

Implementation of ICD-11 for mortality

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ICD-11-MMS

ICD-11 for Mortality and Morbidity Statistics (Version : 01/2023)

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Coding Tool



Info

▼ ICD-11 for Mortality and Morbidity Statistics



- ▶ 01 Certain infectious or parasitic diseases
- ▶ 02 Neoplasms
- ▶ 03 Diseases of the blood or blood-forming organs
- ▶ 04 Diseases of the immune system
- ▶ 05 Endocrine, nutritional or metabolic diseases
- ▶ 06 Mental, behavioural or neurodevelopmental disorders
- ▶ 07 Sleep-wake disorders
- ▶ 08 Diseases of the nervous system
- ▶ 09 Diseases of the visual system
- ▶ 10 Diseases of the ear or mastoid process
- ▶ 11 Diseases of the circulatory system
- ▶ 12 Diseases of the respiratory system
- ▶ 13 Diseases of the digestive system
- ▶ 14 Diseases of the skin
- ▶ 15 Diseases of the musculoskeletal system or connective tissue

Foundation URI : <http://id.who.int/icd/entity/426429380>

11 Diseases of the circulatory system

Description

This refers to diseases of the organ system that passes nutrients help fight diseases, stabilize body temperature and pH, and to n

Exclusions

- Certain infectious or parasitic diseases (1A00-1H0Z)
- Certain conditions originating in the perinatal period (KA
- Congenital malformations, deformations and chromosom
- Complications of pregnancy, childbirth and the puerperit
- Injury, poisoning or certain other consequences of extern
- Endocrine, nutritional or metabolic diseases (5A00-5D46)

Coded Elsewhere

- Neoplasms of the circulatory system ()



National Vital Statistics System

Medical



Physicians



Medical History



Death Scene



Medical Examiners & Coroners



Autopsy



Toxicology

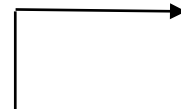
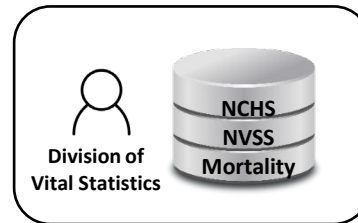
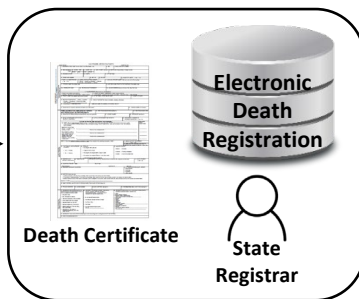
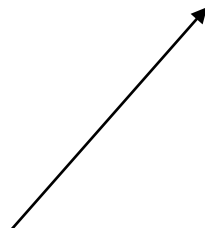
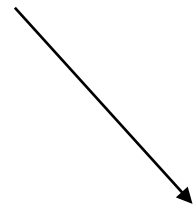
Demographic



Funeral Home Directors



Demographic Data



Mortality Surveillance



Analyses and Reports



Public-Use and Restricted Data



Cause of death section of the standard death certificate

CAUSE OF DEATH (See instructions and examples)				Approximate interval: Onset to death
<p>32. PART I. Enter the chain of events—diseases, injuries, or complications—that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.</p> <p>IMMEDIATE CAUSE (Final disease or condition resulting in death) → a. _____ Due to (or as a consequence of): _____</p> <p>Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST b. _____ Due to (or as a consequence of): _____</p> <p>c. _____ Due to (or as a consequence of): _____</p> <p>d. _____</p>				<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>PART II. Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I</p>				<p>_____</p>
<p>35. DID TOBACCO USE CONTRIBUTE TO DEATH?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> Probably</p> <p><input type="checkbox"/> No <input type="checkbox"/> Unknown</p>	<p>36. IF FEMALE:</p> <p><input type="checkbox"/> Not pregnant within past year</p> <p><input type="checkbox"/> Pregnant at time of death</p> <p><input type="checkbox"/> Not pregnant, but pregnant within 42 days of death</p> <p><input type="checkbox"/> Not pregnant, but pregnant 43 days to 1 year before death</p> <p><input type="checkbox"/> Unknown if pregnant within the past year</p>	<p>37. MANNER OF DEATH</p> <p><input type="checkbox"/> Natural <input type="checkbox"/> Homicide</p> <p><input type="checkbox"/> Accident <input type="checkbox"/> Pending Investigation</p> <p><input type="checkbox"/> Suicide <input type="checkbox"/> Could not be determined</p>	<p>38. DATE OF INJURY (Mo/Day/Yr) (Spell Month)</p> <p>39. TIME OF INJURY</p> <p>40. PLACE OF INJURY (e.g., Decedent's home; construction site; restaurant; wooded area)</p> <p>41. INJURY AT WORK? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<p>42. LOCATION OF INJURY: State: _____ City or town: _____</p> <p>Street & Number: _____ Zip Code: _____</p>				
<p>43. DESCRIBE HOW INJURY OCCURRED:</p>			<p>44. IF TRANSPORTATION INJURY, SPECIFY:</p> <p><input type="checkbox"/> Driver/Operator</p> <p><input type="checkbox"/> Passenger</p> <p><input type="checkbox"/> Pedestrian</p> <p><input type="checkbox"/> Other (Specify)</p>	

Causal sequence leading to death

Contributing conditions

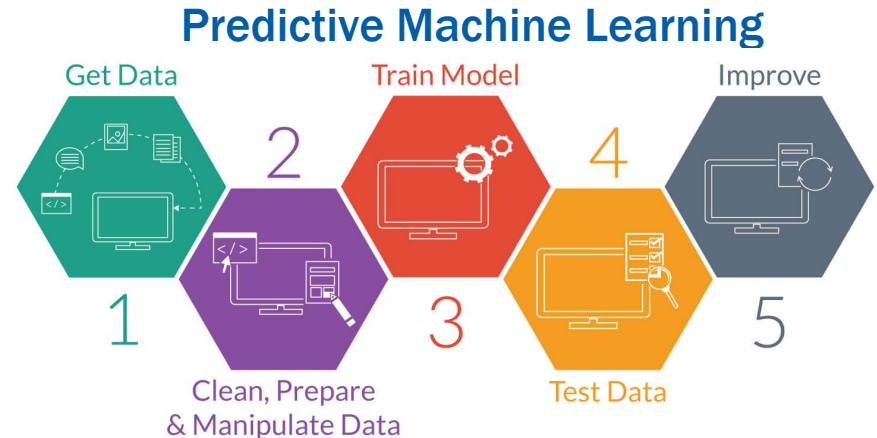
Describe circumstances of injury

Cause of Death Coding

- As of January 1, 2011, NCHS does all cause of death coding for the U.S. and its territories
- Largely automated using software called MedCoder
 - Approximately 85% of records are coded automatically
 - Approximately 15% require some manual intervention
- All information reported on the death certificate that can be coded is coded and stored, including the underlying cause of death
- Cause of death codes are returned to the states
 - Turn around time for the coding is < 1 day for automatically coded records and 1-2 weeks for those requiring manual intervention

MedCoder

- Based on a fusion of new technologies such as machine learning and natural language processing with well-established technologies such as rules-based programming
- ACME/TRANSAX (rule-based decision tables) still used to select the underlying cause and process the multiple cause data
- Natural language processing and predictive machine learning are used to interpret reported medical terms and translate them to ICD codes for input to ACME
- Implemented in 2022



ICD-9 to ICD-10 transition

- ICD-10 was implemented for mortality in 1999
- Process took 7 years from the time the ICD-10 tabular list was published (1992)
- Most of the time and expense involved the revision of the automated coding software and decision tables for underlying cause selection

Implementation tasks

- Revision of automated coding system and decision tables
- Revision of coding instructions and training materials and retraining of nosology and medical coding staff
- Revision of database and computer specifications
- Revision of tabulation lists and report specifications
- ICD-10/ICD-11 comparability study
- Creation of communication plan

Revision of automated coding system

- Decision tables
 - Translation from ICD-10 to ICD-11
 - Review of causal and modification relationships
- Coding software
 - Conversion of MedCoder to ICD-11 (if possible) or ICD-11 dictionary or other method to assign text reported on death certificates to ICD-11 codes
 - Revision of benchmarking file for testing
- Collaboration with the Iris Institute
 - Development of ICD-11 version of Iris
 - Revision of decision tables and dictionary work progressing
 - Working prototype expected by end of October 2023

Coding instructions and training materials

- Revision of instruction manuals for both underlying and multiple cause
- Development and preparation of training materials in ICD-11
 - Presentation/electronic learning materials
 - Training decks
 - Qualification decks
- Re-training of nosologists and medical coders
 - All coders will have to requalify for ICD-11

Database and computer specifications

- Revision of database specifications to accommodate ICD-11 codes
- Revision of computer edits to reflect ICD-11 codes
- Revision of quality control specifications
- Revision of data documentation and file layouts

Tabulation lists and reports

- Revision of standard tabulation lists
- Revision of table programming
- Revision of report formats

Table A. List of 113 selected causes of death and Enterocolitis due to *Clostridium difficile*

[An asterisk (*) preceding a cause-of-death code indicates that the code is not included in the *International Classification of Diseases, 10th Revision (ICD-10)*]

Number ¹	Cause of death (based on ICD-10)
1#	Salmonella infections (A01-A02)
2#	Shigellosis and amebiasis (A03,A06)
3	Certain other intestinal infections (A04,A07-A09)
#	Tuberculosis (A16-A19)
4	Respiratory tuberculosis (A16)
5	Other tuberculosis (A17-A19)
6#	Whooping cough (A37)
7#	Scarlet fever and erysipelas (A38,A46)
8#	Meningococcal infection (A39)
9#	Septicemia (A40-A41)
10#	Syphilis (A50-A53)
11#	Acute poliomyelitis (A80)
12#	Arthropod-borne viral encephalitis (A83-A84,A85.2)
13#	Measles (B05)
14#	Viral hepatitis (B15-B19)
15#	Human immunodeficiency virus (HIV) disease (B20-B24)
16#	Malaria (B50-B54)
17	Other and unspecified infectious and parasitic diseases and their sequelae (A00,A05,A20-A36,A42-A44,A48-A49,A54-A79,A81-A82,A85.0-A85.1,A85.8,A86-B04,B06-B09,B25-B49,B55-B99)
#	Malignant neoplasms (C00-C97)
18	Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)
19	Malignant neoplasm of esophagus (C15)
20	Malignant neoplasm of stomach (C16)
21	Malignant neoplasms of colon, rectum and anus (C18-C21)
22	Malignant neoplasms of liver and intrahepatic bile ducts (C22)
23	Malignant neoplasm of pancreas (C25)
24	Malignant neoplasm of larynx (C32)
25	Malignant neoplasms of trachea, bronchus and lung (C33-C34)
26	Malignant melanoma of skin (C43)
27	Malignant neoplasm of breast (C50)
28	Malignant neoplasm of cervix uteri (C53)
29	Malignant neoplasms of corpus uteri and uterus, part unspecified (C54-C55)
30	Malignant neoplasm of ovary (C56)
31	Malignant neoplasm of prostate (C61)
32	Malignant neoplasms of kidney and renal pelvis (C64-C65)
33	Malignant neoplasm of bladder (C67)
34	Malignant neoplasms of meninges, brain and other parts of central nervous system (C70-C72)
	Malignant neoplasms of lymphoid, hematopoietic and related tissue (C81-C96)
35	Hodgkin disease (C81)
36	Non-Hodgkin lymphoma (C82-C85)
37	Leukemia (C91-C95)
38	Multiple myeloma and immunoproliferative neoplasms (C88,C90)
39	Other and unspecified malignant neoplasms of lymphoid, hematopoietic and related tissue (C17,C23-C24,C26-C31,C37-C41,C44-C49,C51-C52,
40	All other and unspecified malignant neoplasms (C17,C23-C24,C26-C31,C37-C41,C44-C49,C51-C52,

Comparability study (bridge-coding)

- Code a single data year using both ICD-10 and ICD-11
 - Involves both auto-coding and manual coding
- Revised auto-coding system is a prerequisite
- Analysis of coding changes affecting cause-of-death trends and the extent of discontinuities caused by the changes

Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates

by Robert N. Anderson, Ph.D.; Arialdi M. Miniño, M.P.H.; Donna L. Hoyert, Ph.D.; and Harry M. Rosenberg, Ph.D.

Abstract

Objectives—This report presents preliminary results describing the effects of implementing the Tenth Revision of the *International Classification of Diseases* (ICD-10) on mortality statistics for selected causes of death effective with deaths occurring in the United States in 1999. The report also describes major features of the Tenth Revision (ICD-10), including changes from the Ninth Revision (ICD-9) in classification and rules for selecting underlying causes of death. Application of comparability ratios is also discussed.

Methods—The report is based on cause-of-death information from a large sample of 1996 death certificates filed in the 50 States and the District of Columbia. Cause-of-death information in the sample includes underlying cause of death classified by both ICD-9 and ICD-10. Because the data file on which comparability information is derived is incomplete, results are preliminary.

Results—Preliminary comparability ratios by cause of death presented in this report indicate the extent of discontinuities in cause-of-death trends from 1998 through 1999 resulting from implementing ICD-10. For some leading causes (e.g., Sepsis, Influenza and pneumonia, Alzheimer's disease, and Nephritis, nephrotic syndrome and nephrosis), the discontinuity in trend is substantial. The ranking of leading causes of death is also substantially affected for some causes of death.

Conclusions—Results of this study, although preliminary, are essential to analyzing trends in mortality between ICD-9 and ICD-10. In particular, the results provide a means for interpreting changes between 1998, which is the last year in which ICD-9 was used, and 1999, the year in which ICD-10 was implemented for mortality in the United States.

Keywords: comparability • mortality • ICD-10 • bridge-coding

Introduction

This report presents preliminary data describing the effects of the implementation of the Tenth Revision of the *International Classification of Diseases* (ICD-10) on mortality statistics for selected causes of death. ICD-10 was implemented in the United States beginning with deaths occurring in 1999 and replaces the Ninth Revision of the ICD (ICD-9), which was implemented in the United States with 1979 mortality data.

The *International Classification of Diseases* has been revised approximately every 10 years since 1900 (1) (*table A*). The purpose of the revision is to stay abreast of medical advances in terms of disease nomenclature and etiology. The introduction of new classifications is costly to the Federal government and the States, and often introduces major disruptions in time series of mortality and morbidity statistics. However, revisions are essential to stay current with advances in medical science and to ensure the international comparability of health statistics.

ICD-10 differs from ICD-9 in several respects. ICD-10 is far more detailed than ICD-9, with about 8,000 categories compared with about 5,000 categories; ICD-10 uses alphanumeric codes compared with numeric codes in ICD-9; some additions and modifications were made to the chapters in the ICD; and some of the coding rules and rules for selecting the underlying cause of death have been changed. Measures of the discontinuities in cause-of-death statistics resulting from these classification and rule changes are critical to the interpretation of mortality trends.

Acknowledgments

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Communication plan

- Materials oriented to both technical and non-technical audiences
- Targeted to:
 - Data providers
 - Vital registration jurisdictions
 - Data users
 - Federal, state and local public health agencies
 - Statistical agencies
 - Researchers
 - Legislators
 - Media

When could ICD-11 be implemented for mortality?

- Working prototype of ICD-11 for Iris with revised decision tables ready in October 2023
- Development work on MedCoder or other system to provide input to Iris – 2024-25
- Revision of instruction manuals, training materials, edits, tabulation lists – 2024-25
- Revision of database and QA specs, data documentation, testing – 2026
- Comparability study, coder training, communications plan – 2026-27
- If all goes well, implementation not before January 2028

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