International Statistical Classification of Diseases and Related Health Problems, 11th Revision (ICD-11)

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Overview

- Why ICD-11?
- What is new in ICD-11?
  - Content
  - Architecture
  - Tooling environment
- Implementing ICD-11
- Other WHO-FIC: ICF & ICHI
Global number of deaths by registration and reporting status to WHO

- Deaths: 57
- Registered: 27
- Reported to WHO's mortality database, any: 20
- Reported to WHO, by ICD code: 16
- Reported to WHO, detailed listing & non-garbage: 14

Preliminary estimates, WHO, 2016
# ICD-10 implementation problems

<table>
<thead>
<tr>
<th>CURRENT State</th>
<th>CURRENT Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Income Countries:</td>
<td>Undermining international data comparability</td>
</tr>
<tr>
<td>• Proliferation of ICD-10 country modifications</td>
<td>Duplicated efforts and increased complexity of national dictionaries and rules, no enrichment of international index and rules</td>
</tr>
<tr>
<td>• Formulation of national coding dictionaries and rules</td>
<td></td>
</tr>
<tr>
<td>Low &amp; Middle-Income Countries:</td>
<td>Lack of accurate disease information in countries with highest disease burden (information paradox)</td>
</tr>
<tr>
<td>• Poor uptake &amp; implementation of ICD</td>
<td>Delayed implementation</td>
</tr>
<tr>
<td>Translations are done manually by individuals</td>
<td></td>
</tr>
<tr>
<td>Expensive expert-based training</td>
<td></td>
</tr>
<tr>
<td>Quality of coded data compromised by coding errors despite expensive expert coder training</td>
<td></td>
</tr>
</tbody>
</table>
ICD-10 Problems related to update, maintenance dissemination

<table>
<thead>
<tr>
<th>CURRENT State</th>
<th>CURRENT Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual curation. Updating and dissemination of ICD-10 is carried out in a manual fashion with individual text files</td>
<td>Poor and time-consuming implementation of updates</td>
</tr>
<tr>
<td>ICD-10 is disseminated as book (i.e. information product)</td>
<td>Difficult &amp; delayed integration of ICD in electronic health record systems and other software.</td>
</tr>
<tr>
<td>ICD users in LIC can’t afford purchase of ICD Books</td>
<td>Increased software development time (poor time to market ratio)</td>
</tr>
<tr>
<td>ICD categories lack a unique identifier</td>
<td>Loss of data international data comparability as ICD users in LIC create their own shortlist and update list</td>
</tr>
<tr>
<td></td>
<td>Ambiguous referencing of ICD categories</td>
</tr>
</tbody>
</table>
Why ICD-11?

- **Up-to-date scientific knowledge – statistical continuity**
- **Serving multiple use case** (mortality & morbidity statistics, health care cost, primary care, quality and safety, progress towards SDGs, clinical documentation, research)
- **Improve usability**
  - Enable coding of more clinical detail – code combinations
  - Easy access & less expensive training
- **Make eHealth ready** for use in electronic environments – not just a print product
- **Linkages** to other relevant classifications/terminologies (ICD-O, ICPC, ICECI, ICF, SNOMED-CT, ATC, INN, eML etc.)
- **Full multilingual** support on translation and output
International Classification of Diseases (ICD)

Use Cases

- Scientific consensus of clinical phenotype
- Public Health Surveillance
  - Mortality (i.e. cause-of-death registration)
  - Morbidity (i.e. Hospital based tabulation of main condition)
- Case based data aggregation
  - Generate and document diagnosis in different settings (inpatient, primary care)
  - Casemix information for reimbursement & resource allocation
  - Quality and safety (e.g. adverse event reporting, quality of care)
  - Research (GBD, clinical trials)
Timeline

- 2007 Start ICD-11 revision
- ...
- 2018 June release of version for implementation
- 2019 May Adopted by 72nd World Health Assembly
ICD-11 Scientific clinical input

- Extensive participation by national and international scientific societies

- Over 300 clinical specialists organized in 30 topic advisory groups, 270 Institutions, 55 countries

- Input from clinical modifications of old ICD-10 – and they were based on clinical needs

- Reviews, testing, commenting => 99 countries
ICD-11 changes from ICD-10 – major examples

- **Influenza** moved to infectious diseases (Chap. 1)
- **Neoplasms include morphology**; brain and haematological tumours outside old benign/malignant scheme
- **Antimicrobial resistance codes added** - essentially missing in ICD-10
- **HIV subdivisions added** - outdated detail in ICD-10
- **Skin cancer - melanoma types missing** – basalioma missing in ICD-10
- **Upper and lower respiratory tract infections** structured more clearly
- **Diabetes coding** clinically more relevant and flexible
- **Postoperative complications**
  - in body system chapters only for permanent conditions, no residuals
  - Acute complications code with injury, mode, mechanism (external causes)
- **In general**: more relevant and up-to-date clinical detail
ICD-11 Classification System for coding Quality & Safety Events

SOURCE OF EVENT

- **Substances**: e.g. insulin
- **Procedures**: e.g. endoscopy
- **Devices**: e.g. knee implant
- **Other aspects of care**: e.g. blood transfusion

**What went wrong?**

- **CAUSE of harm or injury**
  - e.g. overdose/under-dose

**In what way? Involving which aspect of care?**

- **MODE/MECHANISM of harm or injury**
  - e.g. accidental perforation
  - e.g. dislodgement/malfunction

**What was the main consequence for the patient’s health?**

- **HARM OR INJURY resulting from event**
  - e.g. hypoglycemia
  - e.g. subcutaneous emphysema
  - e.g. febrile non-hemolytic transfusion reaction
A clinical example - device

A respirator malfunction causes a barotrauma with air embolism in a patient

Coding:

- **PK9C.1 & XD4M09** Cause of harm (*medical devices associated with injury or harm & Ventilator, Adult*)
- **PL12.1** Mode/mechanism (*Functional device failure*)
- **NF0A.0** Harm (*Air embolism, traumatic*)
Special Topic gaming disorder

- Only for very serious cases
  - impaired control over gaming
  - increasing priority given to gaming - takes precedence over other life interests and daily activities;
  - continuation or escalation of gaming despite the occurrence of negative consequences.
  - over a period of at least 12 months
Special topic: Diagnoses in Traditional medicine

- Supplementary chapter, optional use
- Only diagnoses -- NO THERAPY !!!
- Use code in addition to the codes of the regular chapters
- Current module
  - relating to ancient Chinese medicine as practiced in Korea, Japan, China and other countries around the world.
  - Represents a union set derived from national standards or ICD-10 U codes
- Other modules for diagnoses in traditional medicine may follow
ICD-11 Content model

1. ICD Concept Title
2. Hierarchy, Type and Use
   a) Parents
   b) Type
   c) Use
3. Textual Definition(s)
   a) Description (short)
   b) Definition (long)
4. Terms
   a) Index Terms
      1. Synonyms
      2. Inclusion Terms
   b) Exclusion Terms
5. Clinical Description
   a) Body System(s)
   b) Body Part(s) [Anatomical Site(s)]
   c) Manifestation Properties
      a) Signs & Symptoms
      b) Findings
   d) Causal Properties
   e) Etiology Type
      a) Infection (agents)
      b) Injury (mechanisms)
   f) Risk Factors
   g) Genomic Characteristics
   h) Temporal Properties
   i) Severity Properties
   j) Functional Properties
   k) Specific Condition Properties
   l) Treatment Properties
   m) Diagnostic Criteria
ICD-11 Foundation – input from ICD-10 and derived classifications, links

- Index
- ICD 11 for Mortality and Morbidity Statistics
- Specialty versions
- Content model
- Extension codes

ICD-10 Specialty versions (ICD-10MM, ICD 10 DA...)

ICD-O Cancer

ICF (Functioning)

Substances INN (=> ATC)

ICHI dimensions (International Classification of Health Interventions)

Terminologies, eg SNOMED Orphanet ICPC

External causes of injury ICECI

ICD-10 national modifications (Australia, Canada, Germany,...)
The **Foundation Component**

- is a multidimensional **collection of all ICD entities**.
- Entities can be **diseases, disorders, injuries, external causes, signs and symptoms**. Some entities may be very broad e.g. ‘injury of the arm’, others are more detailed, e.g. ‘laceration of the skin of the thumb’.
- has the necessary **information** to use the entities to **build a tabular list** (a mono hierarchy in the style of a traditional statistical classification). E.g. includes information on where and how a certain entity is represented in a tabular list, whether it becomes a grouping, a category with a stem code, or whether it is mentioned as an inclusion term in a particular category.
The ICD-11 Tabular lists

- Tabular lists are **subsets** of the foundation component, that are:
  - **Fit for a particular purpose**: reporting mortality, morbidity, or other uses
  - In a tabular list, **entities** of the foundation **become categories** that are **Jointly Exhaustive** and **Mutually Exclusive** of each other
  - Each category is given a **single parent**
  - Residual categories: **Other** (*.8) **Unspecified** (*.9) generated for each linearization

Examples of ICD-11 Tabular lists

- ICD-11 Mortality and Morbidity Statistics (ICD-11 MMS)
- ICD-11 Primary Care
- Specialty tabulations
  - Dermatology
  - Oncology
  - Mental Health
  - Traditional Medicine
  - …
- National tabulations (CM, AM, CA, GM…)
Differences to ICD-10- Coding scheme

- The chapter numbering:
  - Arabic numbers (not roman numerals)

- The coding scheme for categories:
  - Minimum 4 characters
  - 2 levels of subcategories

- Coding scheme
  - A letter is always in the 2nd position to differentiate from ICD-10 codes
  - No l,l (L,l); 0,O (Zero, o)

- First character of code always relates to the chapter. Numbers 1-9 are used for the first nine chapters and letters are used for chapters 10 to 26

- Residual categories use Y for other, Z for unspecified
Capturing detail of health information with ICD-10

Trained expert coders / Manual coding with complex rule base / Commercial coding software / interface terminology

NATURAL LANGUAGE
“This patient has an Atypical Pneumonia”
Reality 1: (individual detail)

ICD-11 Categories

ICD-11 Index terms

Free Text (Diagnostic information)

Reality 2: (public health, clinical, administrative needs)

ICD-11 Coding Tool
Mortality and Morbidity Statistics (MMS) Working Draft with daily updates

atypical pne

Word list
sort:
Relatedness/repetition
pneumonia
pneumoniae

Destination Entities
sort: Matching score

CA40.Z Pneumonia, organism unspecified
[Details]

CA40.04 Pneumonia due to Mycoplasma pneumoniae
due to mycoplasma pneumoniae
[Details]

primary atypical pneumonia due to mycoplasma pneumoniae
Entities and Synonyms under the “surface” include

- Extension codes, e.g.
### OPTIONAL Extension codes – add all the detail you need, if you want

#### Type 1
- Severity
- Temporality (course of the condition)
- Temporality (Time in life)
- Aetiology
- Anatomic detail Topology Anatomic location
- Histopathology (ICD-O)
- Biological Indicators
- Consciousness
- **Substances**
- External Causes detail
- Injury Specific detail
- **Health Devices, Equipment and Supplies**  
  (WHO Nomenclature of medical devices)

#### Type 2
- Main Condition
  - Reason for encounter
  - Reason for admission
  - Main Resource Condition
- Present on Admission
  - Developed after admission
  - Uncertain timing relative to admission
- Provisional diagnosis
- Diagnosis confirmed by...
  - Lab
  - Serology
  - Histology
  - Genetics
  - Imaging
  - Unspecified means
- Differential Diagnosis

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*International Nonproprietary Names: https://www.who.int/medicines/services/inn/en/*
ICD-11 Index terms

Entities and Synonyms under the “surface” include

- categories in the ICD-11 MMS
  - e.g. *Hutchinson-Gilford syndrome* under LD2B Syndromes with premature ageing appearance as a major feature
- Residual categories
  - e.g. *Capsular age-related cataract* under 9B10.0Y Other specified age-related cataract
# Example of a telescopic tabulations

<table>
<thead>
<tr>
<th>Title</th>
<th>Primary Care MMS.</th>
<th>Ophthalm.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cataract</strong></td>
<td>code</td>
<td>code</td>
</tr>
<tr>
<td>Age-related cataract</td>
<td>code</td>
<td>code</td>
</tr>
<tr>
<td>Cortical age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Nuclear age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Cataracta brunescens</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Nuclear sclerosis cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Capsular and Subcapsular age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Capsular age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Anterior subcapsular polar age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Posterior subcapsular polar age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Incipient age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Coronary age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Punctate age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Water clefts</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Advanced or mature age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Mature age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Subtotal advanced or mature age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Advanced or mature age-related cataract, total cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Morgagnian age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Calcified age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
<tr>
<td>Combined forms of age-related cataract</td>
<td>other</td>
<td>code</td>
</tr>
</tbody>
</table>
ICD-11 index terms & URIs

**Entity has a code**

<table>
<thead>
<tr>
<th>Shoreline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1CSC.11</td>
</tr>
<tr>
<td>1CSD.13</td>
</tr>
<tr>
<td>1C5.1Y</td>
</tr>
<tr>
<td>1C5.1Z</td>
</tr>
</tbody>
</table>

*Has a code grouped into a category; has URI for recording, if desired*

```
http://id.who.int/icd/entity/1104303944
http://id.who.int/icd/entity/588527933
http://id.who.int/icd/entity/854762584
http://id.who.int/icd/entity/1543765035
http://id.who.int/icd/entity/682536148
http://id.who.int/icd/entity/307264938
http://id.who.int/icd/entity/961032639
http://id.who.int/icd/entity/804089791
http://id.who.int/icd/entity/1040970454
http://id.who.int/icd/entity/36782335
http://id.who.int/icd/entity/1736084843
http://id.who.int/icd/entity/1530937152
http://id.who.int/icd/entity/608978790
http://id.who.int/icd/entity/1501615629
```

- **URIs are identifiers**
  - They are unique worldwide
- **They look like web site URLs**
  - [http://id.who.int/icd/entity/127637236](http://id.who.int/icd/entity/127637236)
- **Clear, familiar format**
- **They are used as:**
  - Identifiers for ICD-11 entities
  - Endpoint of the web services
ICD-11 Index terms includes local term variations

– Synonyms in English version
  • e.g. *end stage renal failure* under GB61.5 Chronic kidney disease, stage 5

– Synonyms in Spanish version (upcoming)
  • e.g. *intento de autoeliminación* under MB23.R Intento de suicidio
Compiling diagnostic term set for enhancement of ICD-11 index and ICD-FIT

<table>
<thead>
<tr>
<th>Data</th>
<th>Admission</th>
<th>Deaths</th>
<th>WHO Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>2963</td>
<td>94</td>
<td>exists</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2511</td>
<td>138</td>
<td>exists</td>
</tr>
<tr>
<td>Other Diarrhoeal diseases</td>
<td>1646</td>
<td>7</td>
<td>Similar term exists - diarrhoeal disease</td>
</tr>
<tr>
<td>Other Diarrhoeal disease</td>
<td>1642</td>
<td>31</td>
<td>Similar term exists - diarrhoeal disease</td>
</tr>
<tr>
<td>Urinary Tract Infection (UTI)</td>
<td>1039</td>
<td>2</td>
<td>exists</td>
</tr>
<tr>
<td>Abortion</td>
<td>890</td>
<td>1</td>
<td>exists</td>
</tr>
<tr>
<td>Hernia</td>
<td>844</td>
<td>5</td>
<td>exists</td>
</tr>
<tr>
<td>Septicaemia /Severe bacterial infection</td>
<td>810</td>
<td>108</td>
<td>both terms exist</td>
</tr>
<tr>
<td>Diabetic</td>
<td>794</td>
<td>63</td>
<td>System finds term - diabetes</td>
</tr>
<tr>
<td>Other Diagnosis - Cot Ward</td>
<td>732</td>
<td>42</td>
<td>Not a codable Dx</td>
</tr>
<tr>
<td>Severe Anaemia (&lt;7 gm/dl)</td>
<td>668</td>
<td>42</td>
<td>Similar term exists - anaemia</td>
</tr>
<tr>
<td>Preterm</td>
<td>654</td>
<td>176</td>
<td>System finds term - preterm newborn</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>641</td>
<td>179</td>
<td>exists</td>
</tr>
<tr>
<td>Soft Tissue injuries/ Wound</td>
<td>572</td>
<td>1</td>
<td>Dx incomplete - need site</td>
</tr>
<tr>
<td>Fracture</td>
<td>550</td>
<td>7</td>
<td>Similar term exists - fracture NOS</td>
</tr>
<tr>
<td>Status Asthmatic</td>
<td>545</td>
<td>4</td>
<td>exists</td>
</tr>
<tr>
<td>Cerebro Vascular Accident (CVA)</td>
<td>534</td>
<td>179</td>
<td>exists</td>
</tr>
<tr>
<td>Cataract</td>
<td>498</td>
<td>27</td>
<td>exists</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>485</td>
<td>66</td>
<td>exists</td>
</tr>
<tr>
<td>Congestive Cardiac Failure</td>
<td>454</td>
<td>2</td>
<td>exists</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>445</td>
<td>1</td>
<td>exists</td>
</tr>
<tr>
<td>Appendicitis</td>
<td>279</td>
<td>2</td>
<td>exists</td>
</tr>
<tr>
<td>Dysentery</td>
<td>246</td>
<td>1</td>
<td>exists</td>
</tr>
<tr>
<td>Benign Prostate Hypertrophy (BPH)</td>
<td>246</td>
<td>3</td>
<td>terms exist for adults and for children</td>
</tr>
<tr>
<td>Severe Acute malnutrition</td>
<td>224</td>
<td>25</td>
<td>Multiple matches based on site or type - no default</td>
</tr>
<tr>
<td>Neonatal Infection</td>
<td>217</td>
<td>29</td>
<td>exists</td>
</tr>
<tr>
<td>Respiratory Infections</td>
<td>211</td>
<td>1</td>
<td>exists</td>
</tr>
<tr>
<td>Fibroid</td>
<td>208</td>
<td>0</td>
<td>exists</td>
</tr>
<tr>
<td>Pepto ulcer disease</td>
<td>203</td>
<td>8</td>
<td>Incomplete Dx - no detail</td>
</tr>
<tr>
<td>Pregnancy complication</td>
<td>191</td>
<td>0</td>
<td>poor documentation - need site</td>
</tr>
<tr>
<td>Septic Wounds</td>
<td>181</td>
<td>8</td>
<td>exists</td>
</tr>
<tr>
<td>Sickle cell Anaemia</td>
<td>173</td>
<td>1</td>
<td>Added term</td>
</tr>
<tr>
<td>Malaria confirmed</td>
<td>168</td>
<td>2</td>
<td>mix of external cause and injury but no site</td>
</tr>
<tr>
<td>Cut Wound</td>
<td>165</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Keeping clinical term

DD5Y Other specified hernias
URI: http://id.who.int/icd/entity/1999215191
Spigelian Hernia

DD5Y Spigelian Hernia
ICD-11 Coding Tool allows accurate coding of generic & specific diagnostic terms in multiple languages

Post-coordination combinations are automatically indexed for the following axes
• Laterality
• Course (acute/chronic)
• Specific anatomy (when the value set has less than 50 items)
ICD-11 coding

Code simple

- Starting using ICD
- Limited resources
- Detail that is reliably reported
- Use of the data

Code as much detail as you need

- Patient safety systems
- Device- or Substance safety
- Research
- Accident monitoring
- Cancer registration
- Resource allocation
Case with comminuted fracture of right humerus shaft

<table>
<thead>
<tr>
<th>Code simple</th>
<th>Code very detailed e.g. for research</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB52.4 Fracture of shaft of humerus</td>
<td>NB52.4 &amp; XK9K &amp; XJ1Z6</td>
</tr>
<tr>
<td></td>
<td>NB52.4 Fracture of shaft of humerus</td>
</tr>
<tr>
<td></td>
<td>XK9K Right</td>
</tr>
<tr>
<td></td>
<td>XJ1Z6 Comminuted fracture</td>
</tr>
</tbody>
</table>
Example: Stem code + stem code(s)

Type 2 diabetes mellitus with diabetic foot =

5A11 / BD54

(5A11 Type 2 diabetes mellitus
BD54 Diabetic foot ulcer)
Simple search

Type a diagnostic statement into the Coding Tool

e.g. cancer of stomach
Simple search

Type a diagnostic statement into the Coding Tool

e.g. *Osteoarthritis of right knee*
Flexible search

Type a diagnostic statement into the Coding Tool

e.g. *splenic flexure colonic liposarcoma*
Flexible search cont.

The Coding Tool now finds an almost exact match for the search term 'splenic flexure colonic liposarcoma'.

Destination Entities:
- 2B90.Z... Malignant neoplasms of colon, unspecified [Splenic flexure of colon]
- colon cancer [Splenic flexure]
- 2B90.AZ Malignant neoplasm of descending colon or splenic flexure of colon, unspecified
- 2B90.Y Other specified malignant neoplasms of colon [Splenic flexure of colon]
Flexible search cont.
postcoordination option for histopathology
Coding External causes using postcoordination

ICD-11 Coding Tool

Mortality and Morbidity Statistics (MMS)
Working Draft with daily updates

guessing the word being typed...

Word list

sort: Relatedness/repetition

tree

Destination Entities

sort: Matching score

- PA61 Unintentional fall from a height of 1 metre or more
  - fall from tree
- PC31 Intentional self-harm by fall or jump from a height of 1 metre or more
  - Intentional self-harm by fall or jump from tree
- PG51 Fall or jump of undetermined intent from a height of 1 metre or more
  - Fall or jump of undetermined intent from tree
- PE01 Assault by causing a fall or jump from a height of 1 metre or more
  - Assault by causing a fall or jump from 1 metre or more from tree

Chapter distribution / filter

External causes
Coding External causes using postcoordination
The New Version of the ICD-11 Coding tool (cont.)
Browser and Coding tool
https://icd.who.int
ICD-11 Tooling environment

- Authoring Tool (iCat)
- ICD-11 repository
  - Daily versions
  - Releases
  - Snapshots
- ICD Search Index
  - multiple versions
  - multiple languages
- ICD-11 Database
  - Proposals
  - Translations
- ICD-API
  - RESTFUL Web services
- ICD-11 Browser
- ICD-11 Coding Tool
- Proposal Mechanism
- Translation Tool
- Print versions
ICD-11 Translation Tool

- Makes ICD-11 translation easier, faster and better through:
  - Translation memory (use of existing ICD-10 translations)
  - Multiple translators can work simultaneously
  - Automatic update of structural changes in translation
  - Notification and track change function for content changes
  - Commenting on the translations

Ongoing translation: 14 languages including official WHO languages
Multilingual browsing with ICD-11
How software talks to ICD-11?

ICD API (Application-Programming Interface)  
https://icd.who.int/icdapi

- Access to ICD-11 categories *(17,000)*
- Access to ICD-11 index terms (currently over *105,000* medical diagnostic terms)
- Access to and index-based search algorithm (currently interpret more than *1,6 million terms*)
- Easy to deploy *(online & offline)* using container DOCKER software
- Easy to update due to ICD-11 URIs
ICD-11 Coding training and self-evaluation tool (ICDfit) Analytics features

- Coders get feedback on how they coded each diagnostics statement.
- Coders will get a summary score indicating their coding accuracy & timing (performance).
- Coders can compare their results with their peers (ranking).
- Member States & WHO can assess coding quality, translations and improve classification & tooling.
<table>
<thead>
<tr>
<th>Diagnostic Term</th>
<th>Grand Total of code assignments</th>
<th># of correct code assignments</th>
<th>Percent correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastric ulcer with acute haemorrhag</td>
<td>18</td>
<td>1</td>
<td>5.56%</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>19</td>
<td>5</td>
<td>26.32%</td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>19</td>
<td>7</td>
<td>36.84%</td>
</tr>
<tr>
<td>Cataract</td>
<td>19</td>
<td>17</td>
<td>89.47%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>21</td>
<td>19</td>
<td>90.48%</td>
</tr>
<tr>
<td>Typhoid Fever confirmed</td>
<td>18</td>
<td>17</td>
<td>94.44%</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>18</td>
<td>17</td>
<td>94.44%</td>
</tr>
<tr>
<td>Neonatal Sepsis</td>
<td>18</td>
<td>17</td>
<td>94.44%</td>
</tr>
<tr>
<td>Febrile Convulsion</td>
<td>18</td>
<td>17</td>
<td>94.44%</td>
</tr>
<tr>
<td>Substances induced psychosis</td>
<td>19</td>
<td>18</td>
<td>94.74%</td>
</tr>
<tr>
<td>Sepsis (septic shock)</td>
<td>19</td>
<td>18</td>
<td>94.74%</td>
</tr>
<tr>
<td>RDS</td>
<td>19</td>
<td>18</td>
<td>94.74%</td>
</tr>
<tr>
<td>Bilateral Conductive Hearing Loss</td>
<td>21</td>
<td>20</td>
<td>95.24%</td>
</tr>
<tr>
<td>Peptic ulcer disease</td>
<td>21</td>
<td>21</td>
<td>100.00%</td>
</tr>
<tr>
<td>Charcot-Marie-Tooth disease</td>
<td>20</td>
<td>20</td>
<td>100.00%</td>
</tr>
<tr>
<td>Friedreich ataxia</td>
<td>20</td>
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<td>100.00%</td>
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<tr>
<td>Ovarian Cyst</td>
<td>20</td>
<td>20</td>
<td>100.00%</td>
</tr>
<tr>
<td>Uterine Fibroid</td>
<td>20</td>
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<td>100.00%</td>
</tr>
<tr>
<td>Schizophrenia, unspecified</td>
<td>20</td>
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<td>100.00%</td>
</tr>
<tr>
<td>Temporal lobe epilepsy</td>
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<td>100.00%</td>
</tr>
<tr>
<td>Congenital malformation</td>
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<td>100.00%</td>
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<tr>
<td>Periventricular leukomalacia</td>
<td>19</td>
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<td>100.00%</td>
</tr>
<tr>
<td>Cerebro Vascular Accident (CVA)</td>
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<tr>
<td>OSA syndrome</td>
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</tr>
<tr>
<td>Viral hepatitis</td>
<td>19</td>
<td>19</td>
<td>100.00%</td>
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<tr>
<td>TB meningitis</td>
<td>19</td>
<td>19</td>
<td>100.00%</td>
</tr>
<tr>
<td>Pre-eclampsia</td>
<td>19</td>
<td>19</td>
<td>100.00%</td>
</tr>
<tr>
<td>Chronic Osteomyelitis</td>
<td>19</td>
<td>19</td>
<td>100.00%</td>
</tr>
<tr>
<td>Dental caries</td>
<td>18</td>
<td>18</td>
<td>100.00%</td>
</tr>
<tr>
<td>Complete heart block</td>
<td>18</td>
<td>18</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

**Module 2 (n=30):**
- 27 terms -> coding accuracy 90% or higher

**Conclusion:** Good to very ICD-11 coding results with basic training
ICD-11 Implementation package

- Browser, Coding tool, APIs
- Reference Guide (user manual - online)
- Transition guide
- Translation tool
- Mapping between ICD-11 and ICD-10
- ICD-11 Coding training and self-evaluation tool (ICDfit)
- ICD-11 e-learning tool (in preparation)
- ICD-11 AnaCoD 3 (in preparation)
ICD-11 Implementation preparation

Jan/Feb 2019: ICD-11 training workshops with 70 countries from all WHO Regions

May 2019: ICD-11 adopted by 72nd World Health Assembly
  – ICD-11 will come into effect 1. Jan 2022

Global Implementation Plan
  – Phase 1: 2019-2021: Enable countries to become early adopter of ICD-11 by 2021
    • Country pilot projects on ICD-11 API integration in EMR software and/or national reporting systems (e.g. DHIS-2)
    • Guidance and capacity building to develop country roadmap for ICD-11 implementation
    • Translation support
    • Development and enhancement of ICD-11 Implementation package
    • Statistical impact assessment including linkage with selected targets and indicators GPW13 impact framework
    • Build-up and strengthen WHO internal competency and capacity for ICD-11
    • WHO FIC Networks engagement and scale-up Member State engagement in ICD-11 maintenance
  – Phase 2: 2022-2032: Scale-up implementation & routine maintenance
The Family – integrated health information

Reference Classifications
- International Classification of Diseases (ICD)
- International Classification of Functioning, Disability and Health (ICF)
- International Classification of Health Interventions (ICHI)

Derived Statistical Classifications and Tabulations

Related Classifications

Foundation

Shared terminologies

VERSION D-2