute them in 513 items and mapped the 979 oral health interventions that are implemented in South Korea.

4) By additionally extracting 18 items of the oral health interventions in ICHI-OMF was able to constitute them in 513 items and mapped the 979 oral health interventions that are implemented in South Korea.

Methods & Materials

For the study of the dental and oral health-related interventions in the ICHI classification provided by WHO, health interventions of the dental and oral maxillofacial area were extracted from the WHO ICHI. As a result, 468 health interventions as ICHI-OMF. ICHI-OMFwere divided into maxillofacial area, oral and dental area, oral function improvement area, and oral hygiene management area. To compare the Korean Classification of Health Interventions (KCHI-OMF) with ICHI-OMF, all Oral and Maxillofacial health interventions implemented in Health Insurance Review and Assessment Service’s oral health interventions and the non-payable codes for oral health interventions implemented in dental university hospitals and high-ranking general hospitals.

Conclusions

Chart 1: Method of Intervention mapping

Chart 2: ICHI-OMF

Chart 3: KCHI-OMF

Chart 4: Result of mapping

Chart 5: Result of mapping

Acknowledgements or Notes

This study was conducted with the support of the Statistics Korea. The authors state that they have no interest in the Statistics Korea.
A Comparison of Health Intervention Classifications: ICHI and CCI

18-22 October 2021
Virtual WHO-FIC

503

Authors: S. Sabljakovic, J. MacNeil, S. Baker, Canadian Institute for Health Information

Abstract

The World Health Organization (WHO) launched the development of ICHI in 2007 as a common tool for reporting and analyzing health interventions for statistical purposes. Within Canada, acute and ambulatory care data for interventions is captured using CCI. To ensure data comparability with the new intervention classification for reporting purposes and for other enhancement considerations, CIHI conducted a structural comparison between CCI and ICHI.

Background and objectives

The International Classification of Health Interventions (ICHI) will provide a common tool for describing, reporting on and analyzing health interventions. The classification will support several use cases such as international comparisons, national uses and health system performance. Since 2001, Canada has used the Canadian Classification of Health Interventions (CCI) as the national standard for classifying acute and ambulatory care health interventions. CCI is based on the international standard (ISO 1828) for classifying surgical interventions, which allows for international mapping and comparability. This study aims to assess data comparability between ICHI and CCI and to identify opportunities for enhancement of the intervention classifications for common acute and ambulatory care interventions within Canada.

Results

During Phase 1, of the 643 CCI interventions assessed, 33% (n = 213) were found to be an exact or conceptual match when mapped to a single ICHI target stem code. For 55% (n = 354) of the CCI codes, ICHI was less specific when mapped to a single ICHI target stem code, representing a loss of detail. Conversely, for 3% (n = 21) of the CCI codes, ICHI was more specific when mapped to a single ICHI target stem code. For the remaining 9% (n = 55) of CCI codes, there was no match, meaning that the CCI code could not be found in ICHI.

In Phase 2, where the match was less specific in ICHI, an assessment was made to determine whether multiple ICHI codes could result in improved mapping. 71 of the 354 (20.1%) CCI interventions were noted as not applicable (i.e., no additional code could be found or post-coordination, or post-coordination was deemed not to be appropriate). In total, 284 (44.2%) CCI interventions were found to be no applicable ICHI code.

In Phase 2, for interventions where a single ICHI target stem code contained less specificity than the CCI code, these interventions were further assessed to determine whether combining multiple ICHI codes could improve the map result. Outcome types included the following:

- Exact match: Same specificity with ICHI cluster after addition of stem code and/or extension code to target stem code
- Partial specificity: Less specificity; ICHI cluster remains less specific after addition of stem code and/or extension code to target stem code

Through our work, we discovered that ICHI browser terminology can impact the ability to find concepts, requiring the end user to search alternate terminology for a concept. Examples include the spelling of immunisation (UK/AU) versus immunization (CA/US/WHO), and the difference in how medicaments are classified (CCI uses the general category corticosteroids while ICHI specifies bromazepam, clozapine, ramifenazon, etc.). However, there is potential for this issue to be resolved when ICHI is moved to the WHO ICAT platform and a coding tool for ICHI becomes available, as this would improve searchability and allow for additional indexing to support code assignment.

Another theme that emerged is the combining of procedures (pre-coordination) in ICHI. For example, foreign body and internal device are combined in a single ICHI code, whereas in CCI they are separate codes. Also, ICHI combines all gynecological, post-partum and therapeutic abortion dilation and curettage into 1 code, whereas there are separate codes for each in CCI. For example, the single ICHI code NME.JE.AC Dilation and curettage includes interventions found at the following CCI rubrics: 5.PC.91. Interventions to uterus (following delivery or abortion), 1.RM.87. Excision partial, uterus and surrounding structures and 5.CA.89. Surgical termination of pregnancy.

Conclusions

Overall, the structural comparison of CCI and ICHI allowed CIHI to assess potential impacts and strategies to guide interested parties on the use and benefits of ICHI in Canada. Results of this project will inform future consideration for international reporting and intervention classification enhancements to ICHI and/or CCI, as well as for identifying opportunities for future use cases of ICHI in Canada.

Table 1 Examples of relationship of CCI codes to ICHI codes (single target stem code)

<table>
<thead>
<tr>
<th>Outcome type</th>
<th>CCI code</th>
<th>CCI long code description</th>
<th>ICHI code</th>
<th>ICHI code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Exact (or conceptual) match</td>
<td>1.MC.87.LA</td>
<td>Excision partial, lymph node(s), cervical using open approach</td>
<td>DOB.JJ.AA</td>
<td>Partial excision of cervical lymph node</td>
</tr>
<tr>
<td>2 Lesser specificity</td>
<td>1.FE.29.JA-RO</td>
<td>Restoration, tooth using crown</td>
<td>KAE.NK.AC</td>
<td>Restoration of tooth</td>
</tr>
<tr>
<td>3 Greater specificity</td>
<td>1.CQ.83.LA</td>
<td>Transfer, ocular muscles and tendons using open approach and a prosthesis (future)</td>
<td>BDA.LD.4AB.DA.LK.AA BDA.LL.LA</td>
<td>Transposition of extramuscular or advancement of extramuscular muscles</td>
</tr>
<tr>
<td>4 No match</td>
<td>1.MH.5B.LA</td>
<td>Procurement, arteries of arm NEC using open approach</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Table 2 Examples of relationship of CCI codes to target ICHI codes (single code or combination of codes)

<table>
<thead>
<tr>
<th>Outcome type</th>
<th>CCI code</th>
<th>CCI long code description</th>
<th>ICHI code</th>
<th>ICHI code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Exact match</td>
<td>1.VA.74.LA-NW</td>
<td>Fixation, hip joint open approach fixation device alone using plate, screw</td>
<td>PRJ.DH.AAXX109.06</td>
<td>Implantation of device into hip joint &amp; Plate and/or screw</td>
</tr>
<tr>
<td>2 Partial specificity</td>
<td>1.RF.51.DA-FF</td>
<td>Occlusion, fallopian tube endoscopic [laparoscopic] approach using clips [e.g., clips]</td>
<td>NMC.LA.ABBX707.12</td>
<td>Laparoscopic occlusion of fallopian tubes &amp; Occlusive device(s)</td>
</tr>
<tr>
<td>3 Not applicable</td>
<td>5.MD.40.JC</td>
<td>Version and/or rotation at time of delivery, by manual rotation of fetal head (e.g., Poutreyn maneuver)</td>
<td>NMR.LD.AC</td>
<td>Rotation of fetus</td>
</tr>
</tbody>
</table>

Figure Summary of overall results, by outcome type

Themes

Through our work, we discovered that ICHI browser terminology can impact the ability to find concepts, requiring the end user to search alternate terminology for a concept. Examples include the spelling of immunisation (UK/AU) versus immunization (CA/US/WHO), and the difference in how medicaments are classified (CCI uses the general category corticosteroids while ICHI specifies bromazepam, clozapine, ramifenazon, etc.). However, there is potential for this issue to be resolved when ICHI is moved to the WHO ICAT platform and a coding tool for ICHI becomes available, as this would improve searchability and allow for additional indexing to support code assignment.

Another theme that emerged is the combining of procedures (pre-coordination) in ICHI. For example, foreign body and internal device are combined in a single ICHI code, whereas in CCI they are separate codes. Also, ICHI combines all gynecological, post-partum and therapeutic abortion dilation and curettage into 1 code, whereas there are separate codes for each in CCI. For example, the single ICHI code NME.JE.AC Dilation and curettage includes interventions found at the following CCI rubrics: 5.PC.91. Interventions to uterus (following delivery or abortion), 1.RM.87. Excision partial, uterus and surrounding structures and 5.CA.89. Surgical termination of pregnancy.

Conclusions

Overall, the structural comparison of CCI and ICHI allowed CIHI to assess potential impacts and strategies to guide interested parties on the use and benefits of ICHI in Canada. Results of this project will inform future consideration for international reporting and intervention classification enhancements to ICHI and/or CCI, as well as for identifying opportunities for future use cases of ICHI in Canada.
### Abstract

The Korean Classification of Health Intervention (KCHI) is referenced in both hospital payment and physician payment. We mapped KCHI to ICHI using Protégé, an ontology building tool. Protégé allows to map KCHI to ICHI with no significant changes in both classifications and express KCHI in detail. The query function of Protégé gives us useful information for correcting logical errors in KCHI. We are presenting the work to WHO-FIC to introduce a convenient tool for developing or modifying local intervention classifications.

### Introduction

Although the Korean healthcare system is known to be one of the good systems, the Korean Classification of Health Intervention (KCHI) and its related classifications are not quite systematized as in other countries.

The KCHI are used as the unit of payment for doctors and hospitals. However, there has been a long history of incorrect payment issues in the Korean healthcare industry. Well organised intervention classification and its related classification may improve the issue.

We applied ICHI as a reference classification of KCHI and did several trials of mapping KCHI to ICHI. The results were usually made into excel sheets or tables in the database. Proofing the work or applying the result to improve the legacy classification has been done manually. However, we tried to find more efficient working process. Therefore, we aimed to introduce an ontology tool, a Protégé (Stanford University), to map KCHI to ICHI and report the results.

### Methods & Materials

2,988 interventions fulfilled by doctors were selected from KCHI in 2020. Interventions, axes, and extensions were collected from ICHI beta 3. All data were imported to Protégé.

ICH1 axes and extensions were used to build formal definitions of the fee schedule using Manchester OWL Syntax. ICH1 interventions were used to validate the formal definitions. We kept URIs (Unified Resource Identifier) for all entities in ICH1. If an entity (interventions, axes, and extensions) has no corresponding concept in ICH1, we created the entity and assigned a local URI, which begins with [http://www.kma.org/KCHI#](http://www.kma.org/KCHI#). For example, Suture, an including term of Repair ([http://id.who.int/ichi/entity/4173284](http://id.who.int/ichi/entity/4173284)), has no URI in ICH1. We assigned a URI ([http://www.kma.org/KCHI#00008487](http://www.kma.org/KCHI#00008487)) to Suture for the convenience and clarity of mapping.

### Results

Chart 1 shows the axes of ICH1 in Protégé. We extended the target structure whenever we need fine granular axes in KCHI. The axes were expressed as the object properties. For example, the ‘hasTarget’ object property corresponds to the Target axis.

The child object of ‘hasTarget’ includes ‘hasSite’ for anatomy targets, ‘hasFunction’ for body functions, and ‘hasDevice’ for the devices used in interventions. ‘hasAction’ object properties and ‘hasMeans’ object properties were used for the Action axis and for the axis, respectively, and subclasses were also defined.

### Conclusions

- **The ontology tool allows mapping KCHI to ICHI with no significant changes in both classifications and expressing KCHI in more detail.**
- **Though Protégé is a useful tool for mapping, it also has some limitations.** Webprotégé ([http://webprotege.stanford.edu/](http://webprotege.stanford.edu/)) is lack of reasoning and the standalone version is lack of network support. We decided to use standalone version for the capability of reasoning.
- **We just finished rebuilding KCHI on Protégé. The next step is to revise and validate KCHI.** We anticipate that the axes structure of ICHI with the reasoning function of Protégé will have a considerable role.
- We present the work to WHO-FIC to introduce a convenient tool for local intervention classifications.

### Acknowledgements or Notes

This work was supported by Korean Medical Association and related academic societies for the clinical knowledge and funded by Health Insurance Review and Assessment Service (HIRA) and Korean Social Security Information Service (the former Korean CC). We thank the Korean association of nurse coders for drafting the formal definitions. The source file is available from the Korean Collaborating Centre.
Applying a standard approach when mapping national intervention classifications to ICHI

Authors: Ann-Helene Almborg1, Djohra Azzi2, Sharon Baker3, Hazel Brear4, Megan Cumerlato5, Richard Madden6, Nicole Rankin7, Miroslav Zvolosky8

1National Board of Health and Welfare, Sweden; 2Université Libre de Bruxelles; 3Canadian Institute for Health Information; 4NHS Digital, United Kingdom; 57University of Sydney, Australia; 8Institute of Health Information and Statistics, Czech Republic

Abstract

The WHO-FIC Morbidity Reference Group (MbRG) are tasked with providing advice and guidance on taking a standard approach to comparisons/mappings between national intervention classifications and the International Classification of Health Interventions (ICHI). A small working group are developing a paper which builds on and operationalizes the Mapping White Paper. The ‘standard approach’ paper provides advice for a number of potential use cases.

Introduction and purpose of paper

The ‘Applying a standard approach...’ paper builds on and operationalizes the WHO-FIC Classifications and Terminology Mapping: A White Paper, for the purpose of mapping national intervention classifications to the International Classification of Health Interventions (ICHI).

Its primary purpose is to provide advice on potential standard approaches and best practice which may be employed when mapping national intervention classification to ICHI for any one of five listed use cases.

The following sections are a high level sample of the content covered within the paper.

Note: A (final) draft of this paper has been submitted to the MbRG for inclusion on the agenda of the annual network meeting, for discussion and sign-off.

Use cases

The five outlined potential use cases are:

a) Mappings from national intervention classification to ICHI for purposes of international comparison
b) Mappings from whole of national intervention classification to ICHI for evaluation as replacement
c) Mappings from part of national intervention classification to ICHI as a feasibility study/gap analysis
d) Mappings from part of national intervention classification to provide feedback to inform further development of ICHI
e) Mappings for casemix requirements or other secondary use of existing data.

Cardinality

Cardinality can be expressed in 1:1, 1-many or the map cardinality expressed in numerals (e.g., 1:3 or 1:4) can be useful when the units of comparison and the semantics of the “link” between source and target terminologies are well defined such as this use case to map national health interventions classifications to ICHI. It can also be useful to add information about the number of extension codes assigned such as 1:2 (e=2) if two extension codes are used. The extension codes do not need to be unique codes as in the following example.

Expression of equivalence between source and target will be useful when analyzing the results of the mapping. There are four different ways to describe the equivalence, refer Figure 2.

ICH1 Reference Guide provides detailed information on how to classify interventions using ICHI, its structure and conventions.

Each stem code in ICHI is made up of seven characters described in terms of three-axes:

- **Target** (3 char) – entity on which the Action is carried out
- **Action** (2 char) – deed done by an actor to the Target
- **Means** (2 char) – processes and methods by which the Action is carried out

Additional information about an intervention can be added as needed using ‘extension codes’. Different syntax can be used to combine stem code(s) and extension code(s), refer Figure 3.

Figure 4: Syntax

The UK team followed much of the best practice advice from the Mapping White Paper whilst conducting this study. However, they can see where there would have been added value in following the advice for applying a standard approach as recommended in this paper.

A final word...

With the imminent publication of ICHI as a Member of the Family of International Classifications, the authors and the MbRG would seek to highlight this paper as a useful resource to assist when mapping whichever use case will be of the most benefit to your country/organization.

Acknowledgements: We are grateful to all who have reviewed and contributed to the paper.
ICH - further development of public health content for environmental health interventions

Almborg AH1,2, Madden R3, Fortune N3
1National Board of Health and Welfare, Sweden, 2Nordic WHO-FIC CC, Norway, 3 University of Sydney, Australia

Abstract. ICHI content for coding public health has been improved, with a focus on environmental health interventions during 2021, as a result of coding the WHO draft 'Compendium of WHO and other UN guidance in health & environment'. Updates include 32 new Targets, four new Actions, and related interventions, as well as some revised Targets, Actions and Means. A new Target chapter 'Additional environmental industries and products targets' has been added. This work has resulted in ICHI being much more ready for use in public health use cases.

Methods & Materials

The coding work, led by Richard Madden, has covered all interventions listed in the Compendium, across the full range of environmental health topics, including air pollution, water, sanitation and hygiene, chemicals, radiation, and climate change. During the work there have been several meetings to discuss the coding and consider further development of ICHI for public health applications. Where needed, other classifications have been utilised to better specify the content of the various interventions. Two UN classifications have proved very helpful:
1. International Standard Industrial Classification (ISIC)
2. Central Product Classification (CPC).

Introduction

Since the November WHO-FIC meeting 2020 (virtual), work has continued towards finalising ICHI for implementation, with the next release planned for October 2021 at the Annual WHO-FIC meeting. During 2021 ICHI was migrated from the Udine Platform to WHO’s platform iCAT, which now covers all three reference classifications.

ICHI content for coding interventions for public health is largely found in two sections: Interventions on the environment and Interventions on health-related behaviours.

Three ICHI use cases for public health interventions are now identified:

- Public health program design and assessment
- Public health finance
- Communication among public health practitioners and researchers

In mid 2020, WHO invited the ICHI development team to use ICHI to code interventions contained in the WHO draft document 'Compendium of WHO and other UN guidance in health & environment'. This work has continued during 2021, where ICHI has been used to code the Compendium in collaboration with WHO. The aim was to test the application of ICHI in a public health use case and to identify gaps in ICHI.

Results

The coding work has resulted in a range of new and revised content for ICHI:

**Targets**

Chapter 23, Natural environment including human changes targets: Physical features of the Earth (previously UBB) has been split:
- UBA Land Forms (ICF e2100)
- UBB Bodies of Water (e2101)

Five new Targets have been added:
- UBP Biological diversity
- UBR Radiation
- UBI Climate change
- UBT Land pollution
- UBU Water pollution

Chapter 26, Services, systems and policies targets:

New Targets added based on various ISIC and CPC Divisions, for example:

- UET Water collection, treatment and supply services, systems and policies
- UVE Sewerage services, systems and policies
- UEV Waste collection and disposal services, systems and policies
- UEW Waste recycling and reuse services, systems and policies

Chapter 28, Targets for health-related behaviours:

New target added:
- VCD Water safety behaviours

**Actions**

Four new Actions have been added:
- RG Providing services
- TN Disposal
- DV Vaccination
- VR Reducing emissions

Four Actions have been revised:
- RD Providing goods
- SJ Producing goods
- TB Planning
- WI Restrictions through laws or standards

Means

Two Means have been re-defined
- QD Enactment
- QE Enforcement

ICH 2021 now includes a new target chapter on Additional environmental industries and products targets, comprising 20 new Targets (see Table 1); related interventions have also been added. The Targets are commonly used domains from ISIC and CPC.

<table>
<thead>
<tr>
<th>Code</th>
<th>ICHI target title</th>
<th>ISIC and CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>331</td>
<td>Additional environmental industries and products, new targets</td>
<td>ISIC Division 19</td>
</tr>
<tr>
<td>211</td>
<td>Reductions in the use of land</td>
<td>ISIC Division 20</td>
</tr>
<tr>
<td>212</td>
<td>Reductions in the use of water</td>
<td>ISIC Division 21</td>
</tr>
<tr>
<td>351</td>
<td>Biological diversity</td>
<td>ISIC Division 35</td>
</tr>
<tr>
<td>5311</td>
<td>UBI Climate change</td>
<td>ISIC Division 53</td>
</tr>
</tbody>
</table>

Table 1: Targets in the new chapter Additional environmental industries and products targets

Conclusions

Based on coding the wide range of interventions contained in WHO's draft 'Compendium of WHO and other UN guidance in health & environment', ICHI has been much improved for public health applications. The value of using other classifications in conjunction with ICHI, as well as using the WHO-FIC reference classifications together, has been shown to add greater specificity to ICHI coding without undue expansion of ICHI itself.

The planned review of ICHI for public health purposes, to be undertaken by WHO, will be an additional review of ICHI in this area.

Acknowledgements or Notes

Thanks are extended to the WHO team working with the Compendium, reviewers of ICHI, ICHI development team, Collaborating Centres and WHO for their ongoing support.
ICHI 2021: towards finalisation

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Abstract Since the WHO-FIC annual virtual meeting in October 2020, work has continued towards the finalisation of ICHI for implementation, with the next release planned for October 2021 at the Annual WHO-FIC meeting. ICHI has recently been migrated to the WHO-FIC Platform following the review of index and includes terms. A review of the ICHI Target axis titles for consistency and to correct possible overlap was also undertaken. Content development is still ongoing based on continued reviews and commenting processes. This poster will highlight ICHI development to date following it’s migration to the WHO-FIC Platform and areas requiring further review.

Introduction

ICHI content development continued to progress following the reviews of medical surgical interventions in June 2020 and other comments received on the platform after the annual meeting in October 2020. Since this time work has continued to progress to migrate ICHI into the WHO-FIC Platform.

This poster describes:
- results from migration to WHO-FIC platform
- outcomes of different reviews
- preparation for finalization of ICHI

Methods & Materials

During the latter part of 2020 and in early 2021 ICHI was migrated to the new WHO-FIC Platform. For the migration to be successful this required a review of the existing index and includes terms as well as some concept and hierarchy changes by the ICHI editors.

Comments posted on the original ICHI Platform continue to be reviewed by the ICHI editorial team. Many comments from the surgical/medical review during 2020 have been actioned (251 tasks); some of the more complex issues identified are still being actioned. A major review was also undertaken by the International Society for Nomenclature of Paediatric and Congenital Heart Disease (ISNPCHD) working group, this group reviewed the congenital cardiovascular section of ICHI.

Comments from the coding of the health indicators in UHC to ICHI, ICD and ICF have also been reviewed (Please refer to separate poster).

Interventions for public health have been reviewed during the coding of the interventions contained in the WHO draft document ‘Compendium of WHO and other UN guidance in health & environment’. Please refer to separate poster ICHI - further development of public health content for environmental health interventions.

Results

ICHI is now available on the WHO-FIC Platform, see the following URL: https://icd.who.int/dev11/l-ichi/en

Figure 1 illustrates a section of the new Browser relating to ‘biopsy of the brain’.

As a part of the migration to the WHO-FIC Platform, the ICHI editorial team have continued to review index terms and includes notes for conversion to subclass inclusions or synonyms in line with the structure used in ICD-11.

There is ongoing content review of:
- consistency of code titles across many interventions
- target axes which resulted in the need for ‘unspecified’ and ‘not elsewhere classified’ in Target titles and related interventions to correct possible overlaps
- the distinction between ‘musculoskeletal’ and ‘topographical’ targets
- interventions using the actions LB Reattachment, LD Position and LI Bypass
- exclusions across a number of intervention codes
- ‘Coding notes’ for specific interventions
- additional extension codes
- further site-specific radiological interventions
- interventions for injection of local anaesthesia at one body site – this has led to a review of all body sites that require this intervention to be added and is ongoing work.

Four new actions have also been included for RG Providing services, TN Disposal, VD Vaccination and VR Reducing emissions.

Work has also continued to ensure that the latest ICF updates are added to ICHI. Two Target codes based on ICF have been changed regarding Communication. Several interventions targeting Education (STD – STJ) and Work and Employment (SUA – SUJ) have been added.

As at August 2021 there have been approximately 160 comments actioned on the ICHI platform. Refer Table 1:

<table>
<thead>
<tr>
<th>ICHI Platform Comments</th>
<th>Fully implemented</th>
<th>Partially implemented</th>
<th>Not adopted</th>
<th>Further discussion</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>111</td>
<td>10</td>
<td>22</td>
<td>17</td>
<td>160</td>
</tr>
</tbody>
</table>

Table 1: Summary ICHI Platform comments

The ICHI Reference guide has also been updated to reflect new ICHI Browser changes, and is included on the new platform.

Conclusions

With the migration of ICHI to the WHO-FIC Platform, ICHI is now ready for finalisation and implementation.

Enhancement of ICHI content will continue with the next release planned for October 2021 at the Annual WHO-FIC meeting with a tooling environment including browser, coding tool, translation and proposal platform.

The planned review of ICHI for functioning interventions and public health purposes, to be undertaken by WHO, will be an additional review of ICHI in this area.

Acknowledgements

Thanks are extended to all testers and reviewers of ICHI, ICHI development team, ICHI Task Force Group, Collaborating Centres and WHO for their ongoing support.
Clarifying the role of terminologies within WHO-FIC


Abstract

This poster presents a summary of the early findings of a task group that was established by the WHO Family Development Committee (FDC) to bring clarity on the role of health ’terminologies’ within the WHO Family of International Classifications (WHO-FIC)

Introduction

Health terminologies are generally characterised as belonging to one of three categories: interface terminologies, reference terminologies, aggregating terminologies. Previous work has assumed a clear distinction between these categories of terminology, and work is ongoing to identify relationships, or mappings, between the many terminological artefacts in use around the World, with the goal of achieving interoperability for clinical data and for clinical systems. The assumption of a clear distinction has been reinforced by WHO-FIC itself, as it has traditionally characterised members of its own Family as aggregating terminologies and has sought to clarify the relationship with non-aggregating terminologies to the Family.

The distinction between categories of terminologies is, in reality, unclear. Many contemporary terminologies display a combination of interface, reference and aggregation properties. For example, terminologies that are intended for use at the user interface, also exhibit reference properties that in turn permit the derivation of a classification structure, thereby making them amenable to aggregation. Also, the WHO-FIC Content Model itself (which was originally developed as part of the revision of ICD but which is now being adapted and expanded to cover the full range of reference classifications), and its associated Foundation Layer, makes possible the derivation of Linearizations that might be tuned for use at the user interface, rather than simply for aggregation.

It therefore becomes less useful to characterise terminologies by form, and more appropriate to characterise them by function, and to accept that any particular terminology might have the ability, or at least the potential, to carry out a range of terminological functions.

Methods & Materials

The terminologies task group of the WHO-FIC FDC sought to build on the WHO-FIC ‘Family paper’ through an exploration of contemporary use cases from a range of countries. The use cases cover:

• the parallel use of terminologies,
• transformation between terminologies,
• the use of terminologies to enrich the Foundation layer,
• the use of terminologies to enhance application in practice of members of the Family.

Results

The parallel use of terminologies

A major goal at the Hospital Clinic/University of Barcelona, Spain is to ensure that coding remains close to the source of health information, and to use Natural Language Processing techniques on the clinical narrative to code automatically to both ICD 10, ICD 11 and SNOMED CT, initially with close supervision from expert coders to ensure accuracy (with the expectation that this will reveal a ‘natural mapping’ between ICN and SNOMED CT).

In The Netherlands, the ‘Diagnosis Thesaurus’ is used in the majority of hospitals to document clinical diagnoses and diagnosis-treatment combinations. The Diagnosis Thesaurus can therefore be viewed in this context as an interface terminology. Manual mappings have been made both to SNOMED CT (as a reference terminology) and to ICD-10-NL (as an aggregating terminology). As with the previous use case, this reveals a de facto linkage between ICD and SNOMED CT.

Transformation between terminologies

The UK has mandated SNOMED CT as the terminology to support direct management of care in clinical and pathology systems across the NHS.

Transformation between terminologies

The use of terminologies to enrich the Foundation layer

Work is underway to develop a use case around the potential enrichment of the Foundation Layer via a contribution by LOINC and NPU (Nomenclature for Properties and Units) which are thought to have considerable overlaps.

The use of terminologies to enhance application in practice of members of the Family

The final theoretical use case involves the potential enhancement, not of the members of the Family themselves, but of their use in practice. This use case acknowledges the potential value that data about nursing can add to patient classification systems, such as DRGs which rely on members of the Family, and suggests the use of the International Classification for Nursing Practice, as a Related Classification within WHO-FIC to supply this data.

Conclusions

The use cases summarised in this poster are being used by the task group to derive recommendations to the FDC.

Acknowledgements or Notes

The authors acknowledge the ongoing support and patience of the FDC and the wider WHO-FIC Network.
Abstract

More than two years since the commencement of an experiment to map the 100 Core Health Indicators (as revised by the WHO in 2018), to the WHO-FIC reference classifications, completion of this work as a comprehensive product of the WHO is now in sight. With Universal Health Coverage (UHC) remaining a key target of Sustainable Development Goal (SDG) 3, the ability to measure, monitor and track these core health indicators using ICD-10/11, ICF and ICHI is in full support of the overall aim of the Global Reference List “to serve as a normative guidance for the selection of standard indicators ...that countries and partners stakeholders can use for monitoring in accordance with their respective health priorities and capacity.” While some gaps and overlaps were identified, this mapping has shown that for most of the indicators grouped as Health Status, Risk Factors, Health Coverage and Health Systems, one or more of the three reference classifications can indeed be utilised for identification and tracking.

Introduction

In previous iterations of this work, it was stated that “The Global Reference List of 100 Core Health Indicators relevant for health are well represented in the reference WHO Family of International Classifications.” An initial manual search against the 100 core health indicators flagged which of the three WHO reference classifications (ICD 10/11, ICF, ICHI)* represented a possible mechanism of identification for each indicator. After the last annual meeting (2020), substantial subsequent work has resulted in the expansion of the mapping of the three WHO reference classifications, against all 100 core health indicators.

Methods & Materials

The 100 core indicators are grouped as Health Status, Risk Factors, Health Coverage and Health Systems, consisting of 114 indicators in total (Table 1). These four groups of indicators were mapped to the reference classifications by at least two experts for each group. The results were reviewed by the whole working group.

Table 1: Number of indicators by the four groups

<table>
<thead>
<tr>
<th>Groups of core health indicators</th>
<th>Number of indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health status indicators</td>
<td>33</td>
</tr>
<tr>
<td>Risk factors indicators</td>
<td>26</td>
</tr>
<tr>
<td>Service coverages indicators</td>
<td>31</td>
</tr>
<tr>
<td>Health systems indicators</td>
<td>24</td>
</tr>
</tbody>
</table>

Results

This has resulted in the expansion of the mapping of the three WHO reference classifications, against all 100 core health indicators at the level of code ranges, and also at individual code level. This has culminated in a detailed representation of possible ICD-10, ICD-11, ICHI and ICF codes against each core indicator (Table 2). The results show that 98 core indicators can be identified by ICD-11 (Table 3).

Table 2: Extract: flagging of each core health indicator against the applicable WHO reference classification

<table>
<thead>
<tr>
<th>Indicator</th>
<th>ICD-10</th>
<th>ICD-11</th>
<th>ICF</th>
<th>ICHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>risks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Count of how many indicators are potentially able to be identified within each WHO reference classification

<table>
<thead>
<tr>
<th>Reference Classifications</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD-10</td>
<td>94</td>
</tr>
<tr>
<td>ICD-11</td>
<td>98</td>
</tr>
<tr>
<td>ICF</td>
<td>68</td>
</tr>
<tr>
<td>ICHI</td>
<td>77</td>
</tr>
</tbody>
</table>

The results show that both code ranges and individual codes within the relevant classifications for each core indicator are useful (Tables 4,5). The code ranges are mostly used for ICD and ICHI.

Table 4: Example: flagging of each core health indicator against code ranges within the WHO classifications

Table 5: Example: flagging of each core health indicator against individual codes within the WHO classifications

It was noted that for certain indicators there is an overlap in the ICD codes mapped against them e.g. Malaria, HIV and TB. For this reason, the spreadsheet which will soon be made available, will mark which codes are preferred for use within each overlapping indicator. It is further acknowledged that for a small set of the indicators, particularly within the Health Systems, the WHO-FIC reference classifications do not provide a reasonably specific mechanism of identification and these will have to be tracked by other means such as census statistics, OECD, Eurostat, surveys and possibly other related or derived classifications. ICPC-3 and ICNP were also reviewed but found not to add significant additional detail to what the reference classifications already cover. This work has also contributed to the improvement of the content in the reference classifications, as an example adding a new Action: VD Vaccination in ICHI, and a new intervention such as UAC.RD.ZZ Provision of medications.

Conclusions

While this has been a lengthy exercise requiring iterative improvements and expansion, it has concluded in the ability to identify and flag more than 90% of the core health indicators through at least one of the WHO-FIC reference classifications, and most have the possibility of using more than one of the three classifications in their identification. The mapping of code ranges as well as detailed individual codes will serve member countries well in their preferred use of this work for tracking and measuring these health indicators. Details of this work will shortly be published in a scientific paper, including how these mappings will be maintained as the reference classifications themselves evolve.

Acknowledgements or Notes

Acknowledgements:

We thank colleagues from the following organisations for their extensive work and contributions: Australia, Italy, Netherlands, Nordic, South Africa

Notes:

* ICD = International Statistical Classification of Diseases
* ICF = International Classification of Functioning and Disability
* ICHI = International Classification of Health Interventions
Integrating and developing the usage of WHO terminologies into French environment: WHO-FIC implementation into the French interoperability Multi-terminology server.

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Abstract: The French Multi-terminology server managed by French e-health agency intends to enhance semantic standards adoption by facilitating their access in harmonized format and providing an integrated network of health terminologies. This poster illustrates the SMT content focusing on ICD terminologies and their crosswalk.

Introduction
Since 2020 the French e-health agency deployed a Multi-Terminology Server (SMT) to unify the health terminologies publication and the consultation to facilitate their adoption and implementation in medical records. The SMT follows the Findable Accessible Interoperable Reusable (FAIR) principles by providing:
- Health terminologies and crosswalks on web semantic format (Interoperable)
- Powerful search engine (Findable)
- Multiple access point to the resources (API, SPARQL etc.)
In France WHO terminologies are widely used for many years. ICD-10 is used to describe hospital stays, chronic disease and record statistics in disease mortality and morbidity. Strenuous efforts were made to semantically modelling, indexing and publishing them within the SMT. This poster shows how ICD terminologies are included into SMT and linked to other standards.

Method
ICD-10 model was processed using French latest version of the resource distributed in CLAML. Initial data were transformed and enriched by:
- The extraction of alternative labels from inclusion notes
- The creation of specific relation between ICD-10 concepts to express exclusion, manifestation and etiology
- The generation of implicit ICD-10 concepts according their description in modifiers notes
The ICD-11 linearization was generated using data from the WHO API in accordance with content model schema. We transformed original URI by removing release information to get a persistent URI. Release identifier, foundation identifier and browser links were stored for each ICD-11 concept. The ICD-11 code information (code and codingRange relation) were duplicated into skos:notation relation. This intends to harmonize the terminology models in SMT and thus to enhance query capability on multiple resources. The post-coordination rules were implemented as specific concepts.

In addition of ICD API data, we added the WHO ICD-11 to ICD-10 mappings (2021/05/11) to the ICD-11 ontology.

Conclusions
The integration of WHO terminologies into SMT was made in respect of WHO licensing policies to enhance their usage in French medical records. Rather than competing the WHO API and browser, SMT offers an alternative access point to ICD terminologies and integrate them into a network of French health standards. This network is supported by mappings between terminologies and plays key role to facilitate their usage in Electronic Health Data System. We plan to enrich WHO-FIC terminologies connection by adding new mappings provided by WHO or implementing with other terminologies (LOINC, ORPHANET, etc.)

Result

Figure 1: WHO ICD terminologies and bridges in French Health terminology server: example on Alzheimer Dementia
https://smt.esante.gouv.fr/catalogue-des-terminologies/
**Revision process of the WHO VA instrument**

Authors: Daniel Cobos, Jordana Leitao, Erin Nichols, Sam Clark, Carine Alsokhn, Robert Jakob, Don de Savigny, Carla Abouzahr, Robert Mswia, Martin Bratschi, Aurelio di Pasquale and Daniel Chandramohan

**Core Revision Group on behalf of the WHO Verbal Autopsy Reference Group**

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### Abstract

Verbal autopsy (VA) is the best method for estimating population-level cause of death (COD) patterns for mortality surveillance purposes in the absence of medical certification of CODs. To further optimize the WHO VA tool, a protocol for the revision process was developed and approved by the WHO VA Reference Group (VARG) which included a wide consultation on the importance and usefulness of the different questions. The proposed revision aims to provide a more parsimonious, concise, clear and efficient instrument that can be analysed with available algorithms and by physicians. This is a major step forward for the integration of VA in mortality surveillance and civil registration and vital statistics (CRVS) systems of low and middle-income countries (LMIC).

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### Introduction

Reliable and comparable data on the levels and causes of mortality are cornerstones for building a solid evidence base for health policy, planning, monitoring and evaluation. VA is the best method for estimating population-level COD patterns for mortality surveillance purposes in the absence of medical certification of CODs. Information obtained during VA interviews include the circumstances, signs, and symptoms during the terminal stage to find out the likely cause of death, health care seeking in the period leading to death, and history of events leading to death as narrated by the respondent. COD determination from VA can be done using physicians review or using automated computer algorithms.

### Methods & Materials

Since the release of latest version of the instrument (2016 WHO VA instrument), reported issues have been compiled (e.g. skip patterns, unreliable questions, length), and a major revision of the instrument was planned for 2020 based on users’ feedback, inputs from VA experts and evidence from the field.

A protocol for the revision process was developed and approved by the WHO VARG and included the compilation of VA interview data of community deaths in LMIC to identify what questions provided reliable and useful information. This dataset was used to review 21 major issues identified in the questionnaire and to assess the relevance of each question to ascertain underlying CODs. Methods used to evaluate question performance included response pattern analysis, cognitive testing, and narrative analysis using machine learning. Targeted maximum likelihood estimation (TMLE) and calculation of the entropy coefficient were used to evaluate the significance of each question on COD assignment.

### Results

The revision process included a wide consultation process with experts from the VARG and also outside the reference group. Key milestones in the process can be seen in figure 1. A dataset containing 28,607 deaths from more than 10 LMICs in which a VA was conducted was used for the different analyses. From this revision exercise, recommendations to modify 57 questions and to remove 76 questions have been made

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### Conclusions

The proposed revision aims to provide a more parsimonious, concise, clear and efficient instrument that can be analysed with currently available algorithms and by physicians. This is a major step forward for the integration of VA in mortality surveillance and civil registration and vital statistics (CRVS) systems of LMICs.

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### Acknowledgements or Notes

We would like to thank all members of the VARG for their commitment and contributions to the maintenance and advancement of VA standards, especially the dedicated working groups. The VARG wishes to greatly thank and acknowledge the contribution and guidance of the outgoing co-chair Daniel Chandramohan.
WHO Recommendations for conducting an external inspection of a body and filling in the medical certificate of cause of death

Leads of the subworking groups: Andreas Schmeling; David Bailey; Luis Manuel Torres Palacios; Myer Glickman; Olga Joos
Core group: Anthony Ofosu; Eva Krpelanova; Francesco Gongolo
WHO Liaison: Robert Jakob, Carine Alsokhn

Abstract
To date, no WHO standards have been created which satisfactorily guide death examination and external inspection for reporting an informed medical opinion on the cause of death. The World Health Organization created a working group to draft a guide for conducting an external inspection of a body and filling in the medical certificate of cause of death (MCCD) using the 2016 international certificate of cause of death.

Introduction
The cause of death pathway starts with the occurrence of death and ends with it being captured in vital statistics for public health action. Only 60% of all deaths are reported with a cause of death. Mortality data reported by physicians are the best source of information on causes of death. Physicians conducting a thorough examination and investigation of each death will be able to report an informed medical opinion on the cause of death. To date, no standards have been created to properly guide death examination and investigation for reporting an informed medical opinion on the cause of death. In this vein the World Health Organization created a working group to draft a guide for a standard approach to death examination and investigation in view of the various legal, ethical, cultural, and religious perspectives on death around the world.

Methods & Workplan
1. Identifying partners for the formulation of the work and establishment of a working group
2. Organizing of a series of virtual meetings that allow face to face discussions of the content
3. Drafting WHO recommendations for conducting an external inspection of a body and filling in the medical certificate of cause of death
4. Collaborative revision of the document in the field and Review of the document by the Mortality Reference Group of the WHO-FIC Network
5. Presenting the document at the WHO-FIC Annual Meeting
6. Review of the document by a WHO-approved editor
7. Translating the final document into six WHO official languages

Working group
Regional representation that will ensure coverage of traditional or cultural differences
- Gender balance
- High and low resource settings representation
- Practising physicians to ensure feasibility and understandability
- Medicolegal expert, and experts in cause of death collection and analyses
- International organizations and associations

Collaborative revision of the guide
The final draft of the WHO recommendations for conducting an external inspection of a body and filling in the medical certificate of cause of death (MCCD) was tested in the field to collect feedback on the content and comprehensiveness of the document.

The document was tested in several countries such as India, Ghana, Brazil, United Kingdom, South Africa, Argentina, Bolivia, Colombia, Spain, Mexico and Sri Lanka. ‘Years of experience of the participants ranged from postgraduates to 40 years of experience. Average death certificates filled ranged from 0 up to 500 per month’ The document was also shared with the Mortality Reference Group of WHO Family of International Classification (WHO-FIC) Network for review.

Output
Fig.1: Death Investigation / Certification Checklist

Fig 2: Specialties of review and evaluation group

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EURO: Dr. Andreas Schmeling; Dr. Eva Krpelanova; Dr. Francesco Gongolo; Dr. David M Bailey; Myer Glickman
PAHO: Dr. Luis Manuel Torres Palacios; Dr. Catherine Morris; Dr. Corinne Fligner
SEARO: Dr. Prashant Mathur; Dr. Udaya Gamage
WPRO: Dr. Charles Naylor; Dr. Hiroshi Kinoshita; Dr. Youn Shin Kim
International organizations & associations: Dr. Duarte Nuno Vieira; Dr. Bilal Sablouh; Dr. Ken J. Berger
WHO Liaisons and Partners: Dr. Olga Joos; Dr. Daniel Cobos; Carine Alsokhn; Dr. Robert Jakob

This document is divided into chapters which form a logical sequence, after the statement of general principles, that goes from confirmation of death through the collection of information and examination of the body, ending with completion of the Medical Certificate of Cause of Death (MCCD).
The document can be read as a whole for training purposes, or each chapter can be read separately as a quick reference for practitioners.