

# **International classification of Diseases (ICD)**

# *What is Clinical Coding?*

- The translation of diseases, health related problems and procedural concepts from text to alphabetical/numeric codes
- For storage, retrieval and analysis

# *WHAT IS ICD?*

- It is the abbreviation for The International Statistical Classification of Diseases and Related Health Problems.
- It provides codes to classify diseases and a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury or disease. Thus whatever the type of health condition, it is put into a specific category that has other similar diseases and a code is assigned to it.

- The International Classification of Diseases (ICD) was developed by the World Health Organization (WHO).
- The International Classification of Diseases (ICD) is designed to promote international comparability in the collection, processing, classification, and presentation of mortality statistics.

# *Family of Classifications*

- ICD-10 is one of a group of classifications used to capture information about health status
- Known as the World Health Organisation Family of International Classifications (WHO-FIC)

# *History*

- The first known classification dates back to year 1700 when king of England charged John Graunt to estimate live borns who died <6 years (36% and he listed 13 classes of diseases).
- In **1893**, Bertillon the chief statistician of Paris developed a very detailed and well-organized classification (International list of causes of diseases) and this was considered the first ICD. It was adopted by many countries until in 1928 was published by WHO.
- A goal has been to revise and update the ICD every ten years, to stay abreast of advances in medical science.
- Several revisions were done until in 1977 WHO published the 9<sup>th</sup> revision (ICD-9).

A number of major changes took place with the 9<sup>th</sup> version:

- An optional fifth digit for certain codes to allow more specific coding
- Morphological classification of neoplasms (M-codes)
- A manual for mental disorders
- An optional dual code for etiology of diseases (The dagger and asterisk code)

Work on ICD-10 started in 1983, and endorsed in 1992 (stayed since 1999-present). ICD-10 is available in the six official languages of WHO (Arabic, Chinese, English, French, Russian and Spanish) as well as in 36 other languages

# What is the use of ICD today?

ICD is today's international standard for all health related and management purposes:

- Morbidity and mortality statistics,
- Reimbursement: would enhance accurate payment for services rendered**
- Quality: would facilitate evaluation of medical processes and outcomes**
- Epidemiology
- Population health analysis
- Monitoring diseases
- Storage of information



# ICD-10

- The full name of the ICD-10 publication is the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision*.
- **General Structure:**
  - 3 Volumes
  - 22 Chapters
  - Alphanumeric codes

- There are three volumes.
- Volume 1 (main classification) is the tabular list of all three- and four-digit ICD-10 codes, classification of morphology of neoplasms, special tabulation lists for mortality and morbidity. It has 22 chapters
- Volume 2 is an instruction manual on the use of volume one, dealing with coding structure, coding rules, history of the ICD, recommendations for statistical presentation, and other issues.
- Volume 3 is an alphabetical index of diseases, with the corresponding ICD-10 codes.

## ICD-10-Clinical Modification issued in 2009

- ICD-10-CM codes have 3 –7 digits. Digit 1 is alphabetic Letters A –Z, except U (not case sensitive)• Digits 2 is numeric. Digits 3 -7 are alpha or numeric

- Examples:

A78 Q fever

A69.20 Lyme disease, unspecified

O9A.311 Physical abuse complicating pregnancy, first trimester

S42.001A Fracture of unspecified part of right clavicle, initial encounter for closed fracture

There are two related classifications of diseases with similar titles:

- The International Classification of Diseases (ICD) is the classification used to code and classify *mortality* data from death certificates.
- The International Classification of Diseases, Clinical Modification is used to code and classify *morbidity* data from the inpatient and outpatient records, physician offices, and most National Center for Health Statistics (NCHS) surveys.

# *Overview of ICD-10*

- Variable-axis classification
  - Epidemic diseases
  - Constitutional or general diseases
  - Local disease – by site
  - Developmental diseases
  - Injuries

# Volumes of the ICD-10

- *Volume 1*: Tabular List, the alphanumeric listing of diseases and disease groups
- *Volume 2*     Instructions and guidelines
- *Volume 3*     Alphabetical index, comprehensive listing of all conditions in the Tabular list

# *Chapters of the ICD-10*

.22 Chapters, Roman Numerals I – XXII

.Chapters I to XVII relate to diseases and other morbid conditions. Chapter XVIII covers signs and symptoms and laboratory findings not elsewhere classified (headache, fatigue, cough).

.Chapter XIX deals with effects of external causes. Chapter XX lists external causes of mortality and morbidity (accidents, suicide attempts, largest chapter). The remaining complete the range of subject matter nowadays included in diagnostic data.

.Chapter XXII for new diseases of uncertain aetiology or for research use or testing.

# *Chapters of the ICD-10*

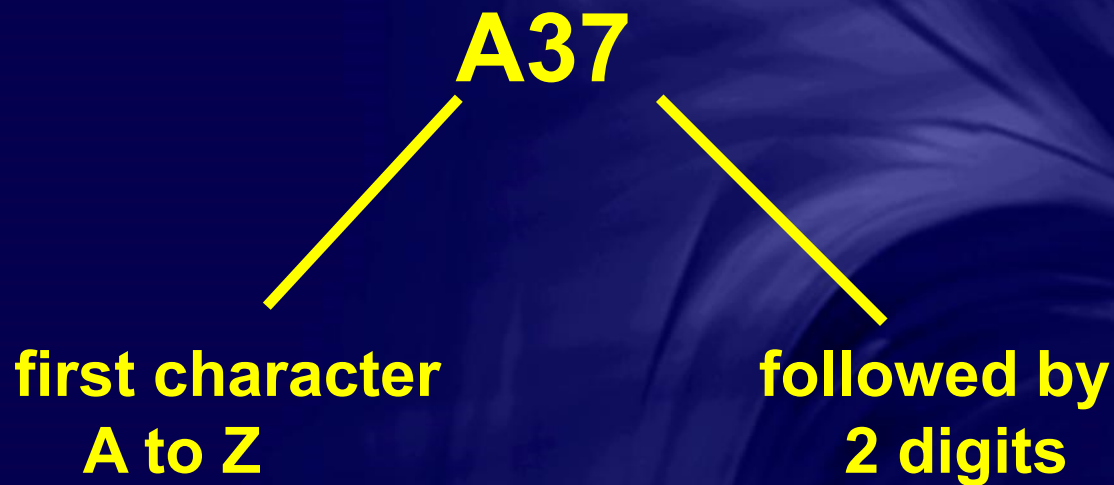
.ICD-10 groups diseases in 2 ways some based on types of diseases, some on parts of the body and some on external factors.

.There are 2 types of chapters- body systems chapters (VI-XIV) and special groups chapters (where diseases are linked by factors other than the part of the body), i.e. Can affect the entire body as infectious diseases as measles.



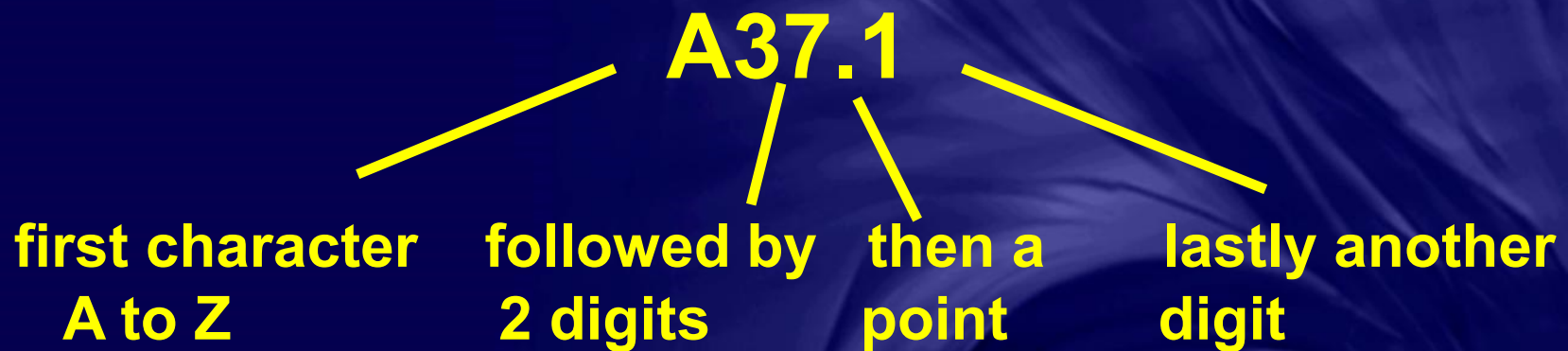
# *Structure of the core ICD-10 code*

**The structure of the core 3 character code is:**



# *Structure of the ICD-10 code*

**The structure of the 4 character sub-categories is:**



# ***THE MAIN CLASSIFICATION (VOL 1)***

- ICD-10 codes consist of a single letter followed by 3 or more digits, with a decimal point between the second and third ( e.g K35.1).
- As there are many thousands of variations at the 4 character level - where all three digits are used - it is common practice to summarize at the 3 character level ( e.g. K35, "Acute appendicitis", which includes peritoneal abscess and all other forms of the condition ).
- The diagnoses are presented in code order ( i.e. rather than by the diagnosis name ). The list of ICD-10 chapters below should help you locate the particular diagnosis you require from these tables:

Chapter	Blocks	Title
I	A and B	Certain infectious and parasitic diseases
II	C00- D48	Neoplasms
III	D50-D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism
IV	E00-E90	Endocrine, nutritional and metabolic diseases
V	F00-F99	Mental and behavioral disorders
VI	G00-G99	Diseases of the nervous system
VII	H00-H59	Diseases of the eye and adnexa
VIII	H60-H95	Diseases of the ear and mastoid process
IX	I00-I99	Diseases of the circulatory system
X	G00-G99	Diseases of the Respiratory system

Chapter	Blocks	Title
XI	K00-K93	Diseases of the digestive system
XII	L00-L99	Diseases of the skin and subcutaneous tissue
XIII	M00-M99	Diseases of the musculoskeletal system and connective tissue
XIV	N00-N99	Diseases of the genitourinary system
XV	O00-O99	Pregnancy, childbirth and the puerperium
XVI	P00-P96	Certain conditions originating in the perinatal period
XVII	Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities
XVIII	R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
XIX	S00-T98	Injury, poisoning and certain other consequences of external causes

Chapter	Blocks	Title
XX	V01-Y98	External causes of morbidity and mortality
XXI	Z00-Z99	Factors influencing health status and contact with health services (only morbidity)
XXII	U00-U99	Codes for special purposes

## **Chapter I: Certain infectious and parasitic diseases (A00-B99)**

- A00-A09 Intestinal infectious diseases
- A15-A19 Tuberculosis
- A20-A28 Certain zoonotic bacterial diseases
- A30-A49 Other bacterial diseases
- A50-A64 Infections with a predominantly sexual mode of transmission

- **(A00-B99) Certain infectious and parasitic diseases**

**(A00-A09) Intestinal infectious diseases**

**A00 Cholera**

**A00.0 Cholera due to *Vibrio cholerae* 01, biovar cholerae**

Classical cholera

**A00.1 Cholera due to *Vibrio cholerae* 01, biovar eltor Cholera**

eltor

**A00.9 Cholera, unspecified**



## **A01 Typhoid and paratyphoid fevers**

**A01.0 Typhoid fever** Infection due to *Salmonella typhi*

**A01.1 Paratyphoid fever A**

**A01.2 Paratyphoid fever B**

# Exercise 1 - Answers

1. What is the range of 3-character categories used in Chapter III?  
*D50 to D89*
2. Two letters are split between multiple chapters. Which are they?  
*D - Chapters II and III & H - Chapters VII and VIII*
- 3- How many letters does Chapter XX use?  
*4 letters - V, W, X, Y*
4. What letters are used in Chapter XXII?  
*Only the letter U is used in Chapter XXII*

# *Tabular List Conventions*

- ❑ Inclusion Terms
- ❑ Exclusion Terms
- ❑ Chapter V Glossary Descriptions
- ❑ Dagger and Asterisk
- ❑ Parentheses ( )
- ❑ Square Brackets [ ]
- ❑ Colon :
- ❑ Brace }
- ❑ Not Otherwise Specified NOS
- ❑ Not Elsewhere Classified NEC
- ❑ AND in code titles
- ❑ Point dash .-

# *Inclusion Terms*

- At the beginning of each chapter there are listed a number of inclusion and exclusion terms. They are used as a guide to to the content of this chapter.
- Example in chapter V (mental and behavioural disorders). 2 terms are listed under the title:
- Includes: disorders of psychological development that are clearly diseases of the mind as schizophrenia and excludes conditions that may look like mental and behavioural disorders but are ill-defined and have unclear etiology as brain injuries or cerebral dysfunction leading to amnesia or hallucinations (coded from another chapter).

## Exercise 2 - Answer

Does the code J35.8 *Other chronic diseases of tonsils and adenoids* include *Amygdalolith*?

**Yes. It is listed as an inclusion term**

YES

or

NO

# *Exclusion Terms*

- List of conditions that are to be coded elsewhere, not to the code being looked at
- The correct code is in parentheses
- e.g. Q74 *Other congenital malformations of limb(s)* excludes polydactyly (Q69.-), reduction defect of limb (Q71-Q73), syndactyly (Q70.-)

# Exercise 3 - Answer

Should reduction defects of the feet be coded within the 3 character category Q66?  
If not, where should they be coded?

*No - the exclusion note directs the coder to Q72.-*

YES

NO

## *Dagger (†) and Asterisk (\*) – Dual coding*

- Underlying cause or aetiology †
- Current manifestation \*
- Dagger code takes precedence
- Asterisk code never used alone
- Better description of the medical care given
- Asterisk categories listed at beginning of each chapter



# Exercise 4 - Answer

- How many asterisk categories are there in Chapter IX, Diseases of the Circulatory System?
- *8 asterisk codes - they are listed at the beginning of the chapter*

# Parentheses ( )

- Used in 4 situations: to enclose supplementary words ex code 110 Hypertension (arterial) (benign) (essential) (malignant) (primary) i.e. 110 is coding hypertension alone or when supplemented by any of these words
- Enclose the code for the exclusion term ex. C00 malignant neoplasms of the lips excludes skin of lip (C43.0)
- Enclose the three character codes of categories in a block ex. Neoplasms (C00-D48)
- Enclose the dagger code in an asterisk category or the asterisk code in a dagger term ex. C01\* meningitis in Anthrax (A22.8 † )

## *Exercise 5:*

- Is N13.0 the correct code for hydronephrosis with ureteropelvic junction obstruction and infection?
- If not, what is the correct code?

# Exercise 5 – Answer

- Is N13.0 the correct code for hydronephrosis
- with ureteropelvic junction obstruction and
- infection? If not, what is the correct code?

*No - the exclusion note under N13.0 excludes hydronephrosis that occurs with infection. The correct code is N13.6.*

YES

NO

# *Square Brackets [ ]*

- For enclosing synonyms, or alternative words or explanatory phrase

Ex A30 leprosy [hansen's disease], B06 Rubella [german measles]

- For referring to previous notes. Ex. C00.8 overlapping lesions of lips [see notes at the beginning of this chapter]

- For referring to previously stated set of a four-character subdivisions common to a number of categories ex. K27 peptic ulcer [see before K25 for subdivisions)

# Exercise 6 – Answer

- What does the note in [ ] tell us for codes in the M79 category?
- [See site code at the beginning of this chapter]
- The coder should refer the beginning of the chapter for optional site codes for this category

# Colon :

□ Terms followed by a colon are not complete terms but must have one of the understated modifiers to make them assignable to a given category

Example:

*G71.0 Muscular dystrophy :*

- autosomal recessive
- benign [Becker]
- distal

i.E the code is not assigned to muscular dystrophy alone but to benign MD or distal MD. Modifiers should be preceded by bullets

# *Brace }*

- Used to link a series of terms
- Each term on the left of the brace must be modified by at least one of the terms to the right of the brace before the specific code can be assigned



**e.g. E10.1 Insulin dependent diabetes mellitus  
with ketoacidosis**

**Diabetic:**

- **acidosis** } **without mention**
- **ketoacidosis** } **of coma**

# *Not Otherwise Specified (NOS)*

- Means unspecified or unqualified
- Only used if no other information exists to allow assignment of a more specific code
- Example:  
B15-B19 viral hepatitis forms, but if physician has not specified which type of viral hepatitis (A,B or C) it is coded to B19.9 (viral hepatitis NOS)

# *Not Elsewhere Classified (NEC)*

- Used as a warning that specific types of the condition being coded appear elsewhere in the classification
- If more specific information is available, a different code may be selected

## □ Example:

R02 (gangrene, NES) from chapter XVIII may only be assigned if the disease cannot be coded more precisely from chapter IX (170.2 atherosclerotic gangrene) or chapter IV (E10.5 diabetic gangrene)

# *“AND” in code titles*

□ "and" stands for "and/or" in code titles

□ e.g. S49.9 *Unspecified injury of shoulder and upper arm*

□

□ Means that here we can code the following:

- unspecified injury of shoulder
- unspecified injury of upper arm
- unspecified injury of shoulder and upper arm

# *Point Dash .-*

- Indicates to the coder that a fourth character exists and should be sought at category, block or chapter level
- 
- e.g. D59.1 Other autoimmune haemolytic anaemias  
*Excludes: haemolytic disease of fetus and newborn (P55.-)*

# *Additional codes*

- Note:
- ICD-10 sometimes indicates when coding can be made more specific by the addition of another code
- instructions such as
  - use additional external cause code, if desired, to identify cause*
  - use additional code (B95-B97) to identify infectious agent*

# *Specific Notes*

- Volume 2, section 4.4.4 contains specific guidance for coding each chapter of ICD-10
- The Tabular List refers the coder to these notes where they apply to a situation
- The coder should have read the notes before assigning a code
- Chapter-specific notes override general guidelines and rules

# *Volume III - Alphabetical Index*

- Alphabetic listing of conditions that can be coded in the Tabular List
- Consists of:
  - Introduction
  - Section I *Index of Diseases & Nature of Injury*
  - Section II *External Causes of Injury*
  - Section III *Table of Drugs and Chemicals*



# Structure of Index Entries

- Each page of the index has two columns. On the Left there is the Lead terms
  - Usually a disease or pathological condition printed in bold. The code is next to it. However most lead terms have modifiers or qualifiers referring to site or variety or cause and these are listed under the lead term.
  - Non-essential modifiers in parentheses (may be present in diagnosis )ex mellitus, familial with Diabetes.
  - Essential modifiers at different levels of indentation to the right - refer to different sites or circumstances that affect coding, each modifier preceded by one or more hyphens
- Note: “with” appears before all other modifiers

# *Lead terms*

- Usually nouns - the name of the condition or disease or an eponym, not the site or type

- For example:

- acute pyelonephritis



- 

- 

modifier

lead term

## *Bilateral inguinal hernia with gangrene and obstruction*

### Hernia

- inguinal (direct) (external) (funicular) etc. K40.9
- - with
- - - gangrene (and obstruction) K40.4
- - - obstruction K40.3
- - bilateral K40.2
- - - with
- - - gangrene (and obstruction) K40.1
- - - obstruction K40.0
- unilateral K40.9
- - - with
- - - - gangrene (and obstruction) K40.4
- - - - obstruction K40.3

# *Bilateral inguinal hernia with gangrene and obstruction*

**Hernia** ← Lead Term

- inguinal (direct) (external) (funicular) etc. K40.9

- - with ← With always listed first

- - - gangrene (and obstruction) K40.4

- - - obstruction K40.3

- - bilateral K40.2

- - - with

- - - - gangrene (and obstruction) **K40.1**

- - - - obstruction K40.0

- - unilateral K40.9

- - - with

- - - - gangrene (and obstruction) K40.4

- - - - obstruction K40.3

Non-essential modifiers

Essential modifiers

- Code numbers follow the terms in the Index

- may appear as 3 character category

Malaria B54

- be subdivided with either the appropriate 4th character or a point dash (.-)

MacLeod's syndrome J43.0

Diabetes E14.-

- Where the dual system of coding († and \*) applies, both codes are given in the Index

Leukoderma, leukodermia NEC

- syphilitic A51.3† L99.8\*

## *Can't locate a Lead Term? Try some of these*

- Disorder
- Disease
- Complication
- Syndrome
- Pregnancy
- Labour
- Delivery
- Puerperal
- Contact
- Injury
- Sequelae
- Suicide
- Assault
- Wound
- Legal intervention
- War operations
- Counselling
- Observation
- History
- Problem
- Screening
- Vaccination
- Status
- Maternal condition affecting fetus or newborn
- Condition in the Fetus affecting the mother

# Spelling

- American spelling is used throughout Volume 3 except the first letter of the vowel combination “ae” as anaemia or “oe” as oesophagus and the “u” in words ending in “-our” as tumour are dropped and the re reversed to er as goitre.
  - eg Oso we have anemia, edema, tumor and goiter.
- English spelling is used in Volume 1

# Exercise 1 – Answer

- Identify the lead term and the modifier in the diagnosis:

Chronic bronchitis

- Bronchitis
- - chronic



## *A few more to practice*

● Identify the lead term and the modifier in the following diagnoses:

- bleeding external hemorrhoids
- prolapsed umbilical cord  
complicating delivery
- post operative wound infection
- meningococcal meningitis

*Identify the lead term and the modifier in the following diagnoses:*

- bleeding external hemorrhoids
- Hemorrhoids
  - - external
  - - - bleeding, prolapsed, strangulated or ulcerated I84.4

*Identify the lead term and the modifier in the following diagnoses:*

- prolapsed umbilical cord complicating delivery (1)
- Delivery
  - - complicated (by)
  - - - prolapse
  - - - - cord (umbilical) O69.0

*Identify the lead term and the modifier in the following diagnoses:*

- prolapsed umbilical cord complicating delivery (2)
- Prolapse
  - - umbilical cord
  - - - complicating delivery O69.0

*Identify the lead term and the modifier in the following diagnoses:*

- post operative wound infection

- Infection

  - postoperative wound T81.4

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- Infection

  - wound

  - - surgical T81.4

*Identify the lead term and the modifier in the following diagnoses:*

- meningococcal meningitis
- Meningitis
- - meningococcal A39.0 † G01\*

# *Exercise 2:*

- Look up and assign the Index code for the following conditions:
  - laryngotracheobronchitis
  - Hippel's Disease
  - Mumps with orchitis

# Exercise 2 – Answers

- Look up and assign the index code for the following conditions:

- laryngotracheobronchitis      *J40*

- Hippel's Disease      *Q85.8*

- Mumps with orchitis      *B26.0 † N51.1\**



# *Index Conventions*

- Parentheses ( )
- Not Elsewhere Classified NEC
- Cross references
- Point dash .-
- Other symbols

# Parentheses

- Enclose supplementary words or non essential modifiers

Example: Deafness (acquired)(complete)(hereditary)(partial)

- Enclose Cross references

- Example: Bronchitis

- - capillary (see also Pneumonia, broncho)

- Enclose notes

- Example: Bronchitis

- - catarrhal (15 years of age and above)

- Enclose Morphology codes

- Example: Carcinoma (M8010/3)

# *Not Elsewhere Classified NEC*

- Indicates that specified variants or types of a disease are classified elsewhere and, where appropriate, a more precise term should be looked for in the index
- If the specific diagnostic term can not be located in the Index, then proceed using the NEC code indicating that the condition does not have a unique code
- NEC serves as a warning that there may be a better code that can be assigned to this documentation

# Cross-references

- Cross-references - used to avoid unnecessary duplication of terms in the Index
  - *See* - explicit instruction to look at another part of the Index – mandatory
  - *See also* - useful guide to synonyms or alternative Index entries - not a mandatory instruction



## Other symbols used in Volume III

- † and \*
- Dagger and asterisk system to describe aetiology and current manifestation - both are recorded, with † listed first
- #
- See Table of Neoplasms - code specified sites to malignant neoplasm of skin if the type of neoplasm is a squamous cell carcinoma or an epidermoid carcinoma and to benign neoplasm of skin of these sites if the variety of neoplasm is a papilloma
- ◇
- See Table of Neoplasms - code as a metastasis from an unspecified primary sites if tumour described as carcinoma or adenocarcinoma, of any type other than intraosseous or odontogenic

# *Important note!*

- It is imperative that Volumes I and III be used together to locate codes to accurately describe each clinical case.
- 
- *Coders should not code straight from the Alphabetical Index or by browsing through the Tabular List.*

# *Steps of coding*

- Carefully read the diagnosis as stated by the doctor
- Refer to the appropriate section of the alphabetical index. For example if it is a disease go to section I if external cause (section II).
- Identify lead term, then look for qualifiers or modifiers.
- Be guided by any inclusion or exclusion criteria
- Follow any cross references as see or see also
- Find fourth character in vol 1 if it is 3 character with a dash in 4<sup>th</sup> position.
- Refer to Tables in Vol. 1 to verify selected code. Then assign a code.