



ICD-11 Overview

Key Facts, History, and References¹

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Introduction – What is ICD?

The International Classification of Diseases and Related Health Problems (ICD) is a classification system developed and copyrighted by the World Health Organization (WHO). ICD is the international standard for reporting mortality, morbidity and other conditions affecting health. ICD serves as the foundation for identifying health trends and statistics worldwide. The tenth version (ICD-10) was used for this purpose from January 1993 until January 2022. The WHO began development of the eleventh version (ICD-11) in 2007. Experts from the United States (U.S.) and over 90 countries participated in the Joint Task Force and Topic Advisory Groups to develop ICD-11's structure and content. WHO published ICD-11 for review in 2018, and the World Health Assembly adopted ICD-11 in May 2019 to be effective beginning January 1, 2022.² ICD-11 is presently being adopted by WHO member countries.

New Developments In ICD: An Overview of ICD-11

Previous versions of ICD were hierarchical lists of classification codes as described below. Each decade, the list of codes was expanded and reorganized to reflect changes in biomedical knowledge and clinical practice. However, the WHO's ICD-11 classification is completely restructured to take advantage of today's digital capabilities; to improve coordination with other classifications and terminologies; to provide flexibility to reduce the need for national clinical modifications and to improve the comparability of translations and support on-line services to reduce the cost of implementation. ICD-11 incorporates not only current medical science and enhanced clinical content but also the latest knowledge in classification design and digital computing.

Unique features of ICD-11 include:³

- **Modern technology and user interfaces.** Digital representation of health terms and classes, and relationships between terms and classes.
- **Changing to reflect medical knowledge.** The ICD-11 foundation uses a comprehensive semantic model designed to be continuously updated, potentially reducing the need for major upgrades in the future.
- **Post-coordination.** This is a feature of ICD-11 that allows clustering of codes with optional extensions to achieve necessary specificity. This provides flexibility without predefining every combination that may possibly be needed.
- **Linearizations.** These are subsets of the ICD-11 foundation that are exposed to users for specific purposes. A linearization is used for international mortality reporting and another one is anticipated to be derived for U.S. morbidity coding.
- **Freely available online tools and services.** ICD-11 is designed to ease translation and mapping between ICD-11 and other terminologies and coding systems.
- **Additional tools and services to support implementation.**

¹ This information was developed by the National Committee on Vital and Health Statistics (NCVHS) ICD-11 Workgroup on Timely and Strategic Action to Inform ICD-11 Policy and is available on the NCVHS website here:

<https://ncvhs.hhs.gov/NCVHS-WG-ICD-11-Overview-September-2023>

² World Health Organization, International Statistical Classification of Diseases and Related Health Problems (ICD) <https://www.who.int/classifications/classification-of-diseases>

³ WHO Reference Guide <https://icdcdn.who.int/icd11referenceguide/en/html/index.html>

Clinical content updates in ICD-11 include:⁴

- Significant detail to classify rare diseases as well as social, community, and behavioral health.
- Codes for antimicrobial resistance.
- Codes for full documentation of patient safety.
- Necessary detail for cancer registration fully-embedded.
- Specific coding for clinical stages of HIV.
- More clinically relevant coding for complications of diabetes.
- Codes for common skin cancers basalioma, and melanoma subtypes.
- Classification of heart valve disease and pulmonary hypertension, matching current diagnostic and treatment capacity.
- New chapters for disease of the immune system, sleep-wake disorders, and conditions related to sexual health.
- Incorporation of traditional medicine diagnoses.
- Supplementary section for assessment of functioning.

HISTORY: ICD-10 and ICD-10-CM

In the U.S., ICD is a HIPAA-designated medical code set. When the ninth and tenth versions of ICD were implemented, the WHO authorized development of adaptations by member countries to meet their specific statistical classification needs for mortality reporting, as well as morbidity coding use cases.

- The National Center for Health Statistics (NCHS), the Federal agency responsible for publishing ICD in the U.S., determined that modifications of the WHO's ICD versions nine and ten were necessary to meet the data classification needs in the U.S.
- Thus, NCHS developed the International Classification of Diseases, tenth version, Clinical Modification (ICD-10-CM).⁵
- The U.S. implemented the WHO ICD-10 classification for mortality reporting (cause of death coding) in 1999.
- In 2015, the U.S. implemented ICD-10-CM for morbidity reporting (e.g., coding on healthcare claims).
- ICD-10-CM includes changes to WHO's ICD-10 with expansion of specific codes to achieve the specificity required for morbidity reporting in the U.S.

Though the U.S. adopted ICD-10-CM fairly recently, it was developed based on the 1990s version of the WHO ICD-10, which is now outdated. The WHO adopted ICD-11 for worldwide implementation in 2019. As of January 2022, the WHO will report global health statistics in ICD-11. WHO member countries have committed to start implementing and reporting morbidity statistics in ICD-11 to ensure global data comparability.⁶ The WHO has retired and is no longer supporting ICD-10. NCHS continues to maintain ICD-10-CM independently, while the U.S. evaluates and considers the use of ICD-11 for mortality and morbidity data classification needs specifically in the U.S.

Implementation of an updated ICD classification system has far-reaching impacts in the U.S. where there are multiple uses of ICD embedded in a variety of software, systems, and processes. Thus, there are multiple stakeholders who need to be involved, consulted, and informed in this evaluation. Not the least of which are health care providers, who bear the burden of documentation to derive ICD codes for reimbursement in fee-for-service or volume-based plans.

⁴ WHO ICD-11 Fact Sheet <https://www.who.int/publications/m/item/icd-11-fact-sheet>

⁵ National Center for Health Statistics, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) <https://www.cdc.gov/nchs/icd/icd-10-cm.htm>

⁶ World Health Organization, ICD-11 Implementation <https://www.who.int/standards/classifications/frequently-asked-questions/icd-11-implementation>

THE WORK AHEAD

The clock is ticking on a series of critical decisions for the U.S., such as when ICD-11 should replace ICD-10 for cause of death coding (i.e., mortality reporting), how to use ICD-11 with sufficient detail to meet U.S. needs for morbidity classification without a full clinical modification, the cost-benefit of a version update, selection of implementation methodologies including the role of automation in ICD-11 to reduce burdens such as clinical documentation and coding for reimbursement, and an assessment of optimal implementation timing considering other standards updates.

Additional Resources and References on ICD-11:

- NCVHS Updated recommendations for immediate action on ICD-11 to HHS Secretary, September 10, 2021 <https://ncvhs.hhs.gov/wp-content/uploads/2021/09/NCVHS-ICD-11-recommendations-for-HHS-Sept-10-2021-Final-508.pdf>
- NCVHS Recommendation to HHS Secretary on Preparing for Adoption of ICD-11, November 25, 2019 <https://ncvhs.hhs.gov/wp-content/uploads/2019/12/Recommendation-Letter-Preparing-for-Adoption-of-ICD-11-as-a-Mandated-US-Health-Data-Standard-final.pdf>
- NCVHS, Subcommittee on Standards, ICD-11 Evaluation Expert Roundtable Meeting August 6-7, 2019 <https://ncvhs.hhs.gov/meetings/subcommittee-on-standards-icd-11-evaluation-expert-roundtable-meeting/>
- NCVHS Recommendation to HHS Secretary on Regulatory Simplification of the ICD, February 21, 2019 <https://ncvhs.hhs.gov/wp-content/uploads/2019/03/Recommendation-Letter-Regulatory-Simplification-of-ICD.pdf>
- WHO ICD-11 page <https://icd.who.int/en>
- IFHIMA ICD-11 Perspectives <https://ifhima.org/publication-resources/articles/icd-11/>
- AHIMA Latest on ICD-11 <https://www.ahima.org/news-publications/trending-topics/icd-11/>
- Chute, Christopher G., and Can Çelik. 2022. "Overview of ICD-11 Architecture and Structure." *BMC medical informatics and decision making* 21(Suppl 6): 378. <https://bmcmidinformedecismak.biomedcentral.com/articles/10.1186/s12911-021-01539-1>
- Fenton, Susan H, Kathy L Giannangelo, and Mary H Stanfill. 2021. "Preliminary Study of Patient Safety and Quality Use Cases for ICD-11 MMS." *Journal of the American Medical Informatics Association* 28(11): 2346–53. <https://academic.oup.com/jamia/article/28/11/2346/6362568>
- Fung, Kin Wah, Julia Xu, Shannon McConnell-Lamprey, Donna Pickett, and Olivier Bodenreider. 2023. "A Practical Strategy to Use the ICD-11 for Morbidity Coding in the United States without a Clinical Modification." *Journal of the American Medical Informatics Association: JAMIA* <https://academic.oup.com/jamia/advance-article/doi/10.1093/jamia/ocad128/7219992>
- Fung, Kin Wah et al. 2021. "Feasibility of Replacing the ICD-10-CM with the ICD-11 for Morbidity Coding: A Content Analysis." *Journal of the American Medical Informatics Association* 28(11): 2404–11. <https://academic.oup.com/jamia/article/28/11/2404/6349188>
- Fung, Kin Wah, Julia Xu, and Olivier Bodenreider. 2020. "The New International Classification of Diseases 11th Edition: A Comparative Analysis with ICD-10 and ICD-10-CM." *Journal of the American Medical Informatics Association: JAMIA* 27(5): 738–46. <https://academic.oup.com/jamia/article/27/5/738/5828208>
- Harrison, James E., Stefanie Weber, Robert Jakob, and Christopher G. Chute. 2021. "ICD-11: An International Classification of Diseases for the Twenty-First Century." *BMC medical informatics and decision making* 21(Suppl 6): 206–206. <https://bmcmidinformedecismak.biomedcentral.com/articles/10.1186/s12911-021-01534-6>
- Mabon, Kristy, Olafr Steinum, and Christopher G. Chute. 2022. "Postcoordination of Codes in ICD-11." *BMC medical informatics and decision making* 21(Suppl 6): 379. <https://bmcmidinformedecismak.biomedcentral.com/articles/10.1186/s12911-022-01876-9>