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ICD-11: Training Curriculum

For ICD-11 Morbidity & Mortality Coders

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Contents

1 Introduction

1.1 Purpose of the Training Program

This curriculum was developed to provide guidance for morbidity and mortality coders in using ICD-11 for coding diagnoses and causes of death. This curriculum also contains instructions for the mortality coders on the application of WHO – 2016 mortality coding rules for the selection of underlying cause of death. The contents of this training course can be included in regular academic programs for the morbidity and mortality coders in countries.

This curriculum is intended to be delivered as a module with nine learning areas and 29 hours of student contact time. However, each learning area can be customized to be delivered in a shorter or longer period. Each learning area includes criteria for assessment.

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1.1.1 Country medical certificate of cause of death

This curriculum assumes that the country already uses the International Form of Medical Certificate of Cause of Death (or a very similar version of the standard certificate, with Part 1, Part 2 and a column for reporting time interval). The latest medical certificate of cause of death recommended by the World Health Organization (2016) is given in Annex 1.

1.2 Program Structure

1.2.1 Teaching and learning methods.

- Interactive lecture discussions with question-and-answer sessions (theory component of guidelines)
- Individual coding exercises in ICD FIT platform
- Practice morbidity and mortality coding using case examples and sample death certificates.

1.2.2 Medium of instruction

This curriculum is designed to be delivered in English. The contents can be translated into other languages to suit the general medium of instruction of the training institutes. We suggest that translations be done using a standard process, and then back translated to ensure the content remains the same. However, local adaptation of the language may be required.

1.3 Learning areas and objectives

This curriculum consists of nine learning areas (Table 1). The choice of learning areas depends on the objectives of the local academic institutions introducing the modules into their academic programs.

Learning areas	Learning objectives
	Upon the successful completion of the module, students will be able to:
1. Principles of classification and the history of ICD	1. Describe the principles of disease classification systems, the purposes of clinical coding and the history of ICD
2. Introduction to the International Classification of diseases 11th revision	2. Describe the classification, purpose and multiple uses of ICD
3. Structure and taxonomy of the ICD classification system	3. Describe taxonomy, chapter structure, and the general features of ICD-11
4. Using ICD-11 and coding conventions	4. Demonstrate the knowledge and skills in using ICD-11
5. International form of the medical certificate of cause of death	5. To understand the International Form of the Medical Certificate of Cause of Death
6. Basic concepts and definitions	6. Demonstrate the understanding of important concepts and definitions in cause of death
7. Coding instructions for mortality	7. Describe basic and multiple cause coding guidelines and selecting the underlying cause of causes of death
8. Main uses of ICD for morbidity	8. List and describe the uses of ICD for morbidity
9. ICD maintenance	9. Describe the maintenance process of ICD

1.4 Evaluation

This curriculum contains assessments for learning areas as needed. Trainers can decide to make some, or all the assessments based on their local requirements.

Learning area	Time (hours)	Method
1. Principles of classification and the history of ICD	1.0	Interactive discussion
2. Introduction to the International Classification of diseases 11th revision	0.5	Interactive discussion
3. Structure and taxonomy of the ICD classification system	0.5	Interactive discussion
4. Using ICD-11 and coding conventions	12.0	Interactive discussion / Individual coding exercises from body systems / ICD chapters
5. International form of the medical certificate of cause of death	0.5	Interactive discussion
6. Basic concepts and definitions	0.5	Interactive discussion
7. Coding instructions for mortality	12.0	Interactive discussion / Individual practice exercises using sample death certificates
8. Main uses of ICD for morbidity	1.5	Interactive discussion
9. ICD maintenance	0.5	Interactive discussion/demonstration

2 Learning areas

2.1 Principles of classification and the history of ICD

This brief introductory section outlines the principles of classification, purposes of coding and the history of ICD.

Objective	**Describe the principles of disease classification systems, the purposes of clinical coding and the history of ICD**
Duration	60 minutes
Methods and Resources	Interactive discussion using power point
Evaluation	1. Describe the purposes of clinical coding 2. List the differences between statistical classifications and nomenclatures

2.1.1 Topic 1: The principles of classification

Expected outcome	**Students learn the principles of disease classification**
Content	A classification is a system of categories or groupings to which diseases, injuries, conditions, and procedures are assigned according to established criteria. It is the element of grouping similar terms which distinguishes a statistical classification from a nomenclature. A nomenclature has a separate name or title for every disease or procedure concept, making it very extensive and detailed. ICD is a statistical classification, which means that it contains a limited number of mutually exclusive code categories, which describe all disease concepts. The classification is hierarchical in structure with subdivisions to identify broad groups and specific entities. The classification includes specific rules to guide its use. A statistical classification is different from a nomenclature, which can consist of more than one term for a given disease or concept. A disease classification is used, • To allow easy storage, retrieval, and analysis of data. • To allow comparisons of data between hospitals, provinces, or countries. • To allow comparisons in the same location across different time periods.

2.1.2 Topic 2: The purposes of clinical coding

Expected outcome	**Students can describe the purposes of clinical coding**
Content	Clinical coding is the translation of diseases, health-related problems and procedural concepts from text to alphanumeric codes for storage, retrieval and analysis. Coding permits easier storage, retrieval, and analysis of data. It allows data comparisons between hospitals, districts, provinces, countries, and regions. Purposes of coding include the following: • Clinical research and epidemiological analysis • Funding and resource allocation • Education/quality assurance • Health services planning and evaluation • Utilization reviews

2.1.3 Topic 3: The history of ICD

Expected outcome	**Students should be able to describe the history of ICD**
Content	**History of ICD along a timeline** Sir George Knibbs, an eminent Australian statistician, credited Francois Bossier de Lacroix (1706–1777) with the first attempt to systematically classify diseases. The classification of disease by William Cullen (1710–1790), of Edinburgh, was published in 1785 under the title Synopsis nosologiae methodicae and was in use at the beginning of the nineteenth century. William Farr, the first medical statistician, who worked in the newly formed General Register Office of England and Wales in the mid-1800s, further developed the work of both men. Farr's work formed the basis of a recommendation to create the International List of Causes of Death, which was presented to the first International Statistical Congress, held in Brussels in 1853. Although modified in 1874, 1880 and 1886 to suit the needs of the time, Farr's classification did not receive universal acceptance, despite his best efforts to promote it. The general arrangement of the classification - which included the principle of classifying diseases according to body site - became the basis for work carried out by Dr Jacques Bertillon from Paris. A committee chaired by Jacques Bertillon (1851–1922), who was a chief of statistical services of the city of Paris, was entrusted with the preparation of a classification of cause(s) of death during a meeting of the International Statistical Institute in Vienna in 1891. The Bertillon classification of causes of death received general approval and was adopted by several countries. It was suggested that classification should be revised every 10 years.

	Revisions were done under Bertillon leadership in 1900, 1910 and 1920. After Bertillon fourth revision was done in 1929, the fifth revision was carried out in 1938 in Paris. The World Health Organization (WHO) was given the responsibility of the next revision of the international list of causes of death and the establishment of international lists of causes of morbidity at an international health conference held in New York in 1946. The sixth revision was done in 1948. Prior to sixth revision, ICD was used only for mortality coding and from the sixth revision, ICD started to code morbidity too. The seventh revision was done in 1955, while the eighth revision was done in 1965. The ninth revision was done in Geneva in 1975. Work on the tenth revision (ICD-10) began in 1983, and it became endorsed by the Forty-third World Health Assembly in 1990 and was first used by member states in 1994. The need for an 11th Revision was first proposed at the 2006 WHO-FIC meeting held in Iceland. In 2007, WHO announced the beginning of the work to create ICD – 11. For the first time, WHO invited stakeholders to participate in the ICD revision through an Internet platform. This update was vital to keep up with recent progress in medicine, the use of information technology in the field of health, and to improve the basis for international comparisons ICD-11 will start being implemented internationally from 2022.

2.2 Introduction to the International Classification of diseases 11th revision

Objective	To describe the classification, purpose, and multiple uses of ICD
Duration	30 minutes
Methods and Resources	Interactive discussion using PowerPoint
Evaluation	Describe the uses of ICD

2.2.1 Topic 1: Intended use.

Expected outcome	Students learn about the intended uses of ICD
Content	The ICD has been designed to address the needs of a broad range of use cases: Mortality, morbidity, epidemiology, case mix, quality and safety, primary care. A situation may arise, which anticipates using the ICD-11 for a purpose for which it has not been designed. In this situation, the categorization used within the ICD-11 and its additional features may not be able to address such a new use case. In such cases, users are advised to consult with the WHO to ensure that the information collected is appropriate to the intended new use.

2.2.2 Topic 2: WHO Family of International Classifications

Expected outcome	Students learn about WHO - FIC
Content	The WHO Family of International Classifications (WHO-FIC) comprises classifications that have been advocated by the WHO to describe various aspects of health and the health system in a steady manner. The WHO-FIC provides standardized building blocks for health information systems and consists of three broad groups: a. Reference classifications, b. Derived classifications, and c. Related classifications. The Reference and the Derived classifications are based on the Foundation Component, which is a large collection of terms and their relationships, which describe health and health-related domains. The reference classifications are ICD (International classification of diseases), ICF (International classification of functioning disability & Health) and ICHI (International classification of Health Interventions). ICD covers terms related to diseases and health-related problems. Those pertaining to functioning are under ICF, and those related to interventions into ICHI. Terms from the Foundation Component may be used in more than one Reference classification.

Derived Statistical Classifications and Tabulations ('derived classifications') draw on terms that may come from one or more of the Reference classifications. Examples of derived classifications are ICD – O, (Oncology), ICD – MSD (Musculoskeletal disorders), ICD – DA (Dental adaptation) and ICD R & O (Rheumatology) etc.

Related classifications are regarded as complementary to the Reference and Derived classifications within the WHO-FIC Family. Related classifications have their own sets of terms but can also share terms as part of the WHO-FIC Family. For example, the International Classification of Nursing Practice (ICNP), a related classification in the Family, draws on terms from the Foundation Component in the same way that the reference and derived classifications draw on terms from the Foundation Component whilst using terms specific to nursing practice which are not found in the Foundation Component, but which may be included in the future.

Assisting the development of reliable statistical systems at local, national, and international levels, with the aim of improving health status and health care is the purpose of WHO-FIC. The classifications are owned by the WHO or other groups. Additional detail than that contained in the ICD might sometimes be required in health-related information. These additional information needs are covered by a group or 'family' of health-relevant classifications.

The WHO-FIC authorizes a suite of combined classification products that share similar features and can be used singularly or jointly to provide information on different aspects of health and health care systems.

For example, morbidity and mortality are mainly captured by ICD as a reference classification. Functioning is classified in the International Classification of Functioning, Disability and Health (ICF) and health interventions in the International Classification of Health Interventions (ICHI).

Figure: WHO Family of international classification (Ref: ICD-11 reference guide)

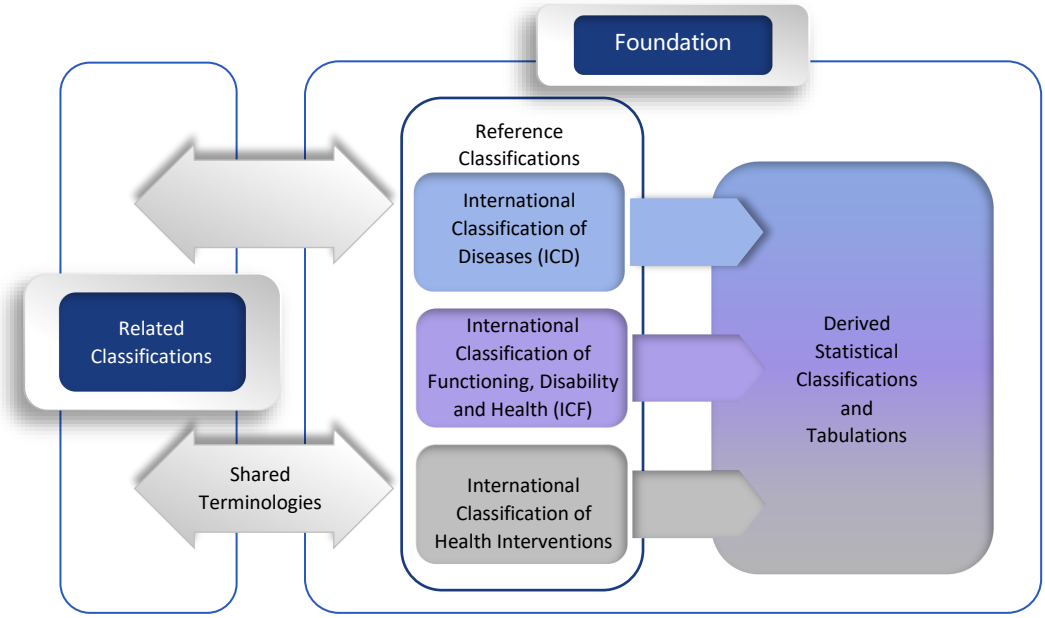

Figure 1 - WHO Family of international classification

Reference: https://cdn.who.int/media/docs/default-source/classification/who-fic-network/who-fic-family-paper.pdf

2.2.3 Topic 3: Multiple uses of ICD

Expected outcome	**Students can describe the multiple uses of ICD**
Content	Health information systems include a range of different components for collection, analysis, and use of the data. Information sources for health information a. Population-based, b. Health facility- based, c. Disease focused. The main population-based sources of health information are, a. census data b. household surveys and c. vital registration systems. Health facility-related data sources: a. Public health surveillance, b. Health services data (that may be referred to as health management information systems or routine health information systems), and c. Health system monitoring data (e.g., human resources, health infrastructure, financing) Coding facilitates the recording of health information in a language independent way. Standardization of coding supports both national and international data comparisons. For example, ICD coded data can be compared across different sectors of the health system – if the same coding rules are applied.

	Health information systems are increasingly based on digital (electronic) reporting and coding. ICD–11 is designed to be used in electronic environments. In many places information collection is done using paper based conventional methods. ICD–11 can also be produced in a printed version for use in paper-based systems. **Use of ICD–11 in a digital setting and web services** The ICD-11 is used to code diagnoses, in electronic health records or death certificates, or in other places. Special tools facilitate finding specific ICD-11 codes for any of the several dimensions that define an ICD-11 entity or category. Additional detail can be added using multiple codes for one condition. WHO has developed the ICD web services (https://icd.who.int/icdapi); designed to support interoperable machine-to-machine interaction. **Use of ICD–11 in an analog paper-based setting** The ICD-11 is used as paper -based, printed version in some countries. Information is reported on paper version and then coded with the ICD-11. It should be noted that paper-based recording requires manual transcription of the information into electronic systems and should be substituted by electronic reporting as early as possible in the information chain. Paper-based recording may cause problems in readability and timeliness. ICD-11 supports many ways of computer-assisted coding, including sanctioning of code combinations and other possible plausibility checks. The long-term goal for all paper-based ICD – 11 version users should be coding of ICD-11 in an electronic environment. In the print version, users are able to use the three volumes, the tabular list, the reference guide, and the index. All three volumes are needed to use the ICD correctly. **Electronic version** In the electronic browser version of the ICD, most information is interlinked and visible in the relevant context. The WHO provides this version for browsing ICD-11 in multiple languages (linked from https://icd.who.int). This tool allows the user to retrieve concepts by searching terms, anatomy, or any other element of the diagnostic statement. Users can also contribute to the updating and continuous improvement of ICD with comments and solutions through the maintenance platform of the browser. Such input is reviewed for consideration for inclusion into ICD-11 annually. ICD–11 can also be accessed using web services with user-specific software. The IT guide to the ICD provides more details on compatibility requirements: https://icd.who.int/icdapi. Both the web services and the online browser allow access to all Tabular lists of the ICD for mortality and morbidity statistics, primary care, or specialty linearization for certain specialized domains.

2.3 Structure and taxonomy of ICD classification system

Objective	**Describe the taxonomy, chapter structure, and general features of ICD-11**
Duration	60 minutes
Methods and Resources	Interactive discussion using PowerPoint
Evaluation	Describe the chapter and code structure of ICD-11

2.3.1 Topic 1: Taxonomy

Expected outcome	**Students learn and understand the taxonomy of ICD classification**
Content	In a statistical classification, the categories are usually limited, and similar diseases are grouped under a category or code. A statistical classification can permit different levels of detail if it has a hierarchical structure and subdivisions. A statistical classification of diseases should retain the ability both to identify specific disease entities and to allow statistical presentation of data for broader groups, to enable the attainment of useful and understandable information. The same general principles apply to the classification of other health problems and reasons for contact with health-care services, which are also incorporated in the ICD. The ICD has been developed as a practical, rather than a purely theoretical classification, in which there are several compromises between classification based on aetiology, anatomical site, circumstances of onset, or other criteria. Further, the coding decisions are based not only on clinical criteria but also on other public health and epidemiological factors. ICD-11 is able to combine several codes to describe a clinical condition to the desired level of detail. Its electronic architecture allows the assignment of unique identifiers to any condition listed - independently whether the condition is grouped in a statistical class or whether it represents a class of its own. The two approaches together allow the option of keeping coding simple where diagnostic detail is limited, and the alternative to add detail where diagnostic reporting requires a high level of sophistication.

2.3.2 Topic 2: Chapter structure

Expected outcome	**Students learn the chapter structure of ICD-11**
Content	The ICD is a variable-axis classification. The structure has been developed out of that proposed by William Farr in the early days of international discussions on classification structure: a. epidemic diseases, b. constitutional or general diseases, c. local diseases arranged by site, d. developmental diseases,

e. injuries.

These groups remain in the chapters of ICD–11. The structure is time-tested and, though in some ways arbitrary, is still regarded as more useful for general epidemiological purposes than any of the alternatives tested. The conservation of the structure acknowledges the need for stability while allowing the incorporation of additional sections.

ICD print and electronic versions

The ICD provides a standard for reporting, coding, selecting, and tabulating conditions for different use cases. It provides guidance on finding the right code for a reported condition.

In the electronic version of the ICD, most information is interlinked and visible in the relevant context. The content of the Reference Guide is the only additional document required when coding with ICD-11.

In the print version, the information is divided into 3 volumes, the tabular list, the reference guide, and the index. All three are needed to use the ICD correctly.

1. **Tabular list**
   Volume 1 contains the Tabular list, which is an alphanumeric listing of diseases and disease groups, along with inclusion and exclusion notes, and some coding rules. Chapters 1 to 25 of the ICD contain approximately 15 000 entities at the 4, 5 or 6-character level.
   In addition, there is a section on extension codes and one on traditional medicine. At the end of Volume 1 the special tabulation lists are presented. These are designed for tabulation only.
2. **Reference guide**
   The Reference Guide contains an introduction to the context, components, and intended use of the ICD. It describes the varied components of ICD–11, provides guidelines for certification, recording, rules for mortality coding (i.e., causes of death) and morbidity coding (e.g., hospital statistics) and lists for tabulation of statistical data.
3. **Index**
   The Alphabetical Index is a list of approximately 120 000 clinical terms (including synonyms or phrases). The Index is used to find the relevant ICD codes or code combinations for terms. The mention of a term in the index exclusively serves coding. Mention of a term in the index does not mean approval or endorsement of a particular condition.

2.3.3 Topic 3: General features of ICD-11

Expected outcome	Students understand the general features
Content	The main structural innovation of ICD–11 is that it is built on a Foundation Component from which the tabular list (the statistical classification for morbidity and mortality) can be derived. **Stem code** Stem codes are codes that can be used alone. They are found in the tabular list of ICD-11 for Mortality and Morbidity Statistics. Stem codes may be entities or groupings of high relevance or clinical conditions that should always be described as one single category. The design of stem codes makes sure that in use cases that require only one code per case, a meaningful minimum of information is collected. **Extension code** Extension codes are designed to standardize how additional information is added to a stem code when users and settings are interested in reporting more detail than is included in a stem code. Extension codes can never be used without a stem code and can never appear in the first position in a cluster. **Precoordination** Stem codes may contain all pertinent information about a clinical concept in a pre-combined fashion. This is referred to as 'precoordination'. Example: BD50.40 Abdominal aortic aneurysm with perforation Example: CA40.04 Pneumonia due to Mycoplasma pneumoniae **Postcoordination.** Post coordination refers to linking (through cluster coding) multiple codes (i.e., stem codes and/or extension codes) together, to fully describe a documented clinical concept. **Cluster coding** Cluster coding refers to a convention used (either forward slash (/) or ampersand (&)) to show more than one code used together (e.g., stem code/stem code(s)&extension code(s)) to describe a documented clinical concept. Example: Diagnosis: Duodenal ulcer with acute haemorrhage, Cluster: DA63.Z/ME24.90; Condition - DA63 Duodenal ulcer, unspecified; Has manifestation (use additional code, if desired) - ME24.90 Acute gastrointestinal bleeding, not elsewhere classified

Coding scheme

The coding scheme always has a letter in the second position to differentiate from the codes of ICD–10.

- In ICD–11, the first character of the code always relates to the chapter number. It may be a number or a letter. The code range of a single chapter always has the same character in the first position.
- To describe a causal relationship between conditions in a code title the preferred term is ‘due to’.
- To indicate the concurrence of two conditions in a code title the preferred term is ‘associated with’.

The codes of the ICD–11 is alphanumeric and cover the range from 1A00.00 to ZZ9Z.ZZ. Codes starting with ‘X’ indicate an extension code (see Extension codes). The inclusion of a forced number at the 3rd character position prevents spelling ‘undesirable words. The letters ‘O’ and ‘I’ are omitted to prevent confusion with the numbers ‘0’ and ‘1’. Chapters are indicated by the first character. For example, 1A00 is a code in Chapter 1, and BA00 is a code in Chapter 11.

2.4 Using ICD-11 and coding conventions

Objective	Demonstrate the knowledge and skills in using ICD-11
Duration	12 hours
Methods and Resources	Interactive discussion using PowerPoint, Individual practice exercises
Evaluation	Class activity: Open ICD-11 coding tool and browser, enter given diagnostic statements. Choose appropriate codes. Observe different coding conventions, Practice exercises to cover all ICD-11 chapters

2.4.1 Topic 1: The difference between the foundation and the ICD-11 tabular lists

Expected outcome	Students understand the difference between the foundation and the ICD-11 tabular lists
Content	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, for example 'injury of the arm', while others are more detailed, for example 'laceration of the skin of the thumb'. The Foundation Component also has the necessary information to use the entities to build a tabular list. The Foundation Component 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. Several different tabular lists can be built from the Foundation Component. Drawing on the same Foundation Component, a set of tabular lists that builds on the same hierarchical tree can be created – a set of so called congruent tabular lists. The Foundation Component includes instructions on how to combine certain codes in a tabular list to achieve more detail in coding. These rules help coders and computer systems to visualize the permitted code combinations when they are using a tabular list. In a tabular list, entities of the Foundation Component become categories. The categories are mutually exclusive and jointly exhaustive and linked to a mono-hierarchical tree (they have only one parent). The information related to an entity that has become a category and has multiple parents is still available from the Foundation Component. This information can be used to visualize that category in more than one place in the tabular list, e.g., showing them in black font in its place for reference tabulation and in grey font in any other place for browsing or alternative tabulations. ICD–11 has multiple congruent tabular lists with varying levels of detail.

2.4.2 Topic 2: ICD-11 tooling environment

Expected outcome	**Students are able to use the ICD-11 coding tool for code assignment**
Content	**ICD–11 Browser** The browser is helpful for viewing ICD-11 for morbidity and mortality statistics. Users can browse the ICD-11 chapters for descriptions and exclusions. **ICD-11 coding tool** The ICD-11 Coding Tool is software that helps users assign ICD-11 codes for clinical diagnoses of diseases and other health problems. There are some differences in the way searching is performed between the Coding Tool and the ICD-11 Browser • The browser search may give you results that are groupings (or blocks) in addition to entities with codes. However, the coding tool only gives results that have codes by design. • The Browser has an advanced search feature, which allows you to select what to search (i.e., you may search exclusions, definitions, etc.), whereas the coding tool searches only the index, including the titles. • Coding tools have word completion and word suggestion. • The coding tool has a chapter filtering feature which, by default filters out the “Extension Codes” and “Traditional Medicine”. **ICD–11 Maintenance platform** This site contains unreleased, work-in-progress versions of the WHO Family of International Classifications (WHO-FIC). For the latest release of ICD-11, visit the ICD-11 Home Page. Users must create an account to contribute to the classifications by writing proposals or comments. Ref. learning area 9. **ICD-11 API** ICD API allows other software to access the ICD content.

2.4.3 Topic 3: Applying ICD-11 conventions to classify clinical concepts

Expected outcome	**Students learn to apply ICD-11 conventions**
Content	ICD-11 codes are alphanumeric. Codes are alphanumeric, and they range from 1A00.00 to ZZ9Z.ZZ. The first character of the ICD-11 code relates to the chapter. It may be a letter or a number. The entire code range for that chapter has the same character in the first position. ICD-11 is comprised of 26 chapters. Chapters 1 -9 – the first character of the codes is the chapter number (1 to 9). Chapters 10 – 26 – the first character of the codes is an English letter (A – S except “I” & “O”). The second character of ICD-11 codes is a letter. It helps

to differentiate ICD-11 codes from ICD 10 codes. There is also a forced number at the 3rd character position to prevent spelling undesirable words. Stem codes are the codes in ICD-11 that may be assigned alone. They are the entities or groupings of high relevance, or clinical concepts that should always be described as one entity.

Residual codes in ICD-11 are displayed as red text.

- 'Other specified' codes have the last character 'Y'
- 'Unspecified codes' have the =last character 'Z'

Residual codes are located at the end of code blocks, similar to previous versions of ICD.
Example: 5A00.2Y – Onother specified acquired hypothyroidism
5A00.2Z – Acquired hypothyroidism, unspecified.

The term **'due to'** in ICD-11 describes a causal relationship between conditions. Synonyms in documentation such as 'caused by', 'attributed to', or 'secondary to' may be used for code assignment.
Example: 3A01.3 Vitamin B12 deficiency anaemia due to intrinsic factor deficiency.

The term **'associated with'** in ICD-11 describes the coincidence of two conditions.
Example: JB45.0 – Abscess of breast associated with childbirth

The coding instructions 'code also', 'add detail', 'has causing condition', 'has manifestation' or 'use additional code, 'if desired' in ICD-11 inform users that additional information is required or optional to be coded in conjunction with certain categories (or stem codes).
'Code also', 'add detail' or 'has causing condition' are required to be coded. 'Has manifestation' or 'use additional code, if desired' are optional.
Example: **GB61.5 chronic kidney disease, stage 5**
Postcoordination
GB61.5 chronic kidney disease, stage 5
Has causing condition **5A10 Type 1 diabetes mellitus**

The terms **'And' and "Or'** are used in ICD-11 as per their meaning in formal logic, which is:

- A and B means both A and B are present.

A term that includes a statement of the kind 'A and B' means that both, A and B, have to be present in order to use that category. A term that includes a statement of the kind 'A or B' means that either A or B, or both, have to be present in order to use the category. Because A or B can mean either A or B or both, 'or' now means 'and/or'.

Example: **NC32.4 Fracture of shafts of both ulna and radius**

This is different to how these terms were used in ICD 10; i.e., A or B, means either A or B

Example: **KA60 Sepsis of foetus or newborn**

In the case where documentation cannot determine between both A and B being present, or only one of A and B being present, the ICD-11 defaults that and/or is classified as an "Or' (i.e., 'Or' means 'and/or' in ICD-11)
Example: **JB05.3 Obstructed labour due to pelvic outlet or mid-cavity contraction**

Residual categories – 'Other' and **'Unspecified'**
ICD-11 coding should always be completed to include the highest level of detail possible with the use of one code or multiple codes as described above. There are, however, circumstances when that is not possible and for that reason the ICD-11 includes categories titled 'other' and 'unspecified'. In some instances, necessary information to select a specific category may not be available in the source documentation. When this is the case, the residual category 'unspecified' is selected. Conversely, there are instances where the information in the source documentation is very specific, but the tabular list does not include a specific category. In this case, users identify the closest category match, and code to the residual category titled 'other'.

Additional terms permitted in ICD coding:

- Certain
- Other
- Unspecified
- And
- Or
- Due to
- With
- Caused by
- Attributed to
- Secondary to
- Associated with

"Inclusions' in ICD-11 examples of diagnostic statements. They are either different conditions or synonyms.
Inclusions are located at the chapter, group and category levels. They are not a sub-classification of the category and by no means exhaustive.
Example: **3A70 Aplastic anaemia**

Inclusions

- Medullary hypoplasia
- Panmyelophthisis

'Exclusions' in a category indicate that an entity is classified elsewhere. They serve as a cross-reference in the ICD-11 and help to define the boundaries of a category.

Parentheses are used to indicate the code to which an exclusion refers.
Example: **DB92 Non-alcoholic fatty liver disease**

Exclusions

- Reye syndrome (8E46)
- Acute fatty liver of pregnancy (JA65.0)
- Drug-induced or toxic liver disease (DB95)
- Chronic hepatitis C (1E51.1)
- Alcoholic liver disease (DB94)
- Inherited defects in mitochondrial metabolism (5C53)

The abbreviation **NOS** stands for **'not otherwise specified',** implying that the source documentation used for classifying did not provide more detail beyond the term (i.e., 'unspecified', 'incompletely specified' or unqualified' clinical concept).

The abbreviation **NEC**, meaning 'not elsewhere classified', in a category title, serves as a warning that certain specified variants of the clinical concept may appear in other parts of the classification.

The term '**Certain'** informs that some entities that could be grouped here are grouped somewhere else outside the current chapter or block. For example, 8B22 Certain specified cerebrovascular diseases.

Extension codes

Extension codes are a new concept in the ICD. They are supplementary codes designed for use when additional detail is desired with a stem code (i.e., for postcoordination. Extension codes are optional, and their use will be decided by individual countries. All extension codes begin with letter X. Extension codes are never assigned alone; they are always assigned with a stem code and are never listed first in a cluster. Not all extension codes can be used with every stem code.

There are two types of extension codes:

- Type 1 extension codes allow the user to add detail to a stem code.

  Examples

  - Severity
  - Temporality
  - Aetiology
  - Topology
  - Anatomy and topography
  - Histopathology
  - Dimensions of injury
  - Dimensions of external causes
  - Consciousness
  - Substances

	• Type 2 extension codes represent diagnosis code descriptors (i.e., discharge diagnosis type or diagnosis timing). The meaning of the code refers to the same condition, but the use of the type 2 diagnosis code descriptor extension code alters its interpretation. **Examples** ○ Discharge diagnosis types ▪ XY0Y Main condition ▪ XY7B Main resource condition ▪ XY6E Initial reason for encounter or admission ○ Diagnosis timing ▪ XY6M Present on admission ▪ XY69 Developed after admission ▪ XY85 Uncertain timing of onset relative to admission

2.4.4 Topic 4: Precoordination and postcoordination

Expected outcome	**Students are able to understand precoordination and postccordination**
Content	**Preccordination** refers to stem codes that contain all pertinent information in a pre-combined fashion. For example, 2C25 Malignant neoplasms of bronchus or lung, contains both anatomical site and pathology of the neoplasm. **Postccordination** refers to the assignment of multiple codes to describe a clinical concept. Postcoordination may utilize two or more stem codes, or stem code (s) with one or more extension codes. The resulting group of postcoordinated codes is called a cluster. Postcoordination is only used to combine codes to describe and fully characterize a documented clinical concept. If documentation describes two distinct (unrelated) clinical concepts that are classified to separate stem codes, they should not be reported together in a postcoordinated cluster. Postcoordination requires the use of a specific syntax to show which codes belong together (i.e., to form the cluster). When postcoordinating to form a cluster, stem codes are always sequenced before extension codes. If one stem code is postcoordinated with one or more extension codes, the combining syntax used is the ampersand (&). For example: Stem code & extension code 1 & extension code 2 **DD52 Femoral hernia** **Code: DD52&XT5R&XK9K** Laterality XK9K Right Other postcoordination XT5R Acute Add detail to Femoral hernia

Other postcoordination
XT5R Acute
XT8W Chronic

Laterality (use additional code if desired)
XK9J Bilateral
XK8G Left
XK9K Right

Two stem codes in postcoordination are combined by a forward slash.
Example: stem code / stem code
Stem code&extension code/stem code

5A23 Diabetic coma

Has causing condition 5A11 Type 2 diabetes mellitus

Code 5A23/5A11

Sanctioning rules
Sanctioning rules are instructions to help coders visualize the permitted code combinations when using a tabular list. In this way, additional information is added (or not added) more accurately to the condition being reported across all ICD uses. Permissible combinations of stem codes and extension codes are embedded in the ICD foundation. They prevent impossible post-coordination combinations and the creation of combinations that already exist in pre-coordinated codes in ICD-11.
Instructional terms
There are a number of instructional terms used to perform postcoordination; some are mandatory, and others are optional.

'**Has causing condition'** is used when an additional stem code is required to identify the underlying cause. If the underlying cause is known, it is mandatory to code it for primary tabulation.

Example
GB61.0 chronic kidney disease, stage 1
Postcoordination
Has causing condition (code also)
- Diabetes mellitus
- Hypertensive diseases

'Has manifestation' is used to identify and code the manifestation(s) of a condition. Assignment is optional. It is important to follow the sequence (within a cluster) according to the use case (i.e., mortality or morbidity)

	Example **DB99.7** Hepatic failure without mention whether acute or chronic Postcoordination **Has manifestation (Use additional code, if desired)** • ME24 Clinical manifestation of the digestive system **'Associated with'** is used when multiple codes are required to fully describe a clinical concept, but there is no causal link between the conditions. This instruction is either allowed or required, depending on the scenario. **Example** **FA20.Z Rheumatoid arthritis** **Associated with (**use additional code, if desired) • CA24 Bronchiectasis

2.4.5 Topic 5: Basic anatomy and terms relating to medical information and coding exercises for chapters 1 – 25 of ICD -11

Expected outcome	**Students are able to describe chapter structure, conventions, medical information, chapter chapter-specific notes and correctly assign ICD-11 codes diseases, health-related problems and circumstances related to all ICD-11 chapters**
Content	1. Under each chapter, the following will be discussed: a. Chapter structure b. Basic anatomy of the related body system c. Medical information d. Coding conventions e. Chapter specific notes 2. Coding exercises under individual ICD-11 chapters

2.5 International form of the medical certificate of cause of death

The International Form of Medical Certificate of Cause of Death (often referred to as the 'medical certificate of COD' or simply 'death certificate') developed by the mortality reference group (MRG) is recommended by the World Health Organization for medical certification of deaths in all countries. The death certificate provides a framework for the organization of clinical diagnoses used for public health purposes.

Frame A: Medical Data: Part 1 and 2				
1 Report disease or condition directly leading to death on line a Report chain of events in due to order (if applicable) State the underlying cause on the lowest used line			Cause of death	Time interval from onset to death
		a		
		b	Due to:	
		c	Due to:	
		d	Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)				

Figure 2 - Medical data section (Frame A) of the international form of the medical certificate of cause of death

Objective	**To understand the International Form of the Medical Certificate of Cause of Death**
Duration	60 minutes
Methods and Resources	Interactive discussion using PowerPoint
Evaluation	1. Explain Part 1 of the death certificate
	2. Explain Part 2 of the death certificate
	3. Why is it important to record the time interval between the onset of a condition and death

2.5.1 Topic 1: Identification data in the death certificate

Expected outcome	**Students are familiarized with the identification data on the country's death certificate**
Content	Show a copy of the identification data on the current death certificate used in your country. Discuss why the correct completion of all these items is important. Identification data may include: ○ Date and place of death. ○ Full name ○ Place of residence ○ Sex ○ Race/ethnicity ○ Age/date of birth

	○ Profession or occupation
Expected outcome	Students understand the importance of correctly recording the identification data of the deceased
Content	This information is critical to correctly identifying the deceased for legal and statistical purposes. Verify details before recording (e.g., correct legal name, correct spelling, and usual residence). Refer to identity documents if available.

2.5.2 Topic 2: International form of the medical certificate of cause of death

Expected outcome	**Students understand the functions of all parts of the medical certificate of cause of death**
Content	Use the death certificate used in the country to demonstrate the correct completion of the certificate. The death certificate is divided into three sections: Part 1 – report the sequence/chain of events leading to death Part 1 of the death certificate has four lines for reporting the sequence/chain of events leading to death; these are labelled 1(a), 1(b), 1(c) and 1(d). The direct COD is entered in line 1(a). If the death was a consequence of another disease or condition, this underlying cause should be entered at 1(b). If there are more events leading to death, write these in order at 1(c) and 1(d). Emphasize the following important points: ○ Always use consecutive lines starting at 1(a); never leave blank lines within the sequence. ○ If there is only one COD, it is entered at 1(a). ○ Each condition below 1(a) must be a cause of the condition above it (i.e., it is an antecedent cause). ○ The initiating cause in the sequence is the underlying cause. Part 2 – other significant conditions contributing to death. Part 2 of the death certificate records all other significant or contributory diseases or conditions that were present at the time of death but did not directly lead to the UCOD listed in Part 1. A column to record the approximate interval between onset of the condition and death The column on the right-hand side of the death certificate is for recording the approximate time interval(s) between the onset of the condition and the date or time of death. The intervals should be entered for all conditions reported on the death certificate, especially for the conditions reported in Part 1. These intervals are usually established by the physician based on available information. In some cases, the interval will have to be estimated. Time periods such as minutes, hours, days, weeks, months, or years can be used.

2.6 Basic concepts and definitions

This brief introductory section outlines a few key concepts.

- Cause of death
- Underlying cause of death
- Sequence of events leading to death
- Starting point
- Terminal condition

Objective	**To demonstrate students' understanding of important concepts and definitions in the certification of death**
Duration	1 hour and 30 minutes
Methods and Resources	Interactive discussion using PowerPoint
Evaluation	1. Define the underlying cause of death
	2. Define the starting point, terminal event, and the sequence of events leading to death

2.6.1 Topic 1: Cause of death

Expected outcome	**Students learn and understand the definition and the importance of cause of death**
Content	The CODs recorded in the International Form of Medical Certificate of Cause of Death are: 'all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries'

2.6.2 Topic 2: Underlying cause of death

Expected outcome	**Students can understand and describe the definition of underlying cause of death**
Content	The UCOD is: 'the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury '.

2.6.3 Topic 3: Sequence of events leading to death

Expected outcome	**Students understand the sequence of events leading to death**
Content	Mortality statistics are based on the UCOD, which is the disease or injury that initiated the sequence/chain of events that led directly to death. For example, imagine a person dying of septicaemia following Escherichia Coli urinary tract infection. Septicaemia is the direct (or immediate) COD, but Escherichia Coli urinary tract infection is the UCOD

2.6.4 Topic 4: Starting point

Expected outcome	**Students understand the concept starting point**
Content	The starting point is the condition or event that starts the sequence of acceptable causal relationships ending with the terminal cause of death. In a correctly completed certificate, the condition reported on the lowest used line in Part 1 of the death certificate is the starting point of the sequence.

2.6.5 Topic 5: Terminal condition

Expected outcome	**Students understand the concept of terminal condition**
Content	The terminal cause of death is the condition entered first on the first line of Part 1 of the death certificate.

2.7 Coding instructions for mortality

Objective	**Describe basic and multiple cause coding guidelines and selecting the underlying cause of causes of death**
Duration	12 hours
Methods and Resources	Interactive discussion using PowerPoint/ Individual exercises
Evaluation	Death certificate-based mortality coding exercises

2.7.1 Topic 1: Selecting the underlying cause of death

Expected outcome	**Students understand the overall process of selecting underlying cause of death**
Content	For most death certificates, selecting the underlying cause of death is a straightforward procedure. There are, however, many cases where the underlying cause is not immediately obvious. To ensure that both straightforward and complex cases are coded according to the ICD rules, it is important to follow the coding instructions carefully, step by step. Otherwise, the resulting mortality statistics will not be internationally comparable, which seriously reduces the value of the data for public health purposes. Selecting the underlying cause of death involves two separate steps. The first step is identifying the starting point (Steps SP1 through SP8 below) – the disease or event that started the chain of events leading to death. The next step is to modify the starting point, if any of the special instructions apply, to retain further information provided on the death certificate that is useful for public health (Steps M1 through M4 below).

2.7.2 Topic 2: Finding the starting point

Expected outcome	**Students are able to apply steps SP1 to SP8**
Content	To identify the starting point, follow the eight steps specified in this section. The steps are named SP1 to SP8 (Starting point rule 1 to Starting point rule 8). Each step contains one selection rule. At each step, there is a description of the selection rule itself and an instruction on what to do next. • **Step SP1 – Single cause on the MCCD** If there is only one condition reported on the MCCD, in either Part 1 or Part 2, this is the starting point, and it is also the UCOD. Next, go to step M4. If there are two or more conditions on the certificate, go to step SP2.

• **Step SP2 – Only one line used in Part 1 of the MCCD**
If the certifier has used only one line in Part 1. But entered two or more conditions on this line, then the first-mentioned condition is the tentative starting point.
Next, go to step SP6.
Also, if there is only one condition reported in Part 1. But one or more conditions in Part 2, then the single condition in Part 1 is the tentative starting point. Next, go to
step SP6.
If the certifier has used more than one line in Part 1, go to step SP3.

• **Step SP3 – More than one line used in Part 1, first cause on lowest line explains all entries above**
If there are conditions reported on more than one line in Part 1, check whether all of the conditions reported on the line(s) above the lowest used line in Part 1 can be caused by the first condition on the lowest used line.
If all conditions on the line(s) above the lowest used line in Part 1 can be caused by the first condition on the lowest used line, then this condition is the tentative starting point.
Next, go to step SP6.
If all conditions on the line(s) above the lowest used line in Part 1 cannot be caused by the first condition on the lowest used line, try to get clarification from the certifying doctor. If it fails and no further information is available, go to step SP4.

• **Step SP4 – First cause on lowest used line does not explain all entries above, but a sequence ends with the terminal condition**
If there is only one sequence ending with the terminal condition, find the starting point of this sequence. This is the new tentative starting point.
Next, go to step SP6.
If there are two or more sequences of conditions/events ending with the terminal condition, identify the first-mentioned sequence and find the starting point of this first-mentioned sequence.
Next, go to step SP6.

If there is no sequence ending with the terminal condition, go to step SP5.

• **Step SP5 – No sequence in Part 1**
If there is no sequence ending with the terminal condition, then the terminal
condition is also the tentative starting point. Next, go to step SP6.

• **Step SP6 – Obvious cause**
Check whether the selected tentative starting point in steps SP1 to SP5 was obviously caused by another condition on the MCCD. If the tentative starting point is in Part 1, then this other condition must be either on the

same line, further down in Part 1, or in Part 2. If the tentative starting point is in Part 2, this other condition must also be in Part 2.
Next, check whether there is another condition mentioned on the same line or further down on the MCCD as the new tentative starting point identified that obviously caused this new tentative starting point. Continue looking for a new tentative starting point until a starting point that is not obviously caused by a condition reported on the same line or further down on the MCCD is found. Then go to step SP7.
Furthermore, if there is no condition mentioned on the MCCD that obviously caused the tentative starting point selected in steps SP1 to SP5, go to step SP7.
Section 2.19.2 of the Reference Guide lists conditions that should be considered an obvious cause of conditions selected as tentative starting point in Steps SP1 to SP5.

• **Step SP7 – Ill-defined conditions**
Check whether the tentative starting point is listed in the list of ill-defined Conditions (Annex 3.14.6). If listed, the tentative starting point is considered ill-defined. If so:

- Check whether there are other conditions reported on the MCCD. Check whether they are all ill-defined. If all other conditions are ill-defined, go to step M1.
- Check if there is at least one condition that is not ill-defined, then disregard the ill-defined condition(s). Go to step SP1 and select another starting point, as if the ill-defined condition(s) had not been mentioned on the MCCD.
- If the tentative starting point is not ill-defined, go to step SP8.

Note that the following are not considered ill-defined:

- Septic shock
- Sudden infant death syndrome

• **Step SP8 – Conditions unlikely to cause death**

If the tentative starting point selected in Steps SP1 to SP7 is listed in Annex 3.14.10 List of conditions unlikely to cause death, and:

- If all other conditions reported on the certificate are also unlikely to cause death or ill-defined, then keep this condition unlikely to cause death as the starting point. Next, go to Step M1.
- If this condition was the cause of another condition that is unlikely to cause death and that is ill-defined, then keep this condition unlikely to cause death as the starting point. Next, go to Step M1.
- If the death was caused by a reaction to treatment of the condition unlikely to cause death, select the reaction to treatment as the starting point. Next, go to Step M1

	• If the above three do not apply, and there is at least one condition that is not 'unlikely to cause death' and not 'ill-defined', then disregard the condition unlikely to cause death. Go to Step SP1 and select another starting point, as if the condition unlikely to cause death had not been mentioned on the certificate. If the tentative starting point is not listed in the table of 'List of conditions unlikely to cause death', keep that condition as the starting point and go to Step M1. If the certificate mentions several treatments for the condition unlikely to cause death, select the initial treatment. 'Complication' means a condition that can be due to the condition unlikely to cause death, or due to the treatment of the condition unlikely to cause death.

2.7.3 Topic 3: Modifications of the starting point (Steps M1 to M4)

Expected outcome	**Coders are able to describe modifications to the starting point**
Content	The starting point you identified using Steps SP1 to SP8 is now considered the tentative underlying cause. There may be special coding instructions on this tentative underlying cause, or other reasons to modify the tentative underlying cause. Check whether the tentative underlying cause should be modified by applying the modification rules described in steps M1 to M3 (Modification rule 1 to Modification rule 3). Each step contains one modification rule. At each step, there is a description of the modification rule itself and what to do next. • **Step M1 Special instructions** If the tentative underlying cause (TUC) selected in Steps SP1 to SP8 applies to a special instruction listed in the Reference Guide Section 2.19.3, special instructions on linkages and other provisions (Step M1), assign a new tentative underlying cause according to the instruction. Next, reapply Step M1 to the new tentative underlying cause. Repeat until you have found a tentative underlying cause that is not affected by any further special coding instruction. Next, go to Step M2. If the tentative underlying cause does not apply to the instructions in Section 2.19.3, go to Step M2. If more than one instruction in Section 2.19.3 applies to the tentative underlying cause, select the instruction relating to the priority underlying condition (see Section 2.16.7). Note that there are two types of combination, 'with mention of' and 'when reported as a cause of'. Refer to Section 2.19.3 for details. Sometimes, the classification itself indicates a code for a combination of the tentative underlying cause with another cause mentioned on the

certificate. Use the combination code unless an instruction on mortality coding in Section 2.19.3 indicates otherwise.

- **Step M2 Specificity**

If the tentative underlying cause describes a condition in general terms and a term that provides more precise information about the site or nature of this condition is reported on the certificate, assign this more informative term as the new tentative underlying cause.
Next, reapply Step M2 to the new tentative underlying cause. Repeat until you have found a tentative underlying cause that cannot be specified further.
If there is no term that further specifies the tentative underlying cause, go to Step M3.
The more specific description must refer to the same condition as the tentative underlying cause. Do not disregard a generalised condition such as atherosclerosis because a more specific but unrelated condition is reported on the certificate (see also Example 2).
If there are several other expressions that provide more precise information on the tentative underlying cause, select the priority underlying condition (see Section 2.16.7 of ICD-11 reference guide).

- **Step M3 – Recheck steps SP6, M1 & M2**

If, at this point, the tentative underlying cause is not the same as the starting point you selected in Steps SP1 to SP8, then go back to Step SP6. Repeat the procedures described in Steps SP6, M1 and M2.

If the tentative underlying cause is the same as the starting point selected in Steps SP1 to SP8, proceed to Step M4.

- Do not go back to Step SP6 if the cause selected in Step M1 or M2 is correctly reported as due to another condition, except when this condition is ill-defined.
- Also, do not go back to Step SP6 if the tentative underlying cause is a reaction to treatment of a condition unlikely to cause death, as selected in Step SP8.

- **Step M4 – Instructions on medical procedures, main injury, poisoning, and maternal deaths**

Finally, apply the following instructions to the tentative underlying cause selected by applying Steps SP1 to SP8 and Steps M1 to M3.

If the tentative underlying cause is:

- Surgery, another type of medical procedure, a complication or postprocedural condition, apply the instructions in Section 2.19.4 Special instructions on surgery and other medical procedures (Step M4).

	○ In Chapter 22, Injury, poisoning or certain other consequences of external causes, first code the external cause of the injury or poisoning as the underlying cause of death. And add the main injury to the cluster by following the instructions in Section ○ In Chapter 23, External causes of morbidity and mortality, also add the main injury to the cluster by following instructions in Section. ○ Poisoning: use additional code from Chapter X, if applicable, to identify the specific name of a drug or toxic substance reported. If more than one drug or toxic substance is reported on the certificate, apply instructions in Section 2.19.6 of the reference guide Special instructions on poisoning by drugs, medications and biological substances (Step M4), to identify the drug, medicament or substance most likely to have caused the death. If the decedent is a woman and pregnancy, childbirth, or puerperium is reported on the certificate, determine whether to code the tentative underlying cause to Chapter 18, Pregnancy, Childbirth, and the Puerperium, according to the instructions in Section 2.19.7 of the reference guides, Special instructions on maternal mortality (Step M4). When creating a cluster in Step M4, always put the code for the underlying cause of death at the beginning of the cluster. If the tentative underlying cause selected by applying Steps SP1 to SP8 and Steps M1 to M3 does not apply to either of the instructions in M4 or if the tentative underlying cause is not further changed after the application of M4, the tentative underlying cause you have arrived is the underlying cause of death. Note that other restrictions may apply, for example, that the cause is limited to one of the sexes (see also Section 3.14.11 of the reference guide or to a specific age range, or that the cause of death is improbable, considering the geographical setting. Therefore, always check whether any such restrictions apply to the underlying cause you selected.

2.8 Main uses of ICD for morbidity

Objective	List and describe the uses of ICD for morbidity
Duration	90 minutes
Methods and Resources	PowerPoint presentations, practice exercises
Evaluation	Questions on morbidity documentation guidelines

2.8.1 Topic 1: Documentation guidelines for morbidity coding

Expected outcome	Physicians and Coders understand the documentation guidelines for ICD-11 morbidity coding
Content	Morbidity data are used for statistical reporting mostly at national or local levels. While some of this statistical reporting is conducted within an academic research context, it is commonly conducted in applied settings to inform health system and public health agency decision- making. ICD coded data also forms the basis of different case mix systems such as different varieties of Diagnosis Related Groups (DRGs). Coded morbidity data can also be used to inform a variety of clinical guidelines through provision of foundational information on burden of disease. The rules given here are primarily for international reporting and analysing purposes but are also recommended as a standard for national use. **Main Condition** The definition of the main condition relates to describing an episode of hospital-based care. Record/identify as the main condition the one condition that is determined to be the reason for admission, established at the end of the episode of health care. **Multiple conditions contributing to the need for admission** Where an episode of health care concerns more than one condition contributing to the need for admission (e.g., congestive heart failure and pneumonia; acute cerebral haemorrhage and hip fracture; multiple injuries - concussion, rib fracture, right femur fracture after MVA; or influenza A and Type 1 diabetic ketoacidosis), the health care practitioner should record/identify the main condition to be the one condition that is deemed to be a most clinically significant reason for admission. **Documenting Guidelines involving the term 'Multiple'-For Single condition reporting** In cases involving, for example, 'multiple fractures', 'multiple head injuries' or 'multiple valvular disease', it is acceptable documentation practice to record the diagnoses using the term 'multiple' and then list separately the

specific conditions or injuries. For example: Multiple fractures of pelvis: fracture of os pubis, sacrum, ilium.

Other conditions
In addition to the main condition, the health care practitioner should, whenever possible, also list separately all other conditions or problems dealt with during the episode of health care. Other conditions are defined as those conditions that coexist or develop during the episode of health care and affect the management of the patient. Conditions related to an earlier episode that have no bearing on the current episode should not be recorded as other conditions. It is recommended, where practicable, to carry out multiple-condition coding and analysis to supplement the routine data.

Specificity and detail
Each diagnostic statement should be as informative as possible in order for the clinical coder to classify the condition to a code that best captures the specific detail provided in the diagnostic statement. Examples of such diagnostic statements include:

- transitional cell carcinoma of trigone of the bladder
- acute appendicitis with localized peritonitis
- meningococcal pericarditis
- pregnancy-induced hypertension
- diplopia due to reaction to antihistamine taken as prescribed
- osteoarthritis of the hip due to an old hip fracture
- fracture of neck of femur following a fall at home
- full thickness burns of the palm of left hand due to grilling accident
- unintentional puncture of the sigmoid colon during colonoscopy

Unconfirmed diagnoses
If no definite diagnosis has been established at the end of an episode of health care, then the health care practitioner should document the information that permits the greatest degree of specificity and knowledge about the reason for admission established at the end of the episode of care. This could be a symptom, abnormal finding or problem. Rather than qualifying a diagnosis as “possible”, or “suspected”, when a diagnosis has been considered but not established, when applicable, record the symptom, abnormal finding or problem.

Documentation of a ruled-out condition
The health care practitioner should document as main condition a “ruled out” condition when the episode of care involves a person who presents some symptoms or evidence of an abnormal condition which requires study, but who, after examination and observation, shows no need for further treatment, follow-up or other medical care.
The health care practitioner should not document a ruled-out condition as a main condition if some treatment was provided for a symptom or follow-

up is required to determine the cause of the sign or symptom. In that instance, the health care practitioner should document the presenting sign or symptom that was treated as the main condition.

Example 1

Admitted for suspected deep vein thrombosis of leg, which after investigation is ruled out and no follow-up necessary.

Main Condition: Ruled out deep vein thrombosis.

Example 2

A child is found playing with an empty acetaminophen bottle. The mother is uncertain if there were any tablets in the bottle. The child is brought to the hospital and following investigation, it is determined that the child did not ingest any pills

Main condition: Ruled out unintentional ingestion acetaminophen (paracetamol)

Contact with health services for reasons other than illness
Episodes of health care or contact with health services are not restricted to identification, treatment or investigation of current illness or injury. Episodes may also occur when someone who may not currently be sick requires or receives limited care or services; the health care practitioner should document the details of the relevant circumstances as the 'main condition'.

Examples include:

- monitoring of previously treated conditions
- immunization
- contraceptive management, antenatal and postpartum care
- surveillance of persons at risk because of personal or family history
- examinations of healthy persons, e.g. for insurance or occupational reasons
- seeking of health-related advice
- requests for advice by persons with social problems
- consultation on behalf of a third party
- donors
- circumstances related to drugs, procedures, or devices without documented injury or harm to patient

Chapter 24 Factors influencing health status and contact with health services provides a broad range of categories for classifying these circumstances. Reference to this chapter will give an indication of the details required to permit classification to the most relevant category.

	Conditions due to external causes When a condition such as an injury, poisoning or other effect of external causes is recorded, it is important to document fully both the nature of the condition and the circumstances that gave rise to it. For example: • 'Fracture of neck of the femur caused by fall due to slipping on pavement' • 'Cerebral contusion caused when patient lost control of car, which hit a tree' • 'Unintentional poisoning, patient drank disinfectant in mistake for soft drink' • 'Severe hypothermia, patient fell in her garden in cold weather' See also Section 2.23.3. of the reference guide Causation in the context of quality and safety. **Documentation of sequelae** Where an episode of care is for the treatment or investigation of a residual condition (sequela) of a disease that is no longer present, the health care practitioner should document the residual condition (sequela) and its origin, together with a clear indication that the original disease is no longer present. For example: • 'Deflected nasal septum– fracture of nose in childhood' • 'Contracture of Achilles tendon – late effect of injury to tendon' • 'Infertility due to tubal occlusion from old tuberculosis'. Where multiple sequelae are present and treatment or investigation is not directed predominantly at one of them, a documented statement such as 'sequelae of cerebrovascular accident' or 'sequelae of multiple fractures' is acceptable.

2.8.2 Topic 2: Coder guidelines for selecting 'main condition' and 'other conditions' for coding

Expected outcome	**Coders are aware of selecting and coding main and other conditions**
Content	The main condition and other condition(s) relevant to an episode of health care should have been recorded/identified by the responsible healthcare practitioner, and coding will, therefore, usually be straightforward. The main condition recorded should be accepted for coding and reporting unless it is obvious that the healthcare practitioner did not follow the guidelines for recording diagnostic information for morbidity data analysis. Whenever possible, a record with an obviously inconsistent or incorrectly recorded main condition should be returned to the healthcare practitioner for clarification.

If clarification of potential erroneous documentation is not possible, the clinical coder can apply one of the following rules and the main condition reselected for reporting purposes. The rules are for use when the coder may be unclear as to which recorded condition should be selected as the main condition for reporting purposes.

MB1 Several conditions recorded as 'main condition'; or
MB2 Presenting symptom of diagnosed condition recorded as 'main condition; or
MB3 Signs and symptoms recorded as 'main condition' with alternative conditions recorded as the cause

Certain circumstances, or the availability of other information, may indicate that the health care practitioner has not followed the correct procedure for recording the 'main condition'. In such a case, clarification from the responsible healthcare practitioner should be the first step by the clinical coder. When this is impossible, the clinical coder can use one of the following rules to support reselecting the 'main condition' for reporting purposes.

Coder rules for reselection of the main condition
MB1 Several conditions recorded as 'main condition'
If several different conditions (that cannot be classified to a single stem code) are recorded as the 'main condition', and other details on the record point to one of them being the 'main condition' (one condition determined to be the reason for admission established at the end of the episode of care), select that condition; otherwise, select the condition first recorded.

If there is the desire also to report other discharge diagnosis types i.e., main resource condition or initial reason for encounter or admission, then the applicable extension code(s) from Chapter X 'Extension codes', should be assigned to indicate the different types of discharge diagnosis types that are reported.

Example 1:

A patient was admitted with complaints of fever, chills, severe headache and stiff neck. Following investigation, a diagnosis of staphylococcal meningitis was confirmed. While in the hospital, the patient developed pneumonia.
Main condition: Staphylococcal meningitis. Pneumonia

Two conditions have been recorded as the main condition and querying the health care practitioner is not possible. The details in the example point to staphylococcal meningitis as the one condition being the reason for admission established at the end of the episode of care; therefore, the

	coder should code staphylococcal meningitis as the 'main condition'. Pneumonia is coded as an 'other condition'. **Example 2:** A patient who has a history of COPD was admitted for a biopsy of the prostate. The patient was evaluated for COPD. A biopsy was performed, and the final diagnosis from pathology results was benign prostatic hypertrophy. Main condition: Chronic obstructive pulmonary disease (COPD). Hypertrophy of the prostate. Two conditions have been recorded as the main condition and querying the health care practitioner is not possible. The details in the example point to benign prostatic hypertrophy as the one condition being the reason for admission established at the end of the episode of care; therefore, the coder should code hypertrophy of prostate as the 'main condition'. COPD is coded as an 'other condition' as the physician documented it and it affected the management of the patient. **Example 3:** A patient presents to hospital at 35 weeks gestation with spontaneous premature rupture of membranes. She does not have any contractions. Examination reveals the baby is in breech presentation; therefore, delivery by caesarean section is recommended. Mother delivers healthy preterm infant by caesarean section. Main condition: Premature rupture of membranes. Breech presentation. Procedure: Delivery by caesarean section Two conditions have been recorded as the main condition and querying the health care practitioner is not possible. The details in the example point to premature rupture of membranes as the one condition being the reason for admission established at the end of the episode of care; therefore, the coder should code premature rupture of membranes as the 'main condition' and breech presentation and preterm delivery as an 'other condition'. **MB2 Presenting symptom of diagnosed condition recorded as 'main condition;** If a symptom or sign (usually classifiable to Chapter 21 Symptoms, signs or clinical findings, not elsewhere classified), or a problem classifiable to Chapter 24 Factors influencing health status or contact with health services, is recorded as the 'main condition', and this is obviously the presenting sign,

	symptom or problem of a diagnosed condition recorded elsewhere and care was given for the latter, reselect the diagnosed condition as the 'main condition'. **Example 1:** The patient presents to hospital with complaint of haematuria. Investigations reveal papilloma in the posterior wall of the bladder as the cause of the haematuria. The papilloma was excised by diathermy. Main condition: Haematuria Other conditions: Papillomata of posterior wall of bladder Haematuria (symptom) is recorded as the main condition; however, it was determined to be caused by papillomata of the bladder (diagnosed and treated condition). Therefore, the coder should reselect and code papillomata of posterior wall of bladder as the 'main condition'. **Example 2:** The patient is present to hospital with abdominal pain. Investigations reveal acute appendicitis, and the patient undergoes an appendectomy. Main condition: Abdominal pain Other conditions: Acute appendicitis The symptom 'abdominal pain' was recorded as the main condition; however, it was determined to be caused by appendicitis. Therefore, the coder should reselect and code acute appendicitis as the 'main condition'. **Example 3:** A patient with known COPD is admitted to hospital with acute respiratory failure which after investigation is found to be caused by an acute exacerbation of COPD. Main condition: Acute respiratory failure Other condition: Acute exacerbation of COPD The symptom "acute respiratory failure" was recorded as the main condition; however, it was determined to be caused by exacerbation of COPD. Therefore, the coder should reselect and code the COPD as the 'main condition'

	MB3 Signs and symptoms recorded as 'main condition' with alternative conditions recorded as the cause Where a symptom or sign is recorded as the 'main condition' with documentation that it may be due to either one condition or another, select the symptom as the 'main condition'. **Example 1:** Main condition: Headache due to tension or acute sinusitis The symptom 'headache' is recorded as the main condition with possibly two causes; therefore, the coder should code headache as the 'main condition'. Type 2 extension codes (a new section of codes in ICD–11) will provide distinct codes that serve as concept-modifying flags for marking how the diagnosis is to be used and/or interpreted. Examples of these extension code modifiers include: Discharge diagnosis types (main condition; main resource condition; initial reason for encounter or admission). Diagnosis certainty (Provisional diagnosis; Differential diagnosis) Diagnosis Timing (Present on admission; Developed after admission; Uncertain timing of onset relative to admission)

2.8.3 Topic 3: Chapter specific notes

Expected outcome	**Coders are aware of chapter-specific coding instructions**
Content	Coder guidance is given in the reference guide sections 2.23.21 for specific chapters where problems may be encountered in selecting preferred 'main condition' codes. The preceding general guidelines and rules apply to all chapters unless a specific chapter note states otherwise.

2.9 ICD maintenance

Objective	Describe the maintenance process of ICD-11
Duration	30 minutes
Methods and Resources	PowerPoint presentations
Evaluation	Questions:

2.9.1 Topic 1: ICD maintenance and application

Expected outcome	Students are aware of ICD maintenance platform and the process
Content	The continuous adaptation of the ICD following the evolution in the understanding of diseases, treatments, and prevention is allowed through the ICD maintenance process. Proposals can be submitted, and they are reviewed on an online platform making the process transparent. The review workflows ensure that proposed changes are considered both from a medical and scientific perspective and from their value and place in a particular use case. As a result, the Foundation Component and the related tabular list(s) will be released in updated versions. **Proposals and review mechanism** Any individual can submit a proposal for an update to the ICD. Such updates can refer to one or more entities of the ICD. They may address the position of entities in a tabular list, in the foundation, and any element of the content model. Suggestions shall be provided in the format of a short (approximately 500-word) explanation with references to underpinning literature and evidence. The proposal shall also visualize the changes in the position and address potential impact on entities outside the proposal. The proposals will be reviewed by scientific experts and classification experts. The decision to consider a particular proposal will be based on the recommendations by these experts. A workflow between a mortality and a morbidity reference group, a medical scientific advisory group and a classification and statistics advisory group will ensure that all aspects concerning a proposal are considered. Reviews of the synthesis by classification experts ensure suitability of the proposed changes to the diverse use cases of the ICD. The process has two rounds of mutual editing between content and classification experts to achieve consensus about a proposed change. All rounds of editing will be handled through electronic platforms. Where consensus cannot be achieved, the proposal can either be deferred to subsequent cycles of editing pending arbitration by the WHO or be solved in a face-to-face meeting of classification and content experts. In all other cases, a consensus recommendation is given to the WHO for a final decision.

	Official releases The ICD-11 will be released in five-yearly 'stable' versions for international use (updates that impact on the four- and five-digit structure), unless urgent public health needs require otherwise. The releases are supplemented with version identifiers that are used for reporting in conjunction with the codes. Transition tables and materials showing the differences are provided with every version. Updates at a more detailed level than four and five digits can be published at annual rates. Additions to the index can be done on an ongoing basis. Mortality and morbidity rules will be updated in long term cycle. All countries that have implemented the ICD-11 are encouraged to adopt the updates to ensure the greatest possible standardisation of coding results. If a country for whatever reason cannot implement a certain year of updates it shall ensure that at least the reported data is in line with the most recent version of ICD-11. Small error corrections that serve to clarify meaning, indexing or errors, may be communicated at a yearly rate. The WHO has taken all reasonable precautions to verify the information contained in the ICD and its different versions and editions. However, the ICD is being distributed without a warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of ICD lies with the user. In no event shall WHO be liable for damages arising from its use. The publisher of ICD-coded information is responsible to ensure proper use of the ICD and clearly present the methodology for data collection and mechanisms used to modify the original data to indicate the comparability of the presented outcomes. For mortality data, no deviation from the methodology indicated in the ICD is permitted. **Update platform** All proposals are entered on an online update platform, for verification of completeness, discussion and editing. The platform provides the infrastructure for routing proposals to reviewers and experts, and for providing feedback to the original authors. The update platform also shows the final outcome of the proposal that has been entered in the authoring platform and become part of the ICD.

3 Follow-Up and Continuous Improvement

3.1 Continuous Improvement - Further reading

World Health Organization. International Statistical Classification of Diseases and Related Health Problems, 10th revision, vol. 2. Geneva, Switzerland: WHO; 2016.

3.2 WHO online training tools

ICD-11 Education tool in death certification available through,
https://icdcdn.who.int/icd11training/index.html

Annexures

Figure 3-The latest medical certificate of cause of death recommended by the World Health Organization (2016)

Administrative Data (can be further specified by country)																
Sex	☐ Female				☐ Male				☐ Unknown							
Date of birth	D	D	M	M	Y	Y	Y	Y	Date of death	D	D	M	M	Y	Y	Y	Y

Frame A: Medical data: Part 1 and 2			
1 Report disease or condition directly leading to death on line a		Cause of death	Time interval from onset to death
Report chain of events in due to order (if applicable)	a		
	b	Due to:	
State the underlying cause on the lowest used line	c	Due to:	
	d	Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)			

Frame B: Other medical data											
Was surgery performed within the last 4 weeks?	☐ Yes	☐ No	☐ Unknown								
If yes please specify date of surgery	D	D	M	M	Y	Y	Y	Y			
If yes please specify reason for surgery (disease or condition)											
Was an autopsy requested?	☐ Yes	☐ No	☐ Unknown								
If yes were the findings used in the certification?	☐ Yes	☐ No	☐ Unknown								
Manner of death:											
☐ Disease	☐ Assault	☐ Could not be determined									
☐ Accident	☐ Legal intervention	☐ Pending investigation									
☐ Intentional self harm	☐ War	☐ Unknown									
If external cause or poisoning:	Date of injury	D	D	M	M	Y	Y	Y	Y		
Please describe how external cause occurred (If poisoning please specify poisoning agent)											
Place of occurrence of the external cause:											
☐ At home	☐ Residential institution	☐ School, other institution, public administrative area	☐ Sports and athletics area								
☐ Street and highway	☐ Trade and service area	☐ Industrial and construction area	☐ Farm								
☐ Other place (please specify):			☐ Unknown								
Fetal or infant Death											
Multiple pregnancy	☐ Yes	☐ No	☐ Unknown								
Stillborn?	☐ Yes	☐ No	☐ Unknown								
If death within 24h specify number of hours survived			Birth weight (in grams)								
Number of completed weeks of pregnancy			Age of mother (years)								
If death was perinatal, please state conditions of mother that affected the fetus and newborn											
For women, was the deceased pregnant?	☐ Yes	☐ No	☐ Unknown								
At time of death	☐ Within 42 days before the death										
Between 43 days up to 1 year before death	☐ Unknown										
Did the pregnancy contribute to the death?	☐ Yes	☐ No	☐ Unknown								