



IFHIMA
International Federation of
Health Information Management Associations

Education Module for Health Record Practice

Module 5a - Disease & Procedure Classification and Indexing ICD 9

This unit introduces the participant to disease classification and indexing generally and more specifically to the use of the International Classification of Diseases, 9th Revision (ICD9) and the International Classification of Procedures in Medicine (ICPM). The importance of the collection of statistical data on the incidence and distribution of disease and injuries is emphasised.

OBJECTIVES:

At the conclusion of this unit participants should be able to:

1. state the reasons for classifying diseases and procedures
2. describe the function of a disease and procedure index in a hospital
3. outline the content of a disease and procedure index maintained for a teaching hospital
4. differentiate between a simple index and a cross index
5. code diseases and surgical procedures using the International Classification of Diseases, 9th Revision
6. code surgical procedures using the International Classification of Procedures in Medicine.

A. DISEASE CLASSIFICATION

The clinical information contained in a patient's health record is of no value to medical science if it remains stored within a record without means of retrieval. The comparison of health care data between facilities, states, within a country or between countries is vital to the growth and dissemination of medical information throughout the world. This possible sharing is meaningless, however, without the use of standardised identification and disease classification systems.

The purpose of a classification system poses problems in disease classification. There are many potential users of disease classification data and the needs of some of the users are often in conflict.

Within the hospital setting, data on diseases and operations is used by health record professionals to meet the needs of medical researchers. For this purpose, a classification system which is highly specific is desirable, because, if there are too many diseases grouped under the one code number, then a larger number of records in the file room will have to be checked to locate those records with the disease under study.

On the other hand, the health care planners such as national health authorities and the World Health Organization (WHO) want to use disease classification data for statistics, demographic and epidemiological studies. For these uses it is desirable to group diseases because highly specific classification systems are too large for meaningful statistical analysis.

When the classification system is to be designed for hospital use and statistical collections, these competing needs must be reconciled.

The basic function of the International Classification of Disease (ICD) is the classification of diseases, injury and cause of death for statistical purposes. The World Health Organisation (WHO) promoted the classification in order that the experiences of different countries of the world could be recorded in a similar manner and compared.

The International Classification of Diseases, a comprehensive classification of both morbidity and mortality, is published by the WHO following international conferences held every ten years. The Ninth Revision was published in 1979 and has two volumes. Volume 1 is the tabular list of diseases, and Volume 2 the alphabetical index. In addition the International Classification of Procedures in Medicine (ICPM) is available and used to classify surgical procedures (WHO, 1979).

We will now look at both volumes of ICD9 and the ICPM in more depth. Volume 1 contains six sections. These are:

1. Introduction
2. Tabular List of Inclusions and Four-digit Sub-categories
3. Medical Certification and Rules for Classification
4. Special Lists for Tabulation
5. Definitions and Recommendations
6. Regulations

Volume 2 contains the alphabetical index to Volume 1.

B. ICD9 - VOLUME 1

Before you start to learn to code you should become familiar with the actual layout and rules of ICD9 for coding. So let us start at:

1. The Introduction

The introduction covers the general principles of the classification system along with an historical review commencing with the early history of disease classification. Also in this section is an outline of the adoption of the International List of Causes of Death and discussion on previous revisions of the ICD.

A report of the International Conference for the Ninth Revision attended by a delegation from 46 member countries outlines a review of activities in the preparation of the proposals for the ninth revision. This report also covers the general characteristics of the ninth revision and recommendations for the publication of the Classification of Procedures in Medicine as a supplement to ICD9. In addition the conference also recommended the publication of the International Classification of Impairments and Handicaps also as a supplement for trial purposes. The conference report also discussed the lay reporting and recommended the following:

That the World Health Organization should:

- "(1) become increasingly involved in the attempts made by the various developing countries for collection of morbidity and mortality statistics through lay or paramedical personnel;
- (2) organize meetings at regional level for facilitating exchange of experiences between the countries currently facing this problem so as to design suitable classification lists with due consideration to national differences in terminology;
- (3) assist countries in their endeavour to establish or expand the system of collection of morbidity and mortality data through lay or paramedical personnel."

With regard to "Statistics of Death in the Perinatal Period", and "Mortality Coding Rules", the report also recommends that:

"Where practicable, statistics in relation to perinatal deaths should be derived from a special certificate of perinatal death (instead of the normal death certificate) and presented in the manner set out in Annex II, which also includes relevant definitions. This annex also includes recommendations in respect of maternal mortality statistics."

and

"That the modification rule in Annex III be added to the existing rules for selection of cause of death for primary mortality tabulation.

The Conference was also informed that additional guidelines for dealing with certificates of death from cancer had been drafted and were being tested in several countries. If the tests showed that the guidelines improved consistency in coding, they would be incorporated into the Ninth Revision."

Other important recommendations in the report included:

- a) Selection of a Single Cause for Statistics of Morbidity

"Recommends that the condition to be selected for single-cause analysis for health-care records should be the main condition treated or investigated during the relevant episode of hospital or other care. If no diagnosis was made, the main symptom or problem should be selected instead. Whenever possible, the choice should be exercised by the responsible medical practitioner or other health-care professional and the main condition or problem distinguished from other conditions or problems.

It is desirable that, in addition to the selection of a single cause for tabulation purposes, multiple condition coding and analysis should be attempted wherever possible, particularly for data relating to episodes of health care by hospitals (inpatient or outpatient), health clinics and family practitioners. For certain other types of data, such as from health

examination surveys, multiple cause analysis may be the only satisfactory method."

b) Short lists for Tabulation of Mortality and Morbidity

"recommends that the Special Tabulation Lists set out in Annex IV to this report should replace the lists for tabulation of morbidity and mortality and should be published as part of the International Classification of Diseases together with appropriate explanation and instruction as to their use."

These are all important issues and participants should read introduction pages very carefully. The section in the introduction relating to the actual manual and use of the ICD9, covers the following important points:

a) Conventions used in the Tabular List the special use of parentheses and colons is explained and should be clearly understood before proceeding further. The main points are:

"When parentheses are used for their normal function of enclosing synonyms, alternative wordings or explanatory phrases, square brackets [...] are employed."

"Round brackets (...) are used to enclose SUPPLEMENTARY words which may be either present or absent in the statement of a diagnosis without affecting the code number to which it is assigned."

"Words followed by a colon [:] are NOT COMPLETE TERMS, but must have one or other of the understated modifiers to make them assignable to the given category."

"NOS is an abbreviation for "NOT OTHERWISE SPECIFIED" and is virtually the equivalent of "UNSPECIFIED" and "UNQUALIFIED"."

The example on Page XXVI illustrates the above points and should be carefully reviewed by the participant before proceeding to the next point.

b) Dual Classification of Certain Diagnostic Statements

This is an innovation in the 9th Revision and relates to the use of TWO CODES for certain diagnostic descriptions. These descriptions contain "elements of information both about a localised manifestation or complication and a more generalised underlying disease process.

That is, "one of the codes - marked with a dagger (+), is positioned in the part of the classification in which the diagnostic description is located according to normal ICD principles, that is, the code relating to the underlying disease.

The other marked with an asterisk (*) is positioned in the chapter relating to the organ system to which the manifestation or complication relates.

Example:

Tuberculous meningitis has a dagger (+) code in the chapter for infectious diseases - 013.1+

and its

asterisk (*) code in the nervous system chapter - 348.8*

The DAGGER and ASTERISK categories have been included to enable retrieval or statistical analysis of data from either viewpoint.

It is important to note, however, that the DAGGER CATEGORY is the PRIMARY CODE and the ASTERISK code is SECONDARY. It is, therefore, important when using both codes to clearly indicate which is which.

There also are a number of important points relating to the dual system and although not reproduced here, the participant should read the pages very carefully before proceeding.

The dagger and asterisk systems is limited with only about 150 rubrics of each in which asterisk or dagger-marked terms occur. Again examples of these are clearly displayed.

c) Role of the E Code

The E code is a supplementary classification in ICD9 and may be used to code EXTERNAL factors associated with morbid conditions classified to any part of the main classification.

Before proceeding read the rest of the introduction in Volume 1 and make sure you understand clearly the important points relating to the:

- . conventions used in the Tabular list
- . dual classification of certain diagnostic statements, and
- . the use of the E Code

2. List of Three-digit Categories

The next section of Volume 1 lists the three-digit categories which is the framework and basic unit of the classification system, which is used in some countries for statistical grouping of diseases, the External Causes of Injuries and Poisoning, and Factors Influencing Health Status and Contact with Health Services. The latter is referred to as the "V" code. Within this section, therefore, there are seventeen (17) sub-sections plus the "E" and "V" codes which are subsequently expanded in the next section which is the Tabular list.

3. Tabular List of Inclusions and Four-digit Categories

This is the major section of the classification primarily used to allocate the correct code. The first seventeen "chapters" cover codes for the following:

- I. Infectious and Parasitic Diseases
- II. Neoplasms
- III. Endocrine, Nutritional and Metabolic Diseases, and Immunity Disorders
- IV. Diseases of the Blood and Blood-forming Organs
- V. Mental Disorders
- VI. Diseases of the Nervous System and Sense Organs

- VII. Diseases of the Circulatory System
- VIII. Diseases of the Respiratory System
- IX. Diseases of the Digestive System
- X. Diseases of the Genitourinary System
- XI. Complications of Pregnancy, Childbirth, and the Puerperium
- XII. Diseases of the Skin and Subcutaneous Tissue
- XIII. Diseases of the Musculoskeletal System and Connective Tissue
- XIV. Congenital Anomalies
- XV. Certain Conditions originating in the Perinatal Period
- XVI. Symptoms, Signs and Ill-defined Conditions
- XVII. Injury and Poisoning

Then follows:

- . Supplementary Classification of External Causes of Injury and Poisoning - "E" Codes
- . Supplementary Classification of Factors Influencing Health Status and Contact with Health Services - "V" Codes
- . Morphology of Neoplasms and,
- . Classification of Industrial Accidents According to Agency

Each one of these sections will be dealt with individually later in this Unit.

4. Medical Certification and Rules for Classification

The term morbidity means "illness", morbidity coding is the coding of episodes of illness usually in a hospital setting. The purpose of coding in a hospital setting, i.e. supplying data for research, education and evaluation means that hospital coders are often interested in capturing every illness which the patient has. Of course some patients do die in hospital and their records are coded in the same way as the other patients except that an autopsy may make possible more detailed coding.

Mortality coding is the coding of a cause of each death. From the community's viewpoint it is important to know why people die and from what illnesses the surviving population suffer.

The first classification systems were concerned with classifying causes of death. The problem of collecting information on cause of death is commonly solved by a system where a death certificate is completed by a medical practitioner.

The WHO is concerned that the procedure for the completion of death certificates and the selection of underlying cause of death is uniform around the world. The section on "Medical Certification and Rules for Classification" is an important section of ICD9. It clearly defines the designation of the UNDERLYING CAUSE OF DEATH and describes the use of the International form of medical certificate of Cause of Death.

The form of medical certificate consists of two parts as follows:

- I.
 - (a) Direct cause
(due to)
 - (b) Intervening antecedent cause
(due to)
 - (c) Underlying antecedent cause
- II. Other significant conditions contributing to the death but not related to the disease or condition causing it.

With this certificate in PART I THE CAUSE LEADING DIRECTLY TO DEATH is stated on line (a) and the antecedent conditions, lines (b) and (c) which GAVE RISE TO THE CAUSE follows. THE UNDERLYING CAUSE BEING STATED LAST IN THE SEQUENCE OF EVENTS.

IF the disease or condition directly leading to death specified in (a) describes completely the train of events leading to death NO entry is necessary on lines (b) and (c).

PART II covers "other significant conditions which unfavourably influence the course of the morbid process, and thus CONTRIBUTED to the fatal outcome, BUT which was not related to the disease or conditions directly causing death."

The important point relating to the completion of the medical certificate of cause of death, is in the SELECTION of the UNDERLYING CAUSE.

Participants should read this section very carefully. The 12 rules which apply to the selection of the underlying cause are clearly explained with examples of each rule.

Notes for use in underlying cause mortality coding for interpretation of entries of causes of death should also be read along with the section on Perinatal Mortality and Morbidity.

As mentioned previously, this is an important section and is often overlooked by busy health record workers and statisticians.

5. Special Tabulation Lists

This section has three lists:

- . the Basic Tabulation List
- . Mortality List of 50 Causes
- . Morbidity List of 50 Causes

The Basic Tabulation List consists of 57 two-digit rubrics which add up to the "all causes" total.

These lists can be used for the national display of morbidity and mortality data by countries, but to ensure a minimum of international comparability, any tabular lists used for these purposes should contain the 50 rubrics of the attached Morbidity and Mortality Lists.

Morbidity statistical collections also require a single condition for national analysis of the data. The principal diagnosis is the item which is analysed in morbidity

statistical collections. To make the collection consistent it is necessary for a standard definition of principal diagnosis to be adopted for the collection. WHO gives some guidelines for the formulation of such definitions in ICD9. WHO wishes to encourage local development of standard recording methods which incorporate these WHO criteria.

The morbidity/mortality distinction is therefore tied to the difference between single and multiple coding. Multiple coding presents some difficulties and it is important that a coding policy of the national morbidity statistical collection be established. Quality coded data can only be achieved by the consistent application of coding policy which has been formulated at a local level. The ICD9 is open to interpretation and an effort must be made to ensure that a high level of consistency is achieved by coders.

The rules here also state that any list used for mortality data MUST be based on coding according to aetiology. That is, if the dual code is used, data must be based on the DAGGER code. Morbidity lists, however, may be based on either coding method (aetiology or manifestation), but the method used MUST be clearly stated when publishing data.

6. Definitions and Recommendations

The final section in Volume 1 deals with Definition and Recommendations, some of which you will also find in the previous unit.

C. ICD9 - VOLUME 2

Volume 2 is the alphabetical index to Volume 1 and participants should carefully read the introduction, which includes the general arrangement of the Index and conventions used in the index.

By reading this section participants will gain an understanding of the main sections and structures of the index as well as the conventions relating to parentheses, cross-references, abbreviations and special signs.

The alphabetical index follows the introduction and has three sections:

Section I Alphabetical Index to Diseases and Nature of Injury

This section will allow you to locate codes for the seventeen chapters, and the M and V codes. It is therefore the most frequently used section and the largest the volume.

Section II Alphabetical Index to External Causes of Injury

As the description "External Causes of Injury" implies, this section refers not to medical diagnoses, but to the circumstances under which the violence or accidents occur.

Section III Alphabetical Index to Drugs and Other Chemical Substances (Table of Drugs and Chemicals)

This section is displayed as a table and gives codes for substances used in poisoning. The substances are listed alphabetically with the code from Chapter 17 and various E codes from which the coder must choose the most suitable. This organisation allows the coder to choose both with one alphabetical reference.

The index is organised into two columns. At the head of the column is a lead term which is usually the name of a disease, that is, a noun. Under the term various modifying terms (adjectives) are listed. These modifiers may be the various sites at which this disease occurs or particular varieties of the condition. The introduction to Volume 2 explains this arrangement.

A list of corrections (corrigenda) for Volume 1 is included in Volume 2.

The alphabetical index is very important and **SHOULD BE USED AT ALL TIMES** in conjunction with Volume 1.

Participants should **NOT** get into the habit of only using one of the volumes. They **MUST** be used concurrently as errors occur when coders bypass the index or bypass the tabular list. If you want to code efficiently, effectively and accurately, you must get into the habit of using ICD9 correctly.

We will now take a more detailed look at Volume 2 lists and code some exercises to assist with the learning process.

D. CODING PROCEDURE

Within each of the 17 chapters in Volume 1 the codes are organised in numerical order according to a uniform format. This is followed by notes which apply to the whole chapter. These notes indicate what is included in or excluded from the chapter. Each chapter is divided into sections. The section title is printed in the centre of the page in light type (upper case) with the codes for that section appearing in brackets. The three-digit code is printed in bold type on the left hand margin with the title for that code appearing beside it. The fourth digits are then listed. Underneath the code number the inclusion terms for that code are listed [for example, under code 003.0, Salmonellosis is listed].

Inclusion terms are just some of the diseases which are classified here. The inclusion terms are not an exhaustive list of all diseases included in the code number. There are many diseases listed in the alphabetic index which are listed as inclusion terms in Volume 1.

Information contained at the fourth digit level may represent a variety of the disease, different sites or other information; [for example, duration (acute or chronic). Code 002, Typhoid and paratyphoid fevers, is divided at the fourth digit level into types of the disease. However, code 006, Amoebiasis, reflects the site of amoebic abscesses at the fourth digit level].

Some codes are three digits in length and are not subdivided into four digit codes, [for example Code 037, Tetanus]. Where fourth digit subdivisions are provided they must be used. **A THREE DIGIT CODE IS ONLY USED IF NO FOURTH DIGITS HAVE BEEN PROVIDED.**

1. Coding Procedure

To code a disease using ICD9, follow these steps:

- a) Decide on the lead term in the diagnosis, i.e. the noun in the diagnosis which is the name of the disease, not the site of the disease.

- b) Locate the lead term in the alphabetical index (Volume 2) and then check the list of modifiers for any remaining words (adjectives) in the diagnosis.
- c) Check the code given in the index with the entry in the tabular list (Volume 1). In this step you are checking for exclusion notes which may change your decision to use the code.

As mentioned previously it is ESSENTIAL THAT BOTH BOOKS BE USED TO ALLOCATE THE CODE, because there may be an exclusion note in Volume 1 which will change your decision to use the code. Exclusion notes must be followed and you should check for exclusion notes at both the fourth digit level and the three digit level of the code.

To code 'stenosis of the duodenum' first recognise that the lead term will be stenosis, not duodenum, i.e. THE NAME OF THE DISEASE NOT THE SITE. Turn to the entry for stenosis and look through the modifiers listed under this term until you locate duodenum. The code given is 537.3 and when this code is checked in Volume 1 there is no exclusion note preventing its use and so 537.3 is the correct code for stenosis of the duodenum.

Remember that the coding procedure is composed of two parts:-

- . the analysis of the health record to determine what items should be coded and
- . the allocation of correct codes.

These two activities are not independent because a thorough reading of the record is necessary to bring to light evidence regarding the patient which may affect the choice of codes.

2. Which sections of the health record are analysed by the coder?

As a minimum:

1. the front sheet
2. the discharge summary
3. operation report
4. histopathology report for any tissue removed.

Other sections of the record which are useful in choosing the correct code include:

1. pathology reports - for example to identify the bacteria or virus responsible for an infection - pneumonia, gastro-enteritis
2. x-ray reports - for example to specify site of fracture
3. progress notes - for example to determine the principal diagnosis if not clear on the front sheet or discharge summary
4. previous admissions. Coders usually check that all previous admissions

have been coded

3. How many diseases and operations will be coded?

The level of detail to be coded varies somewhat from hospital to hospital, and country to country. Large teaching hospitals often need to collect detailed information on the type of diseases for research and teaching. Small hospitals may choose to code only the principal diagnosis on each admission.

As a minimum, the principal diagnosis and principal procedure should be coded. Most hospitals will also code diseases treated during the admission and every procedure performed. For research purposes some hospitals will also code rare diseases which the patient has, even if these have not been treated during the admission and rare, unusual or expensive procedures, even if these are not being performed in an operating theatre.

To start you coding, turn to the next page and complete Exercise 1. Answers are in Appendix 1. □

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