International Classification of Diseases for Oncology (ICD-O)

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What is ICD–O?

**International Classification of Disease for Oncology**

Classification

used in tumor or cancer registries for coding

the site (topography) and the histology (Morphology) of the neoplasm
What is ICD-O?

• Specific code set for neoplasms
• Coding system for primary site and cell type
• Subset of International Classification of Diseases

ICD-10
All diseases

ICD-O-3
Subset - neoplasms only
# Coding systems of ICD-10 & ICD-O-3

<table>
<thead>
<tr>
<th>ICD-10</th>
<th>ICD-O-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single axis</td>
<td>Dual axis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site of origin / site of secondary tumor / site of origin + morphology</th>
<th>Site of origin</th>
<th>Morphology Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>C [ ] or D [ ]</td>
<td>C [ ]</td>
<td>[ ] / [ ]</td>
</tr>
</tbody>
</table>
Coding example
ICD-O-3 topography is a subset of ICD-10, but differs at a basic level

<table>
<thead>
<tr>
<th>Term</th>
<th>ICD-10</th>
<th>ICD-O-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung tumor, benign</td>
<td>D14.3</td>
<td>C34.9 8000/0</td>
</tr>
<tr>
<td>Lung tumor, borderline</td>
<td>D38.1</td>
<td>C34.9 8000/1</td>
</tr>
<tr>
<td>Lung tumor, in situ</td>
<td>D02.2</td>
<td>C34.9 8000/2</td>
</tr>
<tr>
<td>Lung tumor, invasive</td>
<td>C34.9</td>
<td>C34.9 8000/3</td>
</tr>
<tr>
<td>Lung tumor, metastatic</td>
<td>C78.0</td>
<td>C34.9 8000/6</td>
</tr>
<tr>
<td>Lung tumor, unclear</td>
<td>D38.1</td>
<td>C34.9 8000/9</td>
</tr>
</tbody>
</table>

Coding example
ICD-O-3 topography is a subset of ICD-10, but differs at a basic level
Format of Book

• Introduction
• Coding Guidelines
• Tabular (numeric) lists
  - Topography
  - Morphology
• Alphabetic index
• Lists of changed terms
Topography – Numerical List

- Numerical order
- This section adapted from the malignant section of Chapter II of ICD-10
- Run from C00.0 to C80.9
- Grouped by systems / common organs
Major Topography Groups

- **C00-14** Lip, Oral Cavity, Pharynx
- **C15-26** Digestive Organs
- **C30-39** Respiratory System
- **C40-41** Bones, Joints, Cartilage
- **C44** Skin
- **C47** Nerves
- **C49** Soft Tissues
- **C50** Breast
Major Topography Groups

C51-58  Female Genital Organs
C60-63  Male Genital Organs
C64-68  Urinary Tract
C69-72  Eye, Brain, CNS
C73-75  Thyroid and Endocrine Glands
C76     Other Ill defined sites
C77     Lymph Nodes
C80     Unknown
Morphology – Numerical List

Morphology terms have five-digit codes ranging from M-8000/0 – M-9989/3

-The morphology section of ICD-O, First and Second Edition, has been revised.

-WHO classification of Hematopoietic and Lymphoid Diseases is used instead of REAL(Revised European American Lymphoma) classification for lymphoma and FAB(French American British) classification for leukemia.
## Major Morphology Groups

<table>
<thead>
<tr>
<th>Code Range</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>Unspecified</td>
</tr>
<tr>
<td>801-867</td>
<td>Carcinomas</td>
</tr>
<tr>
<td>872-879</td>
<td>Melanomas</td>
</tr>
<tr>
<td>880-899</td>
<td>Sarcomas</td>
</tr>
<tr>
<td>906-909</td>
<td>Germ Cell</td>
</tr>
<tr>
<td>938-948</td>
<td>Gliomas</td>
</tr>
<tr>
<td>959-972</td>
<td>Lymphomas</td>
</tr>
<tr>
<td>980-994</td>
<td>Leukemias</td>
</tr>
</tbody>
</table>
Structure of Code

• Where did it start?
  - Topography
  - Site of origin

• What is it?
  - Morphology
  - Behavior
Structure

Topography (4 digits)

Morphology (6 digits)
<table>
<thead>
<tr>
<th>Component</th>
<th>Digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topography</td>
<td>4</td>
</tr>
<tr>
<td>Morphology</td>
<td>4</td>
</tr>
<tr>
<td>Behavior</td>
<td>1</td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
</tr>
</tbody>
</table>

**ICD-O-3 Code = 10 Digits**
Example

Primary Subsite

Cell type Behavior Differentiation

Lung Middle lobe

Squamous cell Carcinoma, Invasive Moderately Differentiation

C 3 4 . 2

8 0 7 0 / 3 2
Format of ICD–O Terms in Numerical List

• Each topographic and morphologic term appears only once

• The first listed term, printed in bold type under a particular code, is the preferred term

<table>
<thead>
<tr>
<th>Code</th>
<th>Term</th>
<th>Not synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>C07.9</td>
<td>Parotid gland</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parotid, NOS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stensen duct</td>
<td></td>
</tr>
<tr>
<td>M8290/3</td>
<td>Oxyphilic adenocarcinoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oncocytic carcinoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hurthle cell carcinoma(C73.9)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follicular carcinoma, oxyphilic cell(C73.9)</td>
<td></td>
</tr>
</tbody>
</table>
- **Boldface header** for any word that appears as part of 3 or more terms (terms indented)

- **Topography (C) and morphology (M) terms listed** together alphabetically but not mixed under a heading in the index.  
  Space before and after each group.

- **NOS terms listed first**
## First column of Alphabetic Index

<table>
<thead>
<tr>
<th>Abdomen</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C76.2</td>
<td>NOS</td>
</tr>
<tr>
<td>C47.4</td>
<td>Autonomic nervous system</td>
</tr>
<tr>
<td>C49.4</td>
<td>Connective tissue</td>
</tr>
<tr>
<td>C49.4</td>
<td>Muscle</td>
</tr>
<tr>
<td>C47.4</td>
<td>Peripheral nerve</td>
</tr>
<tr>
<td>C44.5</td>
<td>skin</td>
</tr>
<tr>
<td>C49.4</td>
<td>Subcutaneous tissue</td>
</tr>
<tr>
<td><strong>M8822/1</strong></td>
<td>Abdominal desmoid</td>
</tr>
<tr>
<td><strong>M8822/1</strong></td>
<td>Abdominal fibromatosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abdominal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C49.4</td>
<td>Aorta</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C15.2</th>
<th>Esophagus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C77.2</td>
<td>Lymph node</td>
<td></td>
</tr>
<tr>
<td>C49.4</td>
<td>Vena cava</td>
<td></td>
</tr>
</tbody>
</table>

### Abdominal wall

| C76.2    | NOS |
| C44.5    | NOS(carcinoma, melanoma nevus) |
| C44.9    | NOS(Sarcoma, lipoma) |

--- skip ---

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M_______</td>
<td>Acanthoma, clear cell (see SNOMED)</td>
</tr>
<tr>
<td>M_______</td>
<td>Acanthosis nigricans (see SNOMED)</td>
</tr>
</tbody>
</table>
Appendices

1. New ICD-O-3 codes
2. New terms & synonyms (codes were in ICD-O-2)
3. Terms that changed morphology codes
4. Terms that changed from tumor-like lesions to neoplasms
5. Deleted terms
6. Terms that changed behavior code
Coding of tumors

• Same coding system with same rules allows comparison of statistics between registries (in your country and internationally) and within the registry (trends over time).

• Registries should use the same rules: ICD-O-3

• Standardization.
Rule A.

Topographic regions and ill-defined sites

If the diagnosis does not specify the tissue of origin, use the appropriate tissues suggested in the alphabetic index for each ill-defined site in preference to the “NOS” category.

Diagnosis: melanoma of the arm

Arm, NOS C76.4 ×

Skin of arm C44.6 •
Rule B.

Prefixes

If a topographic site is modified by a prefix such as peri-, para-, or the like which is not specifically listed in ICD-O, code to the appropriate ill-defined subcategory C76 (ill-defined site), unless the type of tumor indicates origin from a particular tissue C76._

(ill-defined sites)

peri-
para-
pref-
supra-
infra-
in the area of
in the region of

Try to specify the site.
When there is no way you specify the site...
Topographic site modified by prefix terms in index

Examples:
Peri-adrenal tissue       C48.0
Peri-ampullary           C24.1
Retro-cecal tissue       C48.0
Peri-pancreatic tissue   C48.0
Supra-tentorial brain    C71.0
Peri-renal tissue        C48.0
Rule C.

Tumors involving more than one topographic category or subcategory

Use subcategory “.8” when a single tumor overlaps the boundaries of two or more categories or subcategories and its point of origin cannot be determined.
Rule D.

Topography codes for lymphomas

If a lymphoma involves multiple lymph node regions, code to C77.8 (lymph nodes of multiple regions).

Code extranodal lymphomas to the site of origin, which may not be the site of the biopsy.

If no site is indicated for a lymphoma and it is suspected to be extranodal, code to C80.9 (unknown primary site).
Rule E.

**Topography code for leukemias**

Code all leukemias as **C42.1** (bone marrow)

Except for myeloid sarcoma (9930/3)

Myeloid sarcoma: a deposit of malignant myeloid cells in soft tissue.
Code to location of lesion.
Rule F.

Behavior code in morphology

Use the appropriate 5th digit behavior code even if the exact term is not listed in ICD-O.

/0 Benign
/1 Uncertain whether benign or malignant; borderline
/2 In situ; non-invasive
/3 Malignant; invasive
/6 Malignant, metastatic
/9 Malignant, uncertain whether primary or metastatic site
Rule G.

Grading or differentiation code

Assign the highest grade or differentiation code described in the diagnostic statement

Applied to malignant neoplasms (/ 3)
## Rule G. (continued)

### Grading or differentiation code (6th digit)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grade I</td>
<td>Well differentiated</td>
</tr>
<tr>
<td>2</td>
<td>Grade II</td>
<td>Moderately differentiated; intermediate differentiation</td>
</tr>
<tr>
<td>3</td>
<td>Grade III</td>
<td>Poorly differentiated</td>
</tr>
<tr>
<td>4</td>
<td>Grade IV</td>
<td>Undifferentiated; anaplastic</td>
</tr>
<tr>
<td>5</td>
<td>T-cell</td>
<td>Leukemias and lymphomas</td>
</tr>
<tr>
<td>6</td>
<td>B-cell</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Null-cell</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>NK-cell</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Grade or differentiation not determined, Not stated; cell type not determined; Not applicable</td>
</tr>
</tbody>
</table>

Code to highest grade
Rule H.

Site-associated morphology terms

Use the topography code provided when a topographic site is not stated in the diagnosis.

This topography code should be disregarded if the tumor is known to arise at another site.
Rule J.

Compound morphology diagnoses

Change the order of word roots in a compound term if the term is not listed in ICD-O-3.

Fibromyxosarcoma  8811/3
Myxofibrosarcoma not in ICD-O-3

Myxo / fibro / sarcoma

Fibro myxo sarcoma
Rule K.

Coding multiple morphology terms

When no single code includes all diagnostic terms, use the numerically higher code number if the diagnosis of a single tumor includes two modifying adjectives with different code numbers.
How to Code

- Divide phrase into topography and morphology
- Look up morphology first
- Look up unusual term first
- Use all the words in the phrase
- Add 5th and 6th digit codes
- Look up topography
Poorly differentiated hepatocellular carcinoma of right lobe of liver

Morphology: hepatocellular carcinoma

Behavior: carcinoma /3 (5th digit)

Grade: poorly differentiated 3 (6th digit)

Topography: liver, right lobe

Coding Example (1)
C22.1       M 8170/33
Coding Example (2)

Grade 3 Infiltration duct carcinoma, comedo type, UOQ, right breast

Morphology: Duct carcinoma, comedo type

Behavior: Infiltrating /3 (5th digit)

Grade: Grade 3 3 (6th digit)

Topography: breast, UOQ

C50.4 M 8501/33
Thank You

Workshop on Cancer Registration
Health Promotion Centre (HPC), MOH Brunei Darussalam