

# **Eleventh revision of the International Classification of Diseases**

## **Report by the Director-General**

1. The International Statistical Classification of Disease and Related Health Problems (commonly referred to as the International Classification of Diseases, ICD) is the global standard classification for mortality and morbidity statistics. Such data, broken down by age, sex and cause of death, are the foundation of public health. Progress towards the Sustainable Development Goals and universal health coverage is measured with several cause-specific mortality and morbidity indicators.
2. In the late nineteenth century, the original precursor of what became ICD was concerned only with causes of death. WHO, entrusted with ICD's development in 1948, extended its scope to include non-fatal diseases. It has continued this work through to the current eleventh revision (ICD-11), introducing certain innovations to meet the statistical needs of widely differing organizations.
3. The Health Assembly adopted the tenth revision (ICD-10) in resolution WHA43.24 in 1990. That revision came into effect on 1 January 1993, and currently some 120 Member States report cause-of-death data on its basis to WHO, although only half of them report data of good quality. Member States are also applying ICD-10 to morbidity statistics, resource allocation in primary care, measuring quality of care, patients' safety, billing for health insurance, clinical decision-making, clinical recording and research. Additional demands come from the digitalization of health information systems and related data processes for collection of health information.

### **PREPARATION OF THE ELEVENTH REVISION OF ICD**

4. WHO formally launched the process of revising ICD-10 in 2007. A vast amount of work at WHO headquarters and around the world went into designing the development process. The programme of work has been guided by regular meetings of representatives of the WHO collaborating centres for the Family of International Classifications, nongovernmental organizations and some other non-State actors, as well as the ICD-11 Revision Steering Group that supported WHO through several special meetings, providing input on policy and content.
5. Extensive preparation was devoted to a review of the suitability of the structure of ICD, which was by definition a statistical classification of diseases and other health problems, to serve a wide variety of needs for mortality statistics, morbidity statistics, reimbursement, measuring quality of care, patients' safety, monitoring primary care and clinical recording. Technical work was undertaken by many ICD Revision Topic Advisory Groups and WHO departments for different chapters, with cross-cutting ICD Revision Topic Advisory Groups examining information modelling, mortality, morbidity, quality and safety, and traditional medicine issues.

6. In addition to the consultations and reports discussed below, and consultations at regional level, the Secretariat field tested the proposed ICD-11 in 31 Member States across all regions.<sup>1</sup>

7. The version for preparation of implementation of ICD-11 was released in June 2018, accompanied by guidance on implementation. The release has elicited feedback for amendment of both this version and the guidance, which is being amended by the Secretariat in consultation with the Joint Task Force, the Mortality and Morbidity Reference Groups for ICD, and the Medical Scientific Advisory Committee for the WHO Family of Classifications. Proposed improvements include the addition of terms for mortality coding and clarification of terms and titles. Feedback was received from translators and an assessment project for migration of automatic mortality coding software to ICD-11.

8. As of November 2018, projects to prepare for implementation based on the version for preparation of implementation are starting in various Member States, with support from the Secretariat.

### **External review of the eleventh revision of ICD**

9. In October 2014 WHO commissioned an external review in order to obtain an independent view of progress on the contents and process of the revision. Through a structured questionnaire and interviews, inputs were solicited from a wide range of stakeholders, including the Secretariat. The final report included several recommendations related to: the timeline for completing the eleventh revision; improving communication, dissemination, outreach, and transparency in the revision process; planning for updates; clarifying decision-making roles and responsibilities; educating users on ICD-11; and gaining trust of those concerned with classifications of disease.

10. Accepting these recommendations, the Secretariat formulated a revised workplan and strengthened its activities in terms of project management, communication of progress and plans, documentation and transparency of decision-making, and classification expertise.

### **ICD Revision Conference**

11. At the ICD-11 Revision Conference (Tokyo, 12–14 October 2016), hundreds of experts and representatives of institutions from around the world provided WHO with positive feedback on the content and structure of ICD-11.<sup>2</sup> Comments emphasized that many Member States still do not have adequate systems to support reporting of cause of death and morbidity, and that significant planning and support for implementation will be required to build systems and capacity in these settings so that no one is left behind.

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<sup>1</sup> Progress on the eleventh revision was described in document EB143/13, noted by the Board (see the summary records of the Executive Board at its 143rd session, third meeting, section 2).

<sup>2</sup> For report of the conference, see <http://www.who.int/classifications/network/meeting2016/ICD-11RevisionConferenceReportTokyo.pdf> (accessed 15 November 2018). Member States represented at the conference included Albania, Algeria, Argentina, Australia, Brazil, Cambodia, Canada, China, Denmark, Egypt, Ethiopia, Finland, India, Indonesia, Iran (Islamic Republic of), Japan, Kenya, Kuwait, Malaysia, Mexico, Mozambique, Myanmar, Namibia, Nepal, Netherlands, Philippines, Republic of Korea, Russian Federation, Rwanda, Slovakia, Sri Lanka, Sweden, Thailand, Turkmenistan, Uganda, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, and the United States of America.

## **Member States' comments**

12. Between January and October 2017, the Secretariat sought comments from Member States on ICD-11's new content, structure, features, implementation needs, and data priorities in relation to the 2016 version of the eleventh revision. Feedback, including shared responses, was received from Member States in all WHO regions, as were inputs from field testing and dedicated scientific reviews. The version for preparation of implementation released in June 2018 reflected this feedback.

## **Statistical review meeting**

13. In April 2018, WHO convened statistical experts in a meeting in Geneva to review the chapter structure and categories of the draft ICD-11 for its suitability in legacy use of ICD for mortality and morbidity statistics. The meeting agreed a short set of recommendations regarding nomenclature and some individual categories, which the Secretariat acted upon.

14. A review of the mortality coding rules showed potential for simplification, which has also been done.

15. The current set of mortality coding rules has been adapted for use with ICD-11. Some small adjustments to terminology and examples were made in conjunction with the WHO Family of International Classifications Mortality Reference Group. Participants also discussed issues such as multimorbidity in ageing populations, dementia, and sepsis, and the special tabulation lists.

16. Participants agreed on the tabular list with its categories and subcategories, the adoption of the mortality rules adapted to use with ICD-11, retention of the special tabulation lists, and development of the concept of multiple cause coding to retain information in cases of multimorbidity, which is relevant in particular for ageing populations and chronic diseases.

## **Oversight by the Joint Task Force of consolidation and finalization of the revision process**

17. The Joint Task Force, comprising statistical and scientific experts from the former Topic Advisory Groups, served as the steering group and provided strategic and technical advice to WHO for the finalization of the eleventh revision. Its mandate was to recommend:

- code categories and subcategories for use in mortality or morbidity
- a structure for tabulation and aggregation codes for international reporting
- mortality and morbidity coding rules
- the use of combinations of codes
- the suitability of the product for use as a statistical classification.

18. At its 10th session in October 2018, the Joint Task Force confirmed that the tabular structure, chapter structure and codes were stable, the coding mechanism and coding format were in place, the coding tool was functional, the reference guide and rule base were mature, and the governance mechanisms for maintenance and updating were in place and described. It declared that ICD-11 was stable and ready for the processes leading to implementation.

19. The Joint Task Force, in its final report to the Secretariat on 26 October 2018, recommended that the Secretariat should submit ICD-11 to the Seventy-second World Health Assembly in May 2019, through the Executive Board in January 2019, for consideration for adoption. It also suggested that enough time be allowed for Member States to prepare for implementation of ICD-11 for international reporting, as was the case for ICD-10. The Secretariat should provide adequate resources for maintenance and implementation of ICD-11. Work should continue to be undertaken that goes beyond the core task of revising ICD for morbidity and mortality statistics, and which is necessary if the potential utility and value of ICD-11 are to be tapped, as was the case for ICD-10. Further work will allow ICD-11 to interoperate with electronic health records, including those that make use of formal terminologies, projects that draw on the great potential of the ICD-11 application programming interface for electronic communication and translations, and include measures to facilitate the adoption of ICD-11 by countries that have not previously used ICD to a great extent.

### **WHO Family of International Classifications Network meeting (Seoul, 22–26 October 2018), including the meeting of the Classification and Statistics Advisory Committee**

20. The new structure of ICD-11 and the changes compared with ICD-10, the proposed mechanism for updating ICD, the amendments to mortality and morbidity coding rules, the mechanism for computer-assisted coding and the proposed design of the updating process were presented at the meeting. Participants, including representatives of 55 Member States,<sup>1</sup> suggested that ICD-11 was ready for use and should be submitted to the Health Assembly for consideration of adoption.

### **GENERAL CHARACTERISTICS AND CONTENT OF THE PROPOSED ELEVENTH REVISION OF ICD**

21. ICD-11 is designed to meet the needs of diverse users and the demands of information technology. One important innovation is the use of electronic tools and platforms for support of coding, translation and testing, and its presentation for use in electronic environments.

22. Compared with ICD-10, ICD-11 has five new chapters, on: Diseases of blood or blood-forming organs, Diseases of the immune system, Sleep-wake disorders, Conditions related to sexual health, and a supplementary chapter Traditional medicine conditions – Module 1. The chapters on Diseases of the skin, Developmental anomalies, and Symptoms, signs or clinical findings, not elsewhere classified have been significantly restructured.

23. Highlights of updates include the possibility to report antimicrobial resistance, an updated classification of HIV, improved coding of diabetes and of allergies, and the ability to describe patient safety events.

24. The codes in ICD-11 continue to be alphanumeric, but the number of characters has been increased by one and the coding scheme is now aligned with the chapter structure.

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<sup>1</sup> Argentina, Australia, Bahrain, Bangladesh, Bhutan, Brazil, Cambodia, Canada, China, Colombia, Cuba, Czechia, Democratic People's Republic of Korea, Denmark, Ecuador, Finland, France, Germany, Ghana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lao People's Democratic Republic, Libya, Mexico, Myanmar, Namibia, Nepal, Netherlands, Portugal, Republic of Korea, Russian Federation, Rwanda, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Trinidad and Tobago, Tunisia, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Viet Nam, Zambia.

25. Among additional new features of the eleventh revision are:

- the inclusion of the concepts of pre-coordination and post-coordination (using multiple codes to describe a condition), which allow health conditions to be described to any level of detail by applying either one pre-coordinated code or more than one code by post-coordination of two or more codes;
- the inclusion of the concept of multiple parenting, in order to indicate that an entity may be correctly classified in different places;
- descriptions for all entities throughout ICD-11, not just mental, behavioural or neurodevelopmental disorders (as was the case in ICD-10);
- two supplementary sections: Section V – Supplementary section for functioning assessment, and Supplementary Section X – Extension Codes;
- the inclusion of morphology information in the hierarchy in the chapter on Neoplasms;
- restructuring and renaming of the chapter in ICD-10 on Congenital malformations, deformations and chromosomal abnormalities as Developmental anomalies;
- reallocation of all genetic syndromes without structural developmental anomalies to appropriate chapters of ICD-11, according to the affected body system(s);
- relocation of codes that serve to add detail and codes identified as “asterisk” codes in ICD-10 to Chapter 21 (Symptoms, signs or clinical findings, not elsewhere classified), Section X (Extension codes), or in chapters 1 to 24, as appropriate; the section containing the Extension Codes groups anatomy, agent, histopathology, International Nonproprietary Names, devices, and other aspects that may be used to add detail to a code;
- addition of a Content Model that includes a range of descriptive components for each ICD entity;
- linkages to other classifications and terminologies or their inclusion where possible, and alignment of items used in other members of WHO’s Family of International Classifications wherever possible.

## **SPECIFIC ISSUES**

### **Standards and descriptions related to maternal and child health**

26. The descriptions of live birth, fetal death and maternal death have been retained from ICD-10. However, to improve the quality of maternal mortality data and provide alternative methods of collecting data on pregnancy-related deaths, as well as to encourage the recording of deaths from obstetric causes occurring more than 42 days following termination of pregnancy, two additional descriptions, for “pregnancy-related deaths” and “late maternal deaths”, have been added. These data can be obtained from death certificates.

## **Coding and selection rules and tabulation lists**

### **Coding and selection rules for mortality**

27. The mortality coding rules of ICD-10 have been adapted for use with ICD-11, with irrelevant rules removed. The intent of the rules has not been changed.

28. The international death certificate and the method for selecting a single underlying cause of death for primary tabulation and international comparison, as well as the table recommending additional detail for perinatal mortality, have been maintained from the update of ICD-10 published in 2016.

29. ICD-11 is suitable for the use of multiple-cause coding and analysis in relation to causes of death. The concept of post-coordination (code combinations) has been incorporated into the rules. The rules thus provide further guidance in coding additional information for those who wish to use code combinations.

### **Coding and selection rules for morbidity**

30. The definition of “main condition” has been updated in ICD-11 to be the condition that is determined to be the reason for admission to hospital, established at the end of the patient’s stay. This definition is less prone to free interpretation than the former definition that was based on “most resource intensive”, and Member States using ICD-10 that had switched from the former definition to the “reason for admission established at the end of the stay” reported only small changes in their activity statistics.

31. ICD-11 also provides amended rules for dealing with obviously incorrectly-reported main conditions.

32. New rules have been established for use of code combinations, use of optional extension codes, coding of personal and family history, late effects, and “ruled out” conditions. Further new rules concern application of ICD-11 to studying quality and safety of care, in line with WHO’s conceptual framework for the international classification for patient safety.<sup>1</sup>

### **Lists for tabulation of mortality and morbidity**

33. The lists for tabulation have been updated to meet the updated structure. The statistical review meeting and the Classifications and Statistics Advisory Committee recommended continuing to include the short tabulation lists in ICD-11.

## **FAMILY OF CLASSIFICATIONS**

### **Concept of the Family of Classifications**

34. In 1990, the Health Assembly, in resolution WHA43.24 on Report of the International Conference for the Tenth Revision of ICD, endorsed the concept of a family of disease and health-related classifications. The concept has since proven its utility and been further developed through the WHO

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<sup>1</sup> WHO, Patient Safety. Conceptual Framework for the International Classification of Patient Safety, version 1.1: final technical report, January 2009. Geneva: World Health Organization; 2009, document WHO/IER/PSP/2010.2 ([http://www.who.int/patientsafety/taxonomy/icps\\_full\\_report.pdf](http://www.who.int/patientsafety/taxonomy/icps_full_report.pdf), accessed 16 November 2018).

Family of Classifications Network, broadening the base of ICD with the International Classification of Functioning, Disability and Health (2001) and the International Classification of Health Interventions.

35. Coding terms have been included in ICD-11 that have proven relevant for coding causes of death, with further detail for coding that was included in national extensions of ICD-10. A methodology for linkages of other terminologies has been determined, and the work in relation to the Systematized Nomenclature of Medicine–Clinical Terms is progressing.

### **Modification of ICD**

36. In the interests of international comparability, it is important that no change be made to the content (as indicated by the titles) of the four-character categories and five-to-six-character subcategories of ICD-11 in the preparation of translations or adaptations, except as authorized by WHO. The Organization is responsible for ICD and the Secretariat acts as the central clearinghouse for any publication (except national statistical publications) or translation to be derived from it. WHO should be promptly notified about the intention to produce translations and adaptations or other ICD-related classifications. Content proposed for national use should be submitted to the updating process to ensure continued international comparability.

### **The Foundation Component**

37. This component of ICD-11 will be the data source for production and maintenance of the tabular lists, index, and the Reference Guide. It will also include additional content to improve usability of ICD-11 compared with ICD-10 in digital environments, to link with other classifications and terminologies, and to significantly improve guidance for users. The Foundation Component will also serve to keep aligned the different specialty versions. Where required, unique identifiers of categories and for content of categories can be used to retain more detail in electronic records.

### **Specialty-based versions**

38. ICD-10 was accompanied by publications on application of the International Classification of Diseases to Dentistry, to neurology and to oncology, and on clinical descriptions and diagnostic guidelines for Mental and Behavioural Disorders and more.

39. Specialty versions of ICD-11 will be designed on the Foundation Component of ICD-11, thereby making their maintenance and coherence easier and more straightforward, enabling translations done on the common translation tool to be easily verified, and ensuring consistency.

### **Traditional medicine<sup>1</sup>**

40. Traditional medicine is an area of health care in many Member States, and traditional practitioners are mentioned in the Declaration of Alma-Ata on Primary Health Care (1978) as part of the provision of primary health care. ICD-11 includes a supplementary chapter (Traditional medicine conditions – Module 1), which classifies traditional medicine conditions that originated in ancient China and are now commonly used in China, Japan, Republic of Korea and other countries. These categories are intended for optional dual coding of traditional medicine diagnoses and patterns. They do not refer to – nor endorse any form of treatment. Additional modules classifying diagnostic concepts of other standardized

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<sup>1</sup> WHA62.13, WHA67.18.

forms of traditional medicine may be developed in the future. The inclusion of a supplementary chapter on traditional medicine in ICD will for the first time enable counting of traditional medicine services and encounters, measurement of their form, frequency, effectiveness, safety, quality, outcomes, cost, comparison with mainstream medicine and research due to standardized terms and definitions nationally and internationally.

### **Information to support primary health care**

41. The importance of developing unconventional methods at the community level to fill information gaps and strengthen information systems in individual Member States is well recognized. Such methods can draw on Member States' experience in developing and applying community-based health information methods covering health problems, related risk factors, needs and resources. The Secretariat has formulated a standard scheme for reporting of causes of death by lay persons (the 2016 WHO verbal autopsy instrument).<sup>1</sup>

42. With respect to recording and reporting morbidity in primary care settings, ICD-11 has been expanded with several broader categories for reporting health conditions and reasons for encounters with the health system.

### **International Classification of Functioning, Disability and Health**

43. In 2001, the Health Assembly in resolution WHA54.21 endorsed the second edition of the International Classification of Functioning, Disability and Health. Subsequently the classification has been updated on the basis of evidence from the field, and domains particularly relevant to children have been added.

44. Assessment of functioning before and after treatment is currently used to determine the severity of cases and the resources required, and to monitor progress of treatment. In ICD-11, a new Section, "V – Supplementary section for functioning assessment" has been added to enable scoring, based on the existing WHO Disability Assessment Schedule 2.0. This instrument is directly linked to the International Classification of Functioning, Disability and Health.

### **Health interventions and procedures in medicine**

45. An international classification of procedures in medicine was published in 1978 for trial purposes. It was updated in 1989, but subsequent updating was complicated by rapid scientific advances. In 2008, the Secretariat, recognizing that new communication technologies could overcome those problems, began work on a new international classification of health interventions, covering the areas of medical care, nursing, a patient's functioning, and public health. Systematic field testing and consultations in 2019 aim to ensure its utility for compilation of international statistics on health interventions.

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<sup>1</sup> Verbal autopsy standards: the 2016 WHO verbal autopsy instrument, V1.4.2. Geneva: World Health Organization; 2016 ([http://getinthepicture.org/sites/default/files/resources/Source\\_Manual%20and%20%20guidelines%20for%20application%20and%20use%20of%20simplified%20WHO%20VA%20tool\\_2016v1-4-2.pdf](http://getinthepicture.org/sites/default/files/resources/Source_Manual%20and%20%20guidelines%20for%20application%20and%20use%20of%20simplified%20WHO%20VA%20tool_2016v1-4-2.pdf), accessed 16 November 2018).

## **IMPLEMENTATION**

46. ICD-11 will be published both electronically and in print. In the electronic version, information will be interlinked and visible in the relevant context. In the print version, the information will be divided into three volumes, as before: the tabular list, the reference guide, and the index. All three are needed to use ICD-11 correctly.

47. For coding purposes, the electronic index, in the format of online coding tool, will replace the print index as the reference for coding outcomes.

48. Member States intending to produce national language versions of the eleventh revision should notify the Secretariat of their intentions. All translations should be done on, or integrated in, the ICD-11 translation platform, access to which will be provided by the Secretariat. In this way, multilingual versions can be made accessible, with consistency between versions ensured. Further, all language versions of ICD-11 that are on the translation platform can be automatically produced in all output formats, such as print files and electronic outputs; in addition, the translated version can be accessed through human or software interfaces. All translations on the platform can be accessed through the same browser, coding tool and programming interface.

49. As with the tenth revision, materials for the reorientation of trained coders for ICD-11 have been developed with the help of WHO collaborating centres for the Family of International Classifications. Training courses will be the responsibility of WHO regional offices and individual Member States. Materials for the basic training of new users of ICD-11 are being developed by WHO.

50. The release will be accompanied by an implementation package containing training materials, implementation guidance, transition tables, translation tools, information about governance and maintenance, and different formats of ICD-11 for incorporation into existing health-reporting systems.

## **FUTURE REVISION AND UPDATING OF ICD**

51. The Health Assembly in resolution WHA43.24 (1990) endorsed an updating process within the 10-year revision cycle for ICD-10. During the extended period of use of the tenth revision (28 years rather than the planned 10 years), difficulties have been experienced owing to the lack of incorporation of updates by all Member States and the need for some major updates.

52. For ICD-11, broader outreach to Member State participation in the discussions and the formation of a dedicated Medical Scientific Advisory Committee are expected to overcome the issues experienced with ICD-10 and facilitate the future dissemination of updates for ICD-11 to users. With respect to statistical impact and based on the experiences with different levels and speeds of uptake of updates, any changes proposed during the lifetime of ICD-11 will be considered very carefully in relation to their impact on analyses and trends, in particular for coding rules and the four-character categories. Optional subcategories, index entries and improvements to user guidance will be updated more frequently than the four-character categories.

## **ACTION BY THE EXECUTIVE BOARD**

53. The Board is invited to consider the following draft resolution:

The Executive Board,

Having considered the report on the eleventh revision of the International Classification of Diseases,<sup>1</sup>

RECOMMENDS to the Seventy-second World Health Assembly the adoption of the following draft resolution:

The Seventy-second World Health Assembly,

(PP1) Having considered the report on the eleventh revision of the International Classification of Diseases,

(OP1) ADOPTS the following, based on the report by the Director-General:

(1) the detailed list of four-character categories and optional five- and six-character subcategories<sup>2</sup> with the short tabulation lists for mortality and morbidity, constituting the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-11);

(2) the definitions, standards and reporting requirements related to maternal, fetal, perinatal, neonatal and infant mortality;<sup>3</sup>

(3) the rules and instructions for underlying cause coding for mortality and main condition coding for morbidity;

(OP2) DECIDES that the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems shall come into effect on 1 January 2022;

(OP3) ENDORSES:

(1) the further development and implementation of the family of disease and health-related classifications, with the International Statistical Classification of Diseases and Related Health Problems as the core classification linked to other related classifications, specialty versions and terminologies;

(2) the updating process within the lifetime of eleventh revision of the International Statistical Classification of Diseases and Related Health Problems;

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<sup>1</sup> Document EB144/22.

<sup>2</sup> See ICD-11 browser at <https://icd.who.int/browse11/l-m/en>.

<sup>3</sup> See document at <https://icd.who.int/docs/norms-eb2019.pdf>.

(OP4) REQUESTS the Director-General:

- (1) to put in place the electronic tools and support mechanisms for maintenance and dissemination and issue the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems;
- (2) to provide support, upon request, to Member States in implementation of the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems;
- (3) to report regularly on progress in implementing this resolution to the Health Assembly through the Executive Board.

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