



**ORAU TEAM
Dose Reconstruction
Project for NIOSH**

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**Internal Dosimetry Organ, External
Dosimetry Organ, and IREP Model Selection
by ICD-10 Code**

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PUBLICATION RECORD

| EFFECTIVE DATE | REVISION NUMBER | DESCRIPTION |
|-----------------------|------------------------|---|
| 11/03/2003 | 00 | ORAU Team technical information bulletin to clarify IMBA organ and IREP model selection First approved issue. Initiated by Elizabeth M. Brackett. |
| 01/23/2004 | 01 | Incorporates applicable external dosimetry organ selection. Approved issue of Revision 01. Initiated by Elizabeth M. Brackett. |
| 03/05/2004 | 01 PC-1 | IREP model correction for ICD-9 code 238.7 (added Bone model), remove IMBA/External/IREP model info from header rows for ICD-9 codes 194 and 205. Approved issue of page change 1. Initiated by Elizabeth M. Brackett. |
| 05/07/2004 | 01 PC-2 | IMBA and External model correction for ICD-9 code 231.8 (changed to med review on page 15), IMBA model correction for ICD-9 codes 235.8 and 235.9 (changed to med review on page 16), External model correction for ICD-9 code 185 (changed to bladder on page 8). Approved issue of page change 2. Initiated by Elizabeth M. Brackett. |
| 10/29/2004 | 01 PC-3 | IMBA model correction for ICD-9 code 189.2, 189.3, and 189.4 (changed to highest non-met organ/tissue on page 9), added footnote number 5 to Table 1 for ICD-9 code 232 on page 18. Changed DOL documentation to NIOSH Referral Summary Document (NRSD) on page 20. Approved issue of page change 3. Initiated by Scott R. Siebert. |
| 12/02/2005 | 02 | Adds information for ICD-9 codes 289.7 and 289.9, clarifies handling adenocarcinoma of the distal (lower third) esophagus, corrects external organ for ICD-9 codes 233.4 and 236.5, updates correct model selections for various cancers (to reflect guidance in OCAS-TIB-012, except as directed by OCAS to mark many 200-204 organs as "Reserved"), adds likely primary cancer selection for secondary cancers. Changes references to "IMBA organ" to "Internal Dosimetry organ." Approved issue of Revision 02. Training required: As determined by the Task Manager. Initiated by Scott R. Siebert. |
| 02/10/2006 | 02 PC-1 | Approved page change revision. Updates Table 3-1 (pages 15 to 22) in Section 3.2 to reflect guidance in OCAS-TIB-012 Rev 1 (internal and external organs for ICD-9 series 200 through 204 changed from "Reserved" to the specified organ) and changes OCAS-TIB-012 issue date and revision number in reference section (page 33). No sections were deleted. Training required: As determined by the Task Manager. Initiated by Scott R. Siebert. |
| 02/27/2010 | 03 | Adds discussion of ICD-9 vs. ICD-9-CM in Background section, adds codes into Tables 3-1 and 3-2 that cross-reference to ICD-9-CM codes, adds clarification for skin cancer codes, updates organ selection for ICD-9 codes 155 and 156, adds clarification that this TIB is not applicable for x-ray procedures. No sections were deleted. Incorporates formal internal and NIOSH review comments. Constitutes a total rewrite of the document. Training required: As determined by the Objective Manager. Initiated by Scott R. Siebert. |

| EFFECTIVE DATE | REVISION NUMBER | DESCRIPTION |
|-----------------------|------------------------|--|
| 04/18/2011 | 04 | Changes external organ for ICD-9 codes 194.1 and 194.5 to Thyroid only (rather than Thyroid/Remainder), adds BCC as an IREP model option for ICD-9 code 232, changes internal organ from Medical Review to Skin for 238.2, add SCC as an IREP model option for 238.2, updates footnote "e" to include ICD-9 code 238.2 and BCC, update the internal organ from "Medical Review" to a specific organ of interest for 236.91 (Kidney), 238.0 (Bone surface), 238.3 (Breast), 239.2 (Bone surface or Skin depending on cancer type). Additional change to 238.0 and 239.2 (bone) based on formal internal review comments – both changed to bone surface for internal and external organs. Additional change to add SCC as viable IREP model for 239. 2(skin) based on formal NIOSH review. Training required: As determined by the Objective Manager. Initiated by Scott R. Siebert. |
| 12/20/2012 | 05 | Adds Chronic lymphocytic leukemia (CLL) as radiogenic cancer – Section 4.11, Table 3-1 (ICD-9 code 204.1 series), footnote "d" to Table 3-1. Added clarification to Sec 4.9 on comparisons of ULI and LLI. Update Table 3-1 to add fifth digit in ICD-9 codes for 173, add clarification to Sec 4.7 for same. Update 150.1 and 150.9 to clarify that stomach is not appropriate for either code since location is either thoracic or unspecified and add discussion of "nec" and "nos" to Sec 4.8. Added discussion of ICD-9 code 199 in Section 3.2. Incorporates formal internal and NIOSH review comments. Training required: As determined by the Objective Manager. Initiated by Scott R. Siebert. |
| 09/27/2019 | 06 | Revision initiated to transition from the ICD-9 code system to the ICD-10 code system. Incorporates internal and NIOSH review comments. Constitutes a total rewrite of the document. Training required: As determined by the Objective Manager. Initiated by Scott R. Siebert. |

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ACRONYMS AND ABBREVIATIONS

| | |
|-------------|--|
| BB | bronchial region |
| BCC | basal cell carcinoma |
| CLL | chronic lymphocytic leukemia |
| DOE | U.S. Department of Energy |
| DOL | U.S. Department of Labor |
| ET1 | extrathoracic region 1 |
| ET2 | extrathoracic region 2 |
| ICD-10 | <i>International Statistical Classification of Diseases and Related Health Problems, 10th Revision</i> |
| ICD-10-CM | <i>The International Classification of Diseases, Tenth Revision, Clinical Modification</i> |
| ICRP | International Commission on Radiological Protection |
| IMBA | Integrated Modules for Bioassay Analysis |
| IREP | Interactive RadioEpidemiological Program |
| LLI | lower large intestine |
| LN(ET) | extrathoracic lymph nodes |
| LN(TH) | thoracic lymph nodes |
| NEC | not elsewhere classified |
| NIOSH | National Institute for Occupational Safety and Health |
| NOS | not otherwise specified |
| NRSD | NIOSH Referral Summary Document |
| OCAS | Office of Compensation Analysis and Support |
| ORAU | Oak Ridge Associated Universities |
| POC | probability of causation |
| SCC | squamous cell carcinoma |
| SI | small intestine |
| SRDB Ref ID | Site Research Database Reference Identification (number) |
| TIB | technical information bulletin |
| ULI | upper large intestine |
| U.S.C. | United States Code |
| § | section or sections |

1.0 **INTRODUCTION**

Technical information bulletins (TIBs) are not official determinations made by the National Institute for Occupational Safety and Health (NIOSH) but are rather general working documents that provide historical background information and guidance to assist in the preparation of dose reconstructions at particular sites or categories of sites. They will be revised in the event additional relevant information is obtained about the affected site(s). TIBs may be used to assist NIOSH staff in the completion of individual dose reconstructions.

In this document, the word “facility” is used as a general term for an area, building, or group of buildings that served a specific purpose at a site. It does not necessarily connote an “atomic weapons employer facility” or a “Department of Energy (DOE) facility” as defined in the Energy Employees Occupational Illness Compensation Program Act of 2000 [42 U.S.C. § 7384l(5) and (12)].

1.1 **PURPOSE**

This TIB provides guidance on selection of (1) the appropriate International Commission on Radiological Protection (ICRP) organ or tissue model to estimate the internal dose for specific codes based on the World Health Organization’s *International Statistical Classification of Diseases and Related Health Problems, 10th Revision* (ICD-10; WHO 2016), (2) the appropriate ICRP organs or tissues to estimate external dose, and (3) the appropriate model in the Interactive RadioEpidemiological Program (IREP). This TIB also provides information for selecting and assessing likely primary cancers for secondary cancers.

1.2 **SCOPE**

This TIB does not address the appropriate ICRP organ to use with medical X-ray procedures due to different potential exposure geometries of those procedures. This information can be found in ORAUT-OTIB-0006, *Dose Reconstruction from Occupational Medical X-Ray Procedures* (ORAUT 2019d).

2.0 **BACKGROUND**

Under the Energy Employees Occupational Illness Compensation Program Act of 2000, the organs or tissues for which doses must be estimated are those that are delineated by the specified ICD-10 code that is received from the U.S. Department of Labor (DOL). While many ICD-10 codes are clear in their intended organ or tissue, additional guidance is necessary to identify the appropriate organs or tissues for internal and external dose estimation and the IREP model to use for the organ or tissue. This TIB designates the appropriate internal dosimetry organ and tissue selection for the various ICD-10 coded cancers, the appropriate organs and tissues to estimate external dose, and the appropriate IREP model.

Coding of the cancers is conducted by DOL on the basis of ICD-10. The U.S. Department of Health and Human Services National Center for Health Statistics has issued a related document, *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD-10-CM; NCHS 2018), which is widely used in the United States. ICD-10-CM is revised on an annual basis.

To facilitate consistency between the previous information under ICD-9 and the newer codes under ICD-10, a comparison of them was conducted in ORAUT-RPRT-0098, *Rationale for Matching ICD-9 Codes to ICD-10 Codes for Predetermined Organ and IREP Model Selections* (ORAUT 2019a). That report and the information in two supporting spreadsheets (ORAUT 2019b, 2019c) were used to create the information in the tables in this document.

3.0 GUIDANCE

3.1 SELECTION OF APPROPRIATE ORGANS, TISSUES, AND MODELS

Table 3-1 correlates ICD-10 codes to the appropriate organ and tissue selection for internal and external dose estimation and to the appropriate IREP model. Organs and tissues that are labeled "Highest non-met org/tiss" indicate that dose to the highest nonmetabolic organ is to be used to represent the dose to the designated ICD-10 organ or tissue. A discussion of this term is included in Section 4.1. The remaining regions correspond to the term in the Integrated Modules for Bioassay Analysis (IMBA) software program.

3.2 SECONDARY CANCERS WITH UNKNOWN PRIMARY CANCER SITE

Another situation that needs to be assessed is the diagnosis of a secondary cancer with an unknown primary cancer location. In its technical documentation of guidance of the use of IREP, NIOSH states (NIOSH 2002a, pp. 39,40):

It is accepted in medicine that cancer-causing agents such as ionizing radiation produce primary cancers. This means, for a case in which the primary site of cancer is unknown, the primary site must be established by inference to estimate probability of causation.

For each secondary cancer, the set of primary cancers producing approximately 75% of that secondary cancer among the U.S. population was identified (males and females were considered separately; Table 7). Therefore, for secondary cancers with unknown primary site, this table will be consulted to select likely primary sites, which will each then be evaluated using NIOSH-IREP.

Therefore, for secondary cancers with unknown primary sites, Table 3-2 should be consulted to select likely primary sites, which should then be evaluated using IREP. Because each secondary cancer in Table 3-2 has more than one likely primary cancer site, each likely primary site must be evaluated using IREP to determine a POC. If one of the likely primary cancer sites yields a POC greater than or equal to 50%, this site should be assumed to be the originating site for the secondary cancer and should be submitted as such.

If none of the likely primary cancer sites yields a POC greater than or equal to 50%, the supporting documentation for all of them should be submitted, demonstrating that all were less than 50%.

ICD-10 codes C45.9, C7B.00, C7B.09, C7B.8, C80.0, and C80.1 present unusual cases because they can be coded by DOL as either a primary or a secondary cancer. In either case, the location is either unknown or not clearly defined. If coded as a secondary cancer, this means both the secondary cancer as well as the primary cancer that caused it are unknown. Because this information is unknown, these codes should be assessed as outlined in Table 3-1 regardless of information on likely primary locations provided by DOL in the referral files.

3.3 SIMPLIFICATION OF TABLE 3-1

To conserve space in this document, a simplification to Table 3-1 has been made when all subcodes of any specific code have the same internal organ, external organ, and IREP model(s) defined for those codes. In such cases, the subcodes have been collapsed to the single higher code in the table and the listed organs and models are to be used for that code and all subcodes with additional extensions.

For example, ICD-10 code C00 (Malignant neoplasm of lip) has multiple subcodes where the extensions define the specific location of the neoplasm on the lip. All of the locations given use the same internal organ (Highest non-met org/tiss), external organ (Skin), and IREP model (Oral cav and pharynx), so the codes have all been collapsed into code C00 in Table 3-1 and all subcodes will use this information for assessment. A listing of all codes and the ones that are collapsed are given in the supporting spreadsheet (ORAUT 2019c).

Table 3-1. Selection of organs, tissues, and IREP models for internal and external dose reconstruction based on ICD-10 code.

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------------|--------------------------------|--------------------------------|
| C00 | Malignant neoplasm of lip | Highest non-met org/tiss | Skin | Oral cav and pharynx |
| C01 | Malignant neoplasm of base of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.0 | Malignant neoplasm of dorsal surface of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.1 | Malignant neoplasm of border of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.2 | Malignant neoplasm of ventral surface of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.3 | Malignant neoplasm of anterior two-thirds of tongue, part unspecified | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.4 | Malignant neoplasm of lingual tonsil | LN(ET) | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.8 | Malignant neoplasm of overlapping sites of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C02.9 | Malignant neoplasm of tongue, unspecified | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C03 | Malignant neoplasm of gum | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C04 | Malignant neoplasm of floor of mouth | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C05 | Malignant neoplasm of palate/uvula | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C06 | Malignant neoplasm of mouth | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C07 | Malignant neoplasm of parotid gland | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C08 | Malignant neoplasm of salivary gland | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav and pharynx |
| C09 | Malignant neoplasm of tonsil | LN(ET) | Esophagus | Oral cav and pharynx |
| C10 | Malignant neoplasm of oropharynx | ET2 | Esophagus | Oral cav and pharynx |
| C11 | Malignant neoplasm of nasopharynx | ET2 | Esophagus | Oral cav and pharynx |
| C12 | Malignant neoplasm of pyriform sinus | ET2 | Esophagus | Oral cav and pharynx |
| C13 | Malignant neoplasm of hypopharynx | ET2 | Esophagus | Oral cav and pharynx |
| C14.0 | Malignant neoplasm of pharynx, unspecified | ET2 | Esophagus | Oral cav and pharynx |
| C14.2 | Malignant neoplasm of Waldeyer's ring | LN(ET) | Esophagus | Oral cav and pharynx |
| C14.8 | Malignant neoplasm of overlapping sites of lip, oral cavity and pharynx | ET2 | Esophagus | Oral cav and pharynx |
| C15.3 | Malignant neoplasm of upper third of esophagus | Esophagus | Esophagus | Esophagus |
| C15.4 | Malignant neoplasm of middle third of esophagus | Esophagus | Esophagus | Esophagus |
| C15.5 | Malignant neoplasm of lower third of esophagus | Esophagus/stomach ^b | Esophagus/stomach ^b | Esophagus/stomach ^b |
| C15.8 | Malignant neoplasm of overlapping sites of esophagus | Esophagus/stomach ^b | Esophagus/stomach ^b | Esophagus/stomach ^b |
| C15.9 | Malignant neoplasm of esophagus, unspecified | Esophagus | Esophagus | Esophagus |
| C16 | Malignant neoplasm of stomach | Stomach | Stomach | Stomach |
| C17 | Malignant neoplasm of small intestine/Meckel's diverticulum | SI | Stomach | All digestive |
| C18.0 | Malignant neoplasm of cecum | ULI | Colon | Colon |
| C18.1 | Malignant neoplasm of appendix | ULI | Colon | Colon |
| C18.2 | Malignant neoplasm of ascending colon | ULI | Colon | Colon |
| C18.3 | Malignant neoplasm of hepatic flexure | ULI | Colon | Colon |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------------|--------------------------------|-------------------|
| C18.4 | Malignant neoplasm of transverse colon | ULI | Colon | Colon |
| C18.5 | Malignant neoplasm of splenic flexure | LLI | Colon | Colon |
| C18.6 | Malignant neoplasm of descending colon | LLI | Colon | Colon |
| C18.7 | Malignant neoplasm of sigmoid colon | LLI | Colon | Colon |
| C18.8 | Malignant neoplasm of overlapping sites of colon | Colon | Colon | Colon |
| C18.9 | Malignant neoplasm of colon, unspecified | Colon | Colon | Colon |
| C19 | Malignant neoplasm of rectosigmoid junction | LLI | Colon | Rectum |
| C20 | Malignant neoplasm of rectum | LLI | Colon | Rectum |
| C21 | Malignant neoplasm of rectum, anus, and anal cavity | LLI | Colon | Rectum |
| C22.0 | Liver cell carcinoma | Liver | Liver | Liver |
| C22.1 | Intrahepatic bile duct carcinoma | Liver/gallbladder ^c | Liver | Gallbladder |
| C22.2 | Hepatoblastoma | Liver | Liver | Liver |
| C22.3 | Angiosarcoma of liver | Liver | Liver | Liver |
| C22.4 | Other sarcomas of liver | Liver | Liver | Liver |
| C22.7 | Other specified carcinomas of liver | Liver | Liver | Liver |
| C22.8 | Malignant neoplasm of liver, primary, unspecified as to type | Liver | Liver | Liver |
| C22.9 | Malignant neoplasm of liver, not specified as primary or secondary | Liver | Liver | Liver |
| C23 | Malignant neoplasm of gallbladder | Gallbladder | Liver | Gallbladder |
| C24 | Malignant neoplasm of biliary tract | Gallbladder | Liver | Gallbladder |
| C25 | Malignant neoplasm of pancreas | Pancreas | Stomach | Pancreas |
| C26.0 | Malignant neoplasm of intestinal tract, part unspecified | Colon | Stomach | All digestive |
| C26.1 | Malignant neoplasm of spleen | Spleen | Stomach | All digestive |
| C26.9 | Malignant neoplasm of ill-defined sites within the digestive system | Highest non-met org/tiss | Stomach | All digestive |
| C30.0 | Malignant neoplasm of nasal cavity | ET1 | Thyroid/remainder ^a | Other respiratory |
| C30.1 | Malignant neoplasm of middle ear | Highest non-met org/tiss | Thyroid/remainder ^a | Other respiratory |
| C31 | Malignant neoplasm of sinus | Highest non-met org/tiss | Thyroid/remainder ^a | Other respiratory |
| C32 | Malignant neoplasm of larynx | ET2 | Esophagus | Other respiratory |
| C33 | Malignant neoplasm of trachea | Lung | Lung | Lung |
| C34 | Malignant neoplasm of bronchus/lung | Lung | Lung | Lung |
| C37 | Malignant neoplasm of thymus | Thymus | Thymus | Other respiratory |
| C38.0 | Malignant neoplasm of heart | Heart Wall | Thymus | Other respiratory |
| C38.1 | Malignant neoplasm of anterior mediastinum | Highest non-met org/tiss | Thymus | Other respiratory |
| C38.2 | Malignant neoplasm of posterior mediastinum | Highest non-met org/tiss | Thymus | Other respiratory |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|-----------------------|-------------------|
| C38.3 | Malignant neoplasm of mediastinum, part unspecified | Highest non-met org/tiss | Thymus | Other respiratory |
| C38.4 | Malignant neoplasm of pleura | Highest non-met org/tiss | Lung | Other respiratory |
| C38.8 | Malignant neoplasm of overlapping sites of heart, mediastinum and pleura | Highest non-met org/tiss | Thymus | Other respiratory |
| C39 | Malignant neoplasm of upper/lower respiratory tract, part unspecified | Lung | Lung | Other respiratory |
| C40.00 | Malignant neoplasm of scapula and long bones of unspecified upper limb | Bone surface | Bone surface | Bone |
| C40.01 | Malignant neoplasm of scapula and long bones of right upper limb | Bone surface | Bone surface | Bone |
| C40.02 | Malignant neoplasm of scapula and long bones of left upper limb | Bone surface | Bone surface | Bone |
| C40.10 | Malignant neoplasm of short bones of unspecified upper limb | Bone surface | Bone surface | Bone |
| C40.11 | Malignant neoplasm of short bones of right upper limb | Bone surface | Bone surface | Bone |
| C40.12 | Malignant neoplasm of short bones of left upper limb | Bone surface | Bone surface | Bone |
| C40.20 | Malignant neoplasm of long bones of unspecified lower limb | Medical review | Bone surface | Bone |
| C40.21 | Malignant neoplasm of long bones of right lower limb | Medical review | Bone surface | Bone |
| C40.22 | Malignant neoplasm of long bones of left lower limb | Medical review | Bone surface | Bone |
| C40.30 | Malignant neoplasm of short bones of unspecified lower limb | Bone surface | Bone surface | Bone |
| C40.31 | Malignant neoplasm of short bones of right lower limb | Bone surface | Bone surface | Bone |
| C40.32 | Malignant neoplasm of short bones of left lower limb | Bone surface | Bone surface | Bone |
| C40.80 | Malignant neoplasm of overlapping sites of bone and articular cartilage of unspecified limb | Medical review | Bone surface | Bone |
| C40.81 | Malignant neoplasm of overlapping sites of bone and articular cartilage of right limb | Medical review | Bone surface | Bone |
| C40.82 | Malignant neoplasm of overlapping sites of bone and articular cartilage of left limb | Medical review | Bone surface | Bone |
| C40.90 | Malignant neoplasm of unspecified bones and articular cartilage of unspecified limb | Medical review | Bone surface | Bone |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|----------------|----------------|--|
| C40.91 | Malignant neoplasm of unspecified bones and articular cartilage of right limb | Medical review | Bone surface | Bone |
| C40.92 | Malignant neoplasm of unspecified bones and articular cartilage of left limb | Medical review | Bone surface | Bone |
| C41.0 | Malignant neoplasm of bones of skull and face | Bone surface | Bone surface | Bone |
| C41.1 | Malignant neoplasm of mandible | Bone surface | Bone surface | Bone |
| C41.2 | Malignant neoplasm of vertebral column | Bone surface | Bone surface | Bone |
| C41.3 | Malignant neoplasm of ribs, sternum and clavicle | Medical review | Bone surface | Bone |
| C41.4 | Malignant neoplasm of pelvic bones, sacrum and coccyx | Medical review | Bone surface | Bone |
| C41.9 | Malignant neoplasm of bone and articular cartilage, unspecified | Medical review | Bone surface | Bone |
| C43 | Malignant melanoma | Skin | Skin | Malignant melanoma |
| C44.00 | Unspecified malignant neoplasm of skin of lip | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.01 | Basal cell carcinoma of skin of lip | Skin | Skin | Non-melanoma skin-basal cell |
| C44.02 | Squamous cell carcinoma of skin of lip | Skin | Skin | Non-melanoma skin-squamous |
| C44.09 | Other specified malignant neoplasm of skin of lip | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.10 | Unspecified malignant neoplasm of skin of eyelid, including canthus | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.11 | Basal cell carcinoma of skin of eyelid, including canthus | Skin | Skin | Non-melanoma skin-basal cell |
| C44.12 | Squamous cell carcinoma of skin of eyelid, including canthus | Skin | Skin | Non-melanoma skin-squamous |
| C44.19 | Other specified malignant neoplasm of skin of eyelid, including canthus | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.20 | Unspecified malignant neoplasm of skin of ear and external auricular canal | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.21 | Basal cell carcinoma of skin of ear and external auricular canal | Skin | Skin | Non-melanoma skin-basal cell |
| C44.22 | Squamous cell carcinoma of skin of ear and external auricular canal | Skin | Skin | Non-melanoma skin-squamous |
| C44.29 | Other specified malignant neoplasm of skin of ear and external auricular canal | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.30 | Unspecified malignant neoplasm of skin of nose/face | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.31 | Basal cell carcinoma of skin of nose/face | Skin | Skin | Non-melanoma skin-basal cell |
| C44.32 | Squamous cell carcinoma of skin of nose/face | Skin | Skin | Non-melanoma skin-squamous |
| C44.39 | Other specified malignant neoplasm of skin of nose/face | Skin | Skin | Non-melanoma skin-squamous cell ^d |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|----------------|----------------|---|
| C44.40 | Unspecified malignant neoplasm of skin of scalp and neck | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.41 | Basal cell carcinoma of skin of scalp and neck | Skin | Skin | Non-melanoma skin-basal cell |
| C44.42 | Squamous cell carcinoma of skin of scalp and neck | Skin | Skin | Non-melanoma skin-squamous |
| C44.49 | Other specified malignant neoplasm of skin of scalp and neck | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.50 | Unspecified malignant neoplasm of anal/breast/trunk skin | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.51 | Basal cell carcinoma of anal/breast/trunk skin | Skin | Skin | Non-melanoma skin-basal cell |
| C44.52 | Squamous cell carcinoma of anal/breast/trunk skin | Skin | Skin | Non-melanoma skin-squamous |
| C44.59 | Other specified malignant neoplasm of anal/breast/trunk skin | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.60 | Unspecified malignant neoplasm of skin of upper limb, including shoulder | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.61 | Basal cell carcinoma of skin of upper limb, including shoulder | Skin | Skin | Non-melanoma skin-basal cell |
| C44.62 | Squamous cell carcinoma of skin of upper limb, including shoulder | Skin | Skin | Non-melanoma skin-squamous |
| C44.69 | Other specified malignant neoplasm of skin of upper limb, including shoulder | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.70 | Unspecified malignant neoplasm of skin of lower limb, including hip | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.71 | Basal cell carcinoma of skin of lower limb, including hip | Skin | Skin | Non-melanoma skin-basal cell |
| C44.72 | Squamous cell carcinoma of skin of lower limb, including hip | Skin | Skin | Non-melanoma skin-squamous |
| C44.79 | Other specified malignant neoplasm of skin of lower limb, including hip | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.80 | Unspecified malignant neoplasm of overlapping sites of skin | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.81 | Basal cell carcinoma of overlapping sites of skin | Skin | Skin | Non-melanoma skin-basal cell |
| C44.82 | Squamous cell carcinoma of overlapping sites of skin | Skin | Skin | Non-melanoma skin-squamous |
| C44.89 | Other specified malignant neoplasm of overlapping sites of skin | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C44.90 | Unspecified malignant neoplasm of skin, unspecified | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| C44.91 | Basal cell carcinoma of skin, unspecified | Skin | Skin | Non-melanoma skin-basal cell |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|---------------------------------------|---|
| C44.92 | Squamous cell carcinoma of skin, unspecified | Skin | Skin | Non-melanoma skin-squamous |
| C44.99 | Other specified malignant neoplasm of skin, unspecified | Skin | Skin | Non-melanoma skin-squamous cell ^d |
| C45.0 | Mesothelioma of pleura | Highest non-met org/tiss | Lung | Other respiratory |
| C45.1 | Mesothelioma of peritoneum | Highest non-met org/tiss | Stomach | All digestive |
| C45.2 | Mesothelioma of pericardium | Heart Wall | Thymus | Other respiratory |
| C45.7 | Mesothelioma of other sites | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C45.9 ^f | Mesothelioma, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C46.0 | Kaposi's sarcoma of skin | Skin | Skin | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.1 | Kaposi's sarcoma of soft tissue | Highest non-met org/tiss | Remainder ^e | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.2 | Kaposi's sarcoma of palate | Highest non-met org/tiss | Thyroid/remainder ^a | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.3 | Kaposi's sarcoma of lymph nodes | Highest non-met org/tiss | Remainder ^e | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.4 | Kaposi's sarcoma of gastrointestinal sites | Colon | Stomach/colon (location dependent) | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.5 | Kaposi's sarcoma of lung | Lung | Lung | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.7 | Kaposi's sarcoma of other sites | Highest non-met org/tiss | Remainder ^e | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C46.9 | Kaposi's sarcoma, unspecified | Highest non-met org/tiss | Remainder ^e | Connective tissue <u>and</u> Non-melanoma skin-squamous cell |
| C47.0 | Malignant neoplasm of peripheral nerves of head, face and neck | Highest non-met org/tiss | Thyroid/remainder ^a | Connective tissue |
| C47.1 | Malignant neoplasm of peripheral nerves of upper limb, including shoulder | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.2 | Malignant neoplasm of peripheral nerves of lower limb, including hip | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.3 | Malignant neoplasm of peripheral nerves of thorax | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.4 | Malignant neoplasm of peripheral nerves of abdomen | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.5 | Malignant neoplasm of peripheral nerves of pelvis | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.6 | Malignant neoplasm of peripheral nerves of trunk, unspecified | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.8 | Malignant neoplasm of overlapping sites of peripheral nerves and autonomic nervous system | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C47.9 | Malignant neoplasm of peripheral nerves and autonomic nervous system, unspecified | Highest non-met org/tiss | Remainder ^e | Connective tissue |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|--------------------------|--------------------------------|---------------------------------|
| C48 | Malignant neoplasm of retroperitoneum/peritoneum | Highest non-met org/tiss | Stomach | All digestive |
| C49.0 | Malignant neoplasm of connective and soft tissue of head, face and neck | Highest non-met org/tiss | Thyroid/remainder ^a | Connective tissue |
| C49.1 | Malignant neoplasm of connective and soft tissue of upper limb, including shoulder | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.2 | Malignant neoplasm of connective and soft tissue of lower limb, including hip | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.3 | Malignant neoplasm of connective and soft tissue of thorax | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.4 | Malignant neoplasm of connective and soft tissue of abdomen | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.5 | Malignant neoplasm of connective and soft tissue of pelvis | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.6 | Malignant neoplasm of connective and soft tissue of trunk, unspecified | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.8 | Malignant neoplasm of overlapping sites of connective and soft tissue | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.9 | Malignant neoplasm of connective and soft tissue, unspecified | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C49.A | Gastrointestinal stromal tumor | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| C4A | Merkel cell carcinoma | Skin | Skin | Non-melanoma skin-squamous cell |
| C50 | Malignant neoplasm of breast | Breast | Breast | Breast |
| C51.0 | Malignant neoplasm of labium majus | Skin | Uterus | Female genitalia less ovary |
| C51.1 | Malignant neoplasm of labium minus | Skin | Uterus | Female genitalia less ovary |
| C51.2 | Malignant neoplasm of clitoris | Skin | Uterus | Female genitalia less ovary |
| C51.8 | Malignant neoplasm of overlapping sites of vulva | Uterus | Uterus | Female genitalia less ovary |
| C51.9 | Malignant neoplasm of vulva, unspecified | Skin | Uterus | Female genitalia less ovary |
| C52 | Malignant neoplasm of vagina | Muscle | Uterus | Female genitalia less ovary |
| C53 | Malignant neoplasm of cervix | Uterus | Uterus | Female genitalia less ovary |
| C54 | Malignant neoplasm of corpus uteri | Uterus | Uterus | Female genitalia less ovary |
| C55 | Malignant neoplasm of uterus, part unspecified | Uterus | Uterus | Female genitalia less ovary |
| C56 | Malignant neoplasm of ovary | Ovaries | Ovaries | Ovary |
| C57.0 | Malignant neoplasm of fallopian tube | Ovaries | Ovaries | Ovary |
| C57.1 | Malignant neoplasm of broad ligament | Ovaries | Ovaries | Ovary |
| C57.2 | Malignant neoplasm of round ligament | Uterus | Ovaries | Ovary |
| C57.3 | Malignant neoplasm of parametrium | Uterus | Ovaries | Ovary |
| C57.4 | Malignant neoplasm of uterine adnexa, unspecified | Ovaries | Ovaries | Ovary |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------------|-----------------------------|
| C57.7 | Malignant neoplasm of other specified female genital organs | Uterus | Uterus | Female genitalia less ovary |
| C57.8 | Malignant neoplasm of overlapping sites of female genital organs | Uterus | Uterus | Female genitalia less ovary |
| C57.9 | Malignant neoplasm of female genital organ, unspecified | Uterus | Uterus | Female genitalia less ovary |
| C58 | Malignant neoplasm of placenta | Uterus | Uterus | Female genitalia less ovary |
| C60.0 | Malignant neoplasm of prepuce | Skin | Testes | All male genitalia |
| C60.1 | Malignant neoplasm of glans penis | Skin | Testes | All male genitalia |
| C60.2 | Malignant neoplasm of body of penis | Testes | Testes | All male genitalia |
| C60.8 | Malignant neoplasm of overlapping sites of penis | Testes | Testes | All male genitalia |
| C60.9 | Malignant neoplasm of penis, unspecified | Testes | Testes | All male genitalia |
| C61 | Malignant neoplasm of prostate | Highest non-met org/tiss | Bladder | All male genitalia |
| C62 | Malignant neoplasm of testis | Testes | Testes | All male genitalia |
| C63 | Malignant neoplasm of other and unspecified male genital organs | Testes | Testes | All male genitalia |
| C64 | Malignant neoplasm of kidney, except renal pelvis | Kidney | Liver | Urinary organs less bladder |
| C65 | Malignant neoplasm of renal pelvis | Kidney | Liver | Urinary organs less bladder |
| C66 | Malignant neoplasm of ureter | Highest non-met org/tiss | Liver | Urinary organs less bladder |
| C67 | Malignant neoplasm of bladder | Bladder | Bladder | Bladder |
| C68.0 | Malignant neoplasm of urethra | Highest non-met org/tiss | Liver | Urinary organs less bladder |
| C68.1 | Malignant neoplasm of paraurethral glands | Highest non-met org/tiss | Liver | Urinary organs less bladder |
| C68.8 | Malignant neoplasm of overlapping sites of urinary organs | Bladder | Liver | Urinary organs less bladder |
| C68.9 | Malignant neoplasm of urinary organ, unspecified | Medical review | Liver | Urinary organs less bladder |
| C69.0 | Malignant neoplasm of conjunctiva | Skin | Eye lens | Eye |
| C69.1 | Malignant neoplasm of cornea | Skin | Eye lens | Eye |
| C69.2 | Malignant neoplasm of retina | Brain | Eye lens | Eye |
| C69.3 | Malignant neoplasm of choroid | Brain | Eye lens | Eye |
| C69.4 | Malignant neoplasm of ciliary body | Brain | Eye lens | Eye |
| C69.5 | Malignant neoplasm of lacrimal gland and duct | Skin | Eye lens | Eye |
| C69.6 | Malignant neoplasm of orbit | Brain | Eye lens | Eye |
| C69.8 | Malignant neoplasm of overlapping sites of eye and adnexa | Skin | Eye lens | Eye |
| C69.9 | Malignant neoplasm of unspecified site of eye | Skin | Eye lens | Eye |
| C70 | Malignant neoplasm of meninges | Brain | Thyroid/remainder ^a | Nervous system |
| C71 | Malignant neoplasm of brain | Brain | Thyroid/remainder ^a | Nervous system |
| C72 | Malignant neoplasm of spinal cord, cranial nerves, and other parts of Cent Nerv Sys | Brain | Thyroid/remainder ^a | Nervous system |
| C73 | Malignant neoplasm of thyroid gland | Thyroid | Thyroid | Thyroid |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------------|-----------------------------|
| C74 | Malignant neoplasm of adrenal gland | Adrenals | Thyroid/remainder ^a | Other endocrine glands |
| C75.0 | Malignant neoplasm of parathyroid gland | Thyroid | Thyroid | Other endocrine glands |
| C75.1 | Malignant neoplasm of pituitary gland | Brain | Thyroid/remainder ^a | Other endocrine glands |
| C75.2 | Malignant neoplasm of craniopharyngeal duct | Brain | Thyroid/remainder ^a | Other endocrine glands |
| C75.3 | Malignant neoplasm of pineal gland | Brain | Thyroid/remainder ^a | Other endocrine glands |
| C75.4 | Malignant neoplasm of carotid body | Brain | Thyroid | Other endocrine glands |
| C75.5 | Malignant neoplasm of aortic body and other paraganglia | Brain | Thyroid/remainder ^a | Other endocrine glands |
| C75.8 | Malignant neoplasm with pluriglandular involvement, unspecified | Medical review | Remainder ^e | Other endocrine glands |
| C75.9 | Malignant neoplasm of endocrine gland, unspecified | Medical review | Remainder ^e | Other endocrine glands |
| C76.0 | Malignant neoplasm of head, face and neck | Highest non-met org/tiss | Thyroid/remainder ^a | Other and ill-defined sites |
| C76.1 | Malignant neoplasm of thorax | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C76.2 | Malignant neoplasm of abdomen | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C76.3 | Malignant neoplasm of pelvis | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C76.4 | Malignant neoplasm of upper limb | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C76.5 | Malignant neoplasm of lower limb | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C76.8 | Malignant neoplasm of other specified ill-defined sites | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.00 | Malignant carcinoid tumor of unspecified site | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.01 | Malignant carcinoid tumor of the small intestine | SI | Stomach | All digestive |
| C7A.020 | Malignant carcinoid tumor of the appendix | ULI | Colon | Colon |
| C7A.021 | Malignant carcinoid tumor of the cecum | ULI | Colon | Colon |
| C7A.022 | Malignant carcinoid tumor of the ascending colon | ULI | Colon | Colon |
| C7A.023 | Malignant carcinoid tumor of the transverse colon | ULI | Colon | Colon |
| C7A.024 | Malignant carcinoid tumor of the descending colon | LLI | Colon | Colon |
| C7A.025 | Malignant carcinoid tumor of the sigmoid colon | LLI | Colon | Colon |
| C7A.026 | Malignant carcinoid tumor of the rectum | LLI | Colon | Rectum |
| C7A.029 | Malignant carcinoid tumor of the large intestine, unspecified portion | Colon | Colon | Colon |
| C7A.090 | Malignant carcinoid tumor of the bronchus and lung | Lung | Lung | Lung |
| C7A.091 | Malignant carcinoid tumor of the thymus | Thymus | Thymus | Other respiratory |
| C7A.092 | Malignant carcinoid tumor of the stomach | Stomach | Stomach | Stomach |
| C7A.093 | Malignant carcinoid tumor of the kidney | Kidney | Liver | Urinary organs less bladder |
| C7A.094 | Malignant carcinoid tumor of the foregut, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|---------------------|--|--------------------------|------------------------|-------------------------------|
| C7A.095 | Malignant carcinoid tumor of the midgut, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.096 | Malignant carcinoid tumor of the hindgut, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.098 | Malignant carcinoid tumors of other sites | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.1 | Malignant poorly differentiated neuroendocrine tumors | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7A.8 | Other malignant neuroendocrine tumors | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7B.00 ^f | Secondary carcinoid tumors, unspecified site | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7B.09 ^f | Secondary carcinoid tumors of other sites | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C7B.8 ^f | Other secondary neuroendocrine tumors | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C80.0 ^f | Disseminated malignant neoplasm, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C80.1 ^f | Malignant (primary) neoplasm, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| C81.00 | Nodular lymphocyte predominant Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.01 | Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.02 | Nodular lymphocyte predominant Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.03 | Nodular lymphocyte predominant Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.04 | Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.05 | Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.06 | Nodular lymphocyte predominant Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.07 | Nodular lymphocyte predominant Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.08 | Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.09 | Nodular lymphocyte predominant Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.10 | Nodular sclerosis Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.11 | Nodular sclerosis Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.12 | Nodular sclerosis Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|-----------------------|-------------------------------|
| C81.13 | Nodular sclerosis Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.14 | Nodular sclerosis Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.15 | Nodular sclerosis Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.16 | Nodular sclerosis Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.17 | Nodular sclerosis Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.18 | Nodular sclerosis Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.19 | Nodular sclerosis Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.20 | Mixed cellularity Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.21 | Mixed cellularity Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.22 | Mixed cellularity Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.23 | Mixed cellularity Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.24 | Mixed cellularity Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.25 | Mixed cellularity Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.26 | Mixed cellularity Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.27 | Mixed cellularity Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.28 | Mixed cellularity Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.29 | Mixed cellularity Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.30 | Lymphocyte depleted Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.31 | Lymphocyte depleted Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.32 | Lymphocyte depleted Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.33 | Lymphocyte depleted Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|-----------------------|-------------------------------|
| C81.34 | Lymphocyte depleted Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.35 | Lymphocyte depleted Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.36 | Lymphocyte depleted Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.37 | Lymphocyte depleted Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.38 | Lymphocyte depleted Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.39 | Lymphocyte depleted Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.40 | Lymphocyte-rich Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.41 | Lymphocyte-rich Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.42 | Lymphocyte-rich Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.43 | Lymphocyte-rich Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.44 | Lymphocyte-rich Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.45 | Lymphocyte-rich Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.46 | Lymphocyte-rich Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.47 | Lymphocyte-rich Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.48 | Lymphocyte-rich Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.49 | Lymphocyte-rich Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.70 | Other Hodgkin lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.71 | Other Hodgkin lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.72 | Other Hodgkin lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.73 | Other Hodgkin lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.74 | Other Hodgkin lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|--|--------------------------|--------------------------|-------------------------------|
| C81.75 | Other Hodgkin lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.76 | Other Hodgkin lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.77 | Other Hodgkin lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.78 | Other Hodgkin lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.79 | Other Hodgkin lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.90 | Hodgkin lymphoma, unspecified, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.91 | Hodgkin lymphoma, unspecified, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C81.92 | Hodgkin lymphoma, unspecified, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.93 | Hodgkin lymphoma, unspecified, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C81.94 | Hodgkin lymphoma, unspecified, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C81.95 | Hodgkin lymphoma, unspecified, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.96 | Hodgkin lymphoma, unspecified, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C81.97 | Hodgkin lymphoma, unspecified, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C81.98 | Hodgkin lymphoma, unspecified, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C81.99 | Hodgkin lymphoma, unspecified, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C82 | Follicular lymphoma | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.00 | Small cell B-cell lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.01 | Small cell B-cell lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C83.02 | Small cell B-cell lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.03 | Small cell B-cell lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C83.04 | Small cell B-cell lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.05 | Small cell B-cell lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|--------------------------|--------------------------|-------------------------------|
| C83.06 | Small cell B-cell lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.07 | Small cell B-cell lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C83.08 | Small cell B-cell lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.09 | Small cell B-cell lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.10 | Mantle cell lymphoma, unspecified site | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.11 | Mantle cell lymphoma, lymph nodes of head, face, and neck | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.12 | Mantle cell lymphoma, intrathoracic lymph nodes | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.13 | Mantle cell lymphoma, intra-abdominal lymph nodes | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.14 | Mantle cell lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.15 | Mantle cell lymphoma, lymph nodes of inguinal region and lower limb | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.16 | Mantle cell lymphoma, intrapelvic lymph nodes | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.17 | Mantle cell lymphoma, spleen | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.18 | Mantle cell lymphoma, lymph nodes of multiple sites | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.19 | Mantle cell lymphoma, extranodal and solid organ sites | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C83.30 | Diffuse large B-cell lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.31 | Diffuse large B-cell lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C83.32 | Diffuse large B-cell lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.33 | Diffuse large B-cell lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C83.34 | Diffuse large B-cell lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.35 | Diffuse large B-cell lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.36 | Diffuse large B-cell lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.37 | Diffuse large B-cell lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C83.38 | Diffuse large B-cell lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|-----------------------|-------------------------------|
| C83.39 | Diffuse large B-cell lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.50 | Lymphoblastic (diffuse) lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.51 | Lymphoblastic (diffuse) lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C83.52 | Lymphoblastic (diffuse) lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.53 | Lymphoblastic (diffuse) lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C83.54 | Lymphoblastic (diffuse) lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.55 | Lymphoblastic (diffuse) lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.56 | Lymphoblastic (diffuse) lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.57 | Lymphoblastic (diffuse) lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C83.58 | Lymphoblastic (diffuse) lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.59 | Lymphoblastic (diffuse) lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.7 | Burkitt lymphoma | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.80 | Other non-follicular lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.81 | Other non-follicular lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C83.82 | Other non-follicular lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.83 | Other non-follicular lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C83.84 | Other non-follicular lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.85 | Other non-follicular lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.86 | Other non-follicular lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.87 | Other non-follicular lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C83.88 | Other non-follicular lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.89 | Other non-follicular lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|-----------------------|-------------------------------|
| C83.90 | Non-follicular (diffuse) lymphoma, unspecified, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.91 | Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C83.92 | Non-follicular (diffuse) lymphoma, unspecified, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.93 | Non-follicular (diffuse) lymphoma, unspecified, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C83.94 | Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C83.95 | Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.96 | Non-follicular (diffuse) lymphoma, unspecified, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C83.97 | Non-follicular (diffuse) lymphoma, unspecified, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C83.98 | Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C83.99 | Non-follicular (diffuse) lymphoma, unspecified, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.0 | Mycosis fungoides | Skin | Skin | Lymphoma and multiple myeloma |
| C84.1 | Sezary disease | Skin | Skin | Lymphoma and multiple myeloma |
| C84.4 | Peripheral T-cell lymphoma, not classified | Skin | Skin | Lymphoma and multiple myeloma |
| C84.60 | Anaplastic large cell lymphoma, ALK-positive, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.61 | Anaplastic large cell lymphoma, ALK-positive, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C84.62 | Anaplastic large cell lymphoma, ALK-positive, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C84.63 | Anaplastic large cell lymphoma, ALK-positive, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C84.64 | Anaplastic large cell lymphoma, ALK-positive, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C84.65 | Anaplastic large cell lymphoma, ALK-positive, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C84.66 | Anaplastic large cell lymphoma, ALK-positive, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C84.67 | Anaplastic large cell lymphoma, ALK-positive, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|--------------------|---|--------------------------|--------------------------|-------------------------------|
| C84.68 | Anaplastic large cell lymphoma, ALK-positive, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.69 | Anaplastic large cell lymphoma, ALK-positive, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.70 | Anaplastic large cell lymphoma, ALK-negative, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.71 | Anaplastic large cell lymphoma, ALK-negative, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C84.72 | Anaplastic large cell lymphoma, ALK-negative, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C84.73 | Anaplastic large cell lymphoma, ALK-negative, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C84.74 | Anaplastic large cell lymphoma, ALK-negative, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C84.75 | Anaplastic large cell lymphoma, ALK-negative, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C84.76 | Anaplastic large cell lymphoma, ALK-negative, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C84.77 | Anaplastic large cell lymphoma, ALK-negative, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C84.78 | Anaplastic large cell lymphoma, ALK-negative, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.79 | Anaplastic large cell lymphoma, ALK-negative, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C84.9 | Mature T/NK-cell lymphomas, unspecified | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C84.A | Cutaneous T-cell lymphoma, unspecified | Skin | Skin | Lymphoma and multiple myeloma |
| C84.Z | Other mature T/NK-cell lymphomas | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C85.1 | Unspecified B-cell lymphoma | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| C85.20 | Mediastinal (thymic) large B-cell lymphoma, unspecified site | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C85.21 | Mediastinal (thymic) large B-cell lymphoma, lymph nodes of head, face, and neck | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C85.22 | Mediastinal (thymic) large B-cell lymphoma, intrathoracic lymph nodes | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C85.23 | Mediastinal (thymic) large B-cell lymphoma, intra-abdominal lymph nodes | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C85.24 | Mediastinal (thymic) large B-cell lymphoma, lymph nodes of axilla and upper limb | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C85.25 | Mediastinal (thymic) large B-cell lymphoma, lymph nodes of inguinal region and lower limb | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------|-------------------------------|
| C85.26 | Mediastinal (thymic) large B-cell lymphoma, intrapelvic lymph nodes | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C85.27 | Mediastinal (thymic) large B-cell lymphoma, spleen | Spleen | Stomach | Lymphoma and multiple myeloma |
| C85.28 | Mediastinal (thymic) large B-cell lymphoma, lymph nodes of multiple sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C85.29 | Mediastinal (thymic) large B-cell lymphoma, extranodal and solid organ sites | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C85.8 | Other specified types of non-Hodgkin lymphoma | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C85.9 | Non-Hodgkin lymphoma, unspecified | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.0 | Extranodal NK/T-cell lymphoma, nasal type | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.1 | Hepatosplenic T-cell lymphoma | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.2 | Enteropathy-type (intestinal) T-cell lymphoma | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.3 | Subcutaneous panniculitis-like T-cell lymphoma | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.4 | Blastic NK-cell lymphoma | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C86.5 | Angioimmunoblastic T-cell lymphoma | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C86.6 | Primary cutaneous CD30-positive T-cell proliferations | Skin | Skin | Lymphoma and multiple myeloma |
| C88.0 | Waldenstrom macroglobulinemia | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C88.2 | Heavy chain disease | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C88.3 | Immunoproliferative small intestinal disease | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C88.4 | Extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue [MALT-lymphoma] | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C88.8 | Other malignant immunoproliferative diseases | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C88.9 | Malignant immunoproliferative disease, unspecified | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C90 | Multiple myeloma and malignant plasma cell neoplasms | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C91.0 | Acute lymphoblastic leukemia | Red bone marrow | Red bone marrow | Acute lymphoid leukemia |
| C91.1 | Chronic lymphocytic leukemia of B-cell type | Special ^h | Special ^h | Chronic lymphocytic leukemia |
| C91.3 | Prolymphocytic leukemia of B-cell type | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C91.4 | Hairy cell leukemia | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| C91.5 | Adult T-cell lymphoma/leukemia (HTLV-1-associated) | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C91.6 | Prolymphocytic leukemia of T-cell type | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C91.9 | Lymphoid leukemia, unspecified | Red bone marrow | Red bone marrow | Acute lymphoid leukemia |
| C91.A | Mature B-cell leukemia Burkitt-type | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C91.Z | Other lymphoid leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|-----------------|-----------------|--|
| C92.0 | Acute myeloblastic leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.1 | Chronic myeloid leukemia, BCR/ABL-positive | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Chronic myeloid leukemia |
| C92.2 | Atypical chronic myeloid leukemia, BCR/ABL-negative | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C92.3 | Myeloid sarcoma | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C92.4 | Acute promyelocytic leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.5 | Acute myelomonocytic leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.6 | Acute myeloid leukemia with 11q23-abnormality | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.9 | Myeloid leukemia, unspecified | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.A | Acute myeloid leukemia with multilineage dysplasia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute myeloid leukemia |
| C92.Z | Other myeloid leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C93 | Monocytic leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C94.0 | Acute erythroid leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C94.2 | Acute megakaryoblastic leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C94.3 | Mast cell leukemia | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C94.4 | Acute panmyelosis with myelofibrosis | Red bone marrow | Red bone marrow | Bone <u>and</u> Lymphoma and multiple myeloma |
| C94.6 | Myelodysplastic disease, not classified | Red bone marrow | Red bone marrow | Bone <u>and</u> Lymphoma and multiple myeloma |
| C94.8 | Other specified leukemias | Red bone marrow | Red bone marrow | Leukemia, excl. CLL |
| C95.0 | Acute leukemia of unspecified cell type | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute lymphoid leukemia <u>and</u> Acute myeloid leukemia |
| C95.1 | Chronic leukemia of unspecified cell type | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Chronic myeloid leukemia |
| C95.9 | Leukemia, unspecified | Red bone marrow | Red bone marrow | Leukemia, excl. CLL <u>and</u> Acute lymphoid leukemia <u>and</u> Acute myeloid leukemia <u>and</u> Chronic myeloid leukemia |
| C96.0 | Multifocal and multisystemic (disseminated) Langerhans-cell histiocytosis | LN(TH) | Skin | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, unspecified ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, head ⁱ | LN(ET) | Thyroid | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------|-------------------------------|
| C96.20 | Malignant mast cell neoplasm, thorax ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, abdom ⁱ | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, axilla ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, inguin ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, pelvic ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, spleen ⁱ | Spleen | Stomach | Lymphoma and multiple myeloma |
| C96.20 | Malignant mast cell neoplasm, multiple ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, unspecified ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, head ⁱ | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, thorax ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, abdom ⁱ | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, axilla ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, inguin ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, pelvic ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, spleen ⁱ | Spleen | Stomach | Lymphoma and multiple myeloma |
| C96.21 | Aggressive systemic mastocytosis, multiple ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, unspecified ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, head ⁱ | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, thorax ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, abdom ⁱ | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, axilla ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, inguin ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, pelvic ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, spleen ⁱ | Spleen | Stomach | Lymphoma and multiple myeloma |
| C96.22 | Mast cell sarcoma, multiple ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, unspecified ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, head ⁱ | LN(ET) | Thyroid | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, thorax ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, abdom ⁱ | Highest non-met org/tiss | Stomach | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, axilla ⁱ | LN(TH) | Lung | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, inguin ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, pelvic ⁱ | Highest non-met org/tiss | Bladder | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, spleen ⁱ | Spleen | Stomach | Lymphoma and multiple myeloma |
| C96.29 | Other malignant mast cell neoplasm, multiple ⁱ | LN(TH) | Thyroid | Lymphoma and multiple myeloma |
| C96.4 | Sarcoma of dendritic cells (accessory cells) | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C96.9 | Malignant neoplasm of lymphoid, hematopoietic and related tissue, unspecified | LN(TH) | Thymus/lung ^g | Lymphoma and multiple myeloma |
| C96.A | Histiocytic sarcoma | LN(TH) | Thyroid | Lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------|--|
| C96.Z | Other specified malignant neoplasms of lymphoid, hematopoietic and related tissue | LN(TH) | Thymus/lung ⁹ | Lymphoma and multiple myeloma |
| D00.0 | Carcinoma in situ of lip, oral cavity, and pharynx | Highest non-met org/tiss | Thyroid | Oral cav. and pharynx |
| D00.1 | Carcinoma in situ of esophagus | Esophagus | Esophagus | Esophagus |
| D00.2 | Carcinoma in situ of stomach | Stomach | Stomach | Stomach |
| D01.0 | Carcinoma in situ of colon | Colon | Colon | Colon |
| D01.1 | Carcinoma in situ of rectosigmoid junction | LLI | Colon | Rectum |
| D01.2 | Carcinoma in situ of rectum | LLI | Colon | Rectum |
| D01.3 | Carcinoma in situ of anus and anal canal | LLI | Colon | Rectum |
| D01.4 | Carcinoma in situ of other and unspecified part of intestine | Colon | Colon | All digestive |
| D01.5 | Carcinoma in situ of liver, gallbladder and bile ducts | Liver | Liver | Liver |
| D01.7 | Carcinoma in situ of other specified digestive organs | Highest non-met org/tiss | Remainder ^e | All digestive |
| D01.9 | Carcinoma in situ of digestive organ, unspecified | Highest non-met org/tiss | Remainder ^e | All digestive |
| D02.0 | Carcinoma in situ of larynx | ET2 | Esophagus | Other respiratory |
| D02.1 | Carcinoma in situ of trachea | BB ^j | Thyroid | Lung |
| D02.2 | Carcinoma in situ of bronchus and lung | Lung | Lung | Lung |
| D02.3 | Carcinoma in situ of other parts of respiratory system | Medical review | Medical review | Other respiratory |
| D02.4 | Carcinoma in situ of respiratory system, unspecified | Lung | Lung | Other respiratory |
| D03 | Melanoma in situ | Skin | Skin | Malignant melanoma |
| D04 | Carcinoma in situ of skin | Skin | Skin | Malignant melanoma <u>and</u> Non-melanoma skin-basal Cell <u>and</u> Non-melanoma skin-squamous cell ^k |
| D05 | Lobular carcinoma in situ of breast | Breast | Breast | Breast |
| D06 | Carcinoma in situ of cervix uteri | Uterus | Uterus | Female genitalia less ovary |
| D07.0 | Carcinoma in situ of endometrium | Uterus | Uterus | Female genitalia less ovary |
| D07.1 | Carcinoma in situ of vulva | Skin | Uterus | Female genitalia less ovary <u>and</u> Ovary |
| D07.2 | Carcinoma in situ of vagina | Uterus | Uterus | Female genitalia less ovary <u>and</u> Ovary |
| D07.3 | Carcinoma in situ of other and unspecified female genital organs | Uterus | Uterus | Female genitalia less ovary <u>and</u> Ovary |
| D07.4 | Carcinoma in situ of penis | Testes | Testes | All male genitalia |
| D07.5 | Carcinoma in situ of prostate | Highest non-met org/tiss | Bladder | All male genitalia |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|--------------------------|--------------------------------|-----------------------------|
| D07.6 | Carcinoma in situ of other and unspecified male genital organs | Testes | Testes | All male genitalia |
| D09.0 | Carcinoma in situ of bladder | Bladder | Bladder | Bladder |
| D09.10 | Carcinoma in situ of unspecified urinary organ | Medical review | Liver | Urinary organs less bladder |
| D09.19 | Carcinoma in situ of other urinary organs | Medical review | Liver | Urinary organs less bladder |
| D09.2 | Carcinoma in situ of eye | Brain | Eye lens | Eye |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (thyroid) ⁱ | Thyroid | Thyroid | Thyroid |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (adrenal) ⁱ | Adrenals | Thyroid/remainder ^a | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (parathyroid) ⁱ | Thyroid | Thyroid | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (pituitary) ⁱ | Brain | Thyroid/remainder ^a | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (pineal gland) ⁱ | Brain | Thyroid/remainder ^a | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (carotid body) ⁱ | Brain | Thyroid | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (paraganglia NEC) ⁱ | Brain | Thyroid/remainder ^a | Other endocrine glands |
| D09.3 | Carcinoma in situ of thyroid and other endocrine glands (endocrine NEC/NOS) ⁱ | Medical review | Remainder ^e | Other endocrine glands |
| D09.8 | Carcinoma in situ of other specified sites | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| D09.9 | Carcinoma in situ, unspecified | Highest non-met org/tiss | Remainder ^e | Other and ill-defined sites |
| D37.01 | Neoplasm of uncertain behavior of lip | Highest non-met org/tiss | Skin | Oral cav. and pharynx |
| D37.02 | Neoplasm of uncertain behavior of tongue | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav. and pharynx |
| D37.03 | Neoplasm of uncertain behavior of the major salivary glands | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav. and pharynx |
| D37.04 | Neoplasm of uncertain behavior of the minor salivary glands | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav. and pharynx |
| D37.05 | Neoplasm of uncertain behavior of pharynx | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav. and pharynx |
| D37.09 | Neoplasm of uncertain behavior of other specified sites of the oral cavity | Highest non-met org/tiss | Thyroid/remainder ^a | Oral cav. and pharynx |
| D37.1 | Neoplasm of uncertain behavior of stomach | Stomach | Stomach | Stomach |
| D37.2 | Neoplasm of uncertain behavior of small intestine | SI | Stomach | All digestive |
| D37.3 | Neoplasm of uncertain behavior of appendix | ULI | Colon | Colon |
| D37.4 | Neoplasm of uncertain behavior of colon | Colon | Colon | Colon |
| D37.5 | Neoplasm of uncertain behavior of rectum | LLI | Colon | Rectum |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------------|------------------------------|
| D37.6 | Neoplasm of uncertain behavior of liver, gallbladder and bile ducts | Liver | Liver | Liver |
| D37.8 | Neoplasm of uncertain behavior of other specified digestive organs | Colon | Colon | All digestive |
| D37.9 | Neoplasm of uncertain behavior of digestive organ, unspecified | Colon | Colon | All digestive |
| D38.0 | Neoplasm of uncertain behavior of larynx | ET2 | Esophagus | Other respiratory |
| D38.1 | Neoplasm of uncertain behavior of trachea, bronchus and lung | Lung | Lung | Lung |
| D38.2 | Neoplasm of uncertain behavior of pleura | Medical review | Lung | Other respiratory |
| D38.3 | Neoplasm of uncertain behavior of mediastinum | Highest non-met org/tiss | Thymus | Other respiratory |
| D38.4 | Neoplasm of uncertain behavior of thymus | Thymus | Thymus | Other respiratory |
| D38.5 | Neoplasm of uncertain behavior of other respiratory organs | Medical review | Lung | Other respiratory |
| D38.6 | Neoplasm of uncertain behavior of respiratory organ, unspecified | Medical review | Lung | Other respiratory |
| D39.0 | Neoplasm of uncertain behavior of uterus | Uterus | Uterus | Female genitalia, less ovary |
| D39.1 | Neoplasm of uncertain behavior of ovary | Ovaries | Ovaries | Ovary |
| D39.2 | Neoplasm of uncertain behavior of placenta | Uterus | Uterus | Female genitalia, less ovary |
| D39.8 | Neoplasm of uncertain behavior of other specified female genital organs | Medical review | Uterus | Female genitalia, less ovary |
| D39.9 | Neoplasm of uncertain behavior of female genital organ, unspecified | Medical review | Uterus | Female genitalia, less ovary |
| D40.0 | Neoplasm of uncertain behavior of prostate | Highest non-met org/tiss | Bladder | All male genitalia |
| D40.1 | Neoplasm of uncertain behavior of testis | Testes | Testes | All male genitalia |
| D40.8 | Neoplasm of uncertain behavior of other specified male genital organs | Testes | Testes | All male genitalia |
| D40.9 | Neoplasm of uncertain behavior of male genital organ, unspecified | Testes | Testes | All male genitalia |
| D41.0 | Neoplasm of uncertain behavior of kidney | Kidney | Liver | Urinary organs less bladder |
| D41.1 | Neoplasm of uncertain behavior of renal pelvis | Kidney | Liver | Urinary organs less bladder |
| D41.2 | Neoplasm of uncertain behavior of ureter | Kidney | Liver | Urinary organs less bladder |
| D41.3 | Neoplasm of uncertain behavior of urethra | Highest non-met org/tiss | Liver | Urinary organs less bladder |
| D41.4 | Neoplasm of uncertain behavior of bladder | Bladder | Bladder | Bladder |
| D41.8 | Neoplasm of uncertain behavior of other specified urinary organs | Medical review | Liver | Urinary organs less bladder |
| D41.9 | Neoplasm of uncertain behavior of unspecified urinary organ | Medical review | Liver | Urinary organs less bladder |
| D42 | Neoplasm of uncertain behavior of meninges | Brain | Thyroid/remainder ^a | Nervous system |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------------|---|
| D43.0 | Neoplasm of uncertain behavior of brain, supratentorial | Brain | Thyroid/remainder ^a | Nervous system |
| D43.1 | Neoplasm of uncertain behavior of brain, infratentorial | Brain | Thyroid/remainder ^a | Nervous system |
| D43.2 | Neoplasm of uncertain behavior of brain, unspecified | Brain | Thyroid/remainder ^a | Nervous system |
| D43.3 | Neoplasm of uncertain behavior of cranial nerves | Brain | Thyroid/remainder ^a | Nervous system |
| D43.4 | Neoplasm of uncertain behavior of spinal cord | Brain | Thyroid/remainder ^a | Nervous system |
| D43.8 | Neoplasm of uncertain behavior of other specified parts of central nervous system | Medical review | Remainder ^e | Nervous system |
| D43.9 | Neoplasm of uncertain behavior of central nervous system, unspecified | Medical review | Remainder ^e | Nervous system |
| D44.0 | Neoplasm of uncertain behavior of thyroid gland | Thyroid | Thyroid | Thyroid |
| D44.1 | Neoplasm of uncertain behavior of adrenal gland | Adrenal | Liver | Urinary organs less bladder |
| D44.2 | Neoplasm of uncertain behavior of parathyroid gland | Thyroid | Thyroid | Other endocrine glands |
| D44.3 | Neoplasm of uncertain behavior of pituitary gland | Brain | Thyroid/remainder ^a | Thyroid |
| D44.4 | Neoplasm of uncertain behavior of craniopharyngeal duct | Brain | Thyroid/remainder ^a | Thyroid |
| D44.5 | Neoplasm of uncertain behavior of pineal gland | Brain | Thyroid/remainder ^a | Thyroid |
| D44.6 | Neoplasm of uncertain behavior of carotid body | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| D44.7 | Neoplasm of uncertain behavior of aortic body and other paraganglia | Highest non-met org/tiss | Remainder ^e | Connective tissue |
| D44.9 | Neoplasm of uncertain behavior of unspecified endocrine gland | Medical review | Remainder ^e | Thyroid |
| D45 | Polycythemia vera | Red bone marrow | Red bone marrow | Bone |
| D46 | Myelodysplastic syndromes | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |
| D47.01 | Cutaneous mastocytosis | Skin | Skin | Lymphoma and multiple myeloma |
| D47.02 | Systemic mastocytosis | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| D47.09 | Other mast cell neoplasms of uncertain behavior | Red bone marrow | Red bone marrow | Lymphoma and multiple myeloma |
| D47.1 | Chronic myeloproliferative disease | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |
| D47.3 | Essential (hemorrhagic) thrombocythemia | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |
| D47.4 | Osteomyelofibrosis | Red bone marrow | Red bone marrow | Bone |
| D47.9 | Neoplasm of uncertain behavior of lymphoid, hematopoietic and related tissue, unspecified | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|---|--------------------------|--------------------------------|---|
| D47.Z2 | Castleman disease | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |
| D47.Z9 | Other specified neoplasms of uncertain behavior of lymphoid, hematopoietic and related tissue | Red bone marrow | Red bone marrow | Bone <u>and</u> lymphoma and multiple myeloma |
| D48.0 | Neoplasm of uncertain behavior of bone and articular cartilage | Bone surface | Bone surface | Bone |
| D48.1 | Neoplasm of uncertain behavior of connective and other soft tissue | Medical review | Remainder ^e | Connective tissue |
| D48.2 | Neoplasm of uncertain behavior of peripheral nerves and autonomic nervous system | Medical review | Remainder ^e | Nervous system |
| D48.3 | Neoplasm of uncertain behavior of retroperitoneum | Highest non-met org/tiss | Colon | All digestive |
| D48.4 | Neoplasm of uncertain behavior of peritoneum | Highest non-met org/tiss | Colon | All digestive |
| D48.5 | Neoplasm of uncertain behavior of skin | Skin | Skin | Malignant melanoma and Non-melanoma skin-basal cell <u>and</u> Non-melanoma skin-squamous cell ^k |
| D48.6 | Neoplasm of uncertain behavior of breast | Breast | Breast | Breast |
| D48.7 | Neoplasm of uncertain behavior of other specified sites | Medical review | Remainder ^e | Other and ill-defined sites |
| D48.9 | Neoplasm of uncertain behavior, unspecified | Medical review | Remainder ^e | Other and ill-defined sites |
| D49.0 | Neoplasm of unspecified behavior of digestive system | Medical review | Stomach | All digestive |
| D49.1 | Neoplasm of unspecified behavior of respiratory system | Medical review | Lung | Lung <u>and</u> other respiratory |
| D49.2 | Neoplasm of unspecified behavior of bone/skin (bone) ⁱ | Bone surface | Bone surface | Bone |
| D49.2 | Neoplasm of unspecified behavior of bone/skin (skin) ⁱ | Skin | Skin | Non-melanoma skin-basal cell <u>or</u> Non-melanoma skin-squamous cell ^d |
| D49.3 | Neoplasm of unspecified behavior of breast | Breast | Breast | Breast |
| D49.4 | Neoplasm of unspecified behavior of bladder | Bladder | Bladder | Bladder |
| D49.51 | Neoplasm of unspecified behavior of kidney | Kidney | Liver | Urinary organs less bladder |
| D49.59 | Neoplasm of unspecified behavior of other genitourinary organ (female) | Medical review | Bladder | Female genitalia less ovary <u>and</u> ovary <u>and</u> Urinary organs less bladder <u>and</u> Bladder |
| D49.59 | Neoplasm of unspecified behavior of other genitourinary organ (male) | Medical review | Testes | All male genitalia <u>and</u> Urinary organs less bladder <u>and</u> Bladder |
| D49.6 | Neoplasm of unspecified behavior of brain | Brain | Thyroid/remainder ^a | Nervous system |

| ICD-10 code | Cancer code explanation | Internal organ | External organ | IREP model |
|-------------|--|-----------------|------------------------|---------------------------------------|
| D49.7 | Neoplasm of unspecified behavior of other parts of nervous system ⁱ | Medical review | Remainder ^e | Nervous system |
| D49.7 | Neoplasm of unspecified behavior of endocrine glands ⁱ | Medical review | Remainder ^e | Thyroid and Other endocrine glands |
| D49.8 | Neoplasm of unspecified behavior of retina, choroid, and other specified sites | Medical review | Remainder ^e | Other and ill-defined sites |
| D49.9 | Neoplasm of unspecified behavior of unspecified site | Medical review | Remainder ^e | Other and ill-defined sites |
| D68.5 | Primary thrombophilia | Red bone marrow | Red bone marrow | Bone |
| D68.6 | Other thrombophilia | Red bone marrow | Red bone marrow | Bone |
| D74.8 | Other methemoglobinemias | Red bone marrow | Red bone marrow | Bone |
| D74.9 | Methemoglobinemia, unspecified | Red bone marrow | Red bone marrow | Bone |
| D75.81 | Myelofibrosis | Red bone marrow | Red bone marrow | Bone |
| D75.89 | Other specified diseases of blood and blood-forming organs | Red bone marrow | Red bone marrow | Bone |
| D75.9 | Disease of blood and blood-forming organs, unspecified | Red bone marrow | Red bone marrow | Bone |
| D89.2 | Hypergammaglobulinemia, unspecified | Red bone marrow | Red bone marrow | Bone |
| E31.22 | Multiple endocrine neoplasia [MEN] type IIA | Thyroid | Thyroid | Thyroid |
| Q85.00 | Neurofibromatosis, unspecified | Medical review | Remainder ^e | Nervous system |
| Q85.01 | Neurofibromatosis, type 1 | Medical review | Remainder ^e | Nervous system |
| Q85.02 | Neurofibromatosis, type 2 | Medical review | Remainder ^e | Nervous system |

- a. See discussion in Section 4.3.
- b. See discussion in Section 4.8.
- c. For ICD-10 code C22.1, for cancers that are described as cancer of the intrahepatic ducts, select liver as the internal organ. For those that are described as gallbladder carcinoma, select gallbladder as the internal organ. If the description is unclear, a medical review should be conducted to determine the appropriate internal organ of interest.
- d. See discussion in Section 4.7.
- e. See discussion in Section 4.4.
- f. See discussion in Section 3.2.
- g. The external target organ should be the lung if the lymphoma is known to be a B-cell variety. The target should be the thymus if the lymphoma is known to be a T-cell variety or if the variety is unknown.
- h. See discussion in Section 4.11.
- i. See discussion in Section 4.2.1.
- j. See discussion in Section 4.12.
- k. For ICD-10 codes D04 and D48.5, if the type of cancer is specified by DOL ("Malignant melanoma, Non-melanoma skin-Squamous cell, or Non-melanoma skin-Basal cell"), use only the specified IREP model (note that Bowen's disease is another name for squamous cell carcinoma in situ). If the cancer is not specified, run all listed IREP models as discussed in Section 4.6.

Table 3-2. Selection of primary cancer(s) for dose reconstruction from secondary cancer codes.

| ICD-10 code | Secondary cancer code explanation | ICD-10 code of likely primary cancers ^{a,b,c} |
|-------------|--------------------------------------|---|
| C77.0 | Lymph nodes of head, face and neck | C02, C09(M), C10(M), C14(F), C32(M), C34, C43, C44, C50(F), C73(F) |
| C77.1 | Intrathoracic lymph nodes | C15(M), C34, C50(F) |
| C77.2 | Intra-abdominal lymph nodes | C15(M), C16(M), C18, C25(F), C34, C50(F), C53(F), C61(M), C64, C68, C84(F) (excluding C84.6, C84.7), C91.4(F), C96(F) |
| C77.3 | Lymph nodes of axilla and upper limb | C34, C43, C50(F) |
| C77.4 | Inguinal and lower limb lymph nodes | C21(M), C34, C43, C44(F), C60(M) |
| C77.5 | Intrapelvic lymph nodes | C18(M), C21(F), C34(M), C54(F), C61(M), C67 |
| C77.8 | Lymph nodes of multiple regions | C15(M), C16(M), C18(M), C34, C50(F) |
| C77.9 | Lymph node, unspecified | C15(M), C16, C18, C34, C43, C50(F), C61(M) |
| C78.0 | Lung | C18, C34, C43(M), C50(F), C61(M), C67(M), C64, C68 |
| C78.1 | Mediastinum | C15(M), C34, C50(F) |
| C78.2 | Pleura | C15(M), C18(M), C34, C50(F), C57(F), C61(M), C64(M), C68(M) |
| C78.3 | Other respiratory organs | C15, C18(M), C32, C34, C44(M), C50(F), C61(M), C73(F) |
| C78.4 | Small intestine | C17, C18, C25, C34, C49, C43(M), C50(F), C57(F), C64(M), C68(M) |
| C78.5 | Large intestine and rectum | C18, C21, C34, C50(F), C57(F), C61(M) |
| C78.6 | Retroperitoneum and peritoneum | C16, C18, C21(M), C25, C34(M), C49, C50(F), C57(F) |
| C78.7 | Liver and intrahepatic bile duct | C16(M), C18, C21(M), C25, C34, C50(F) |
| C78.8 | Other digestive organs | C15(M), C16, C18, C25, C34, C50(F), C61(M) |
| C7B.01 | Distant lymph nodes | C15(M), C16, C18, C34, C43, C50(F), C61(M) |
| C7B.02 | Liver | C16(M), C18, C21(M), C25, C34, C50(F) |
| C7B.03 | Bone | C34, C50(F), C61(M) |
| C7B.04 | Peritoneum | C16, C18, C21(M), C25, C34(M), C49, C50(F), C57(F) |
| C7B.1 | Merkel cell carcinoma | C18, C34, C49(M), C43, C44(M), C50(F), C64(M), C68(M) |
| C79.0 | Kidney and renal pelvis | C18, C34, C50(F), C53(F), C61(M), C67, C64, C68, C84(F) (excluding C84.6, C84.7), C91.4(F), C96(F) |
| C79.1 | Urinary organs | C18, C50(F), C57(F), C61(M), C67, C64(F), C68(F) |
| C79.2 | Skin | C18, C34, C49(M), C43, C44(M), C50(F), C64(M), C68(M) |
| C79.3 | Brain and cerebral meninges | C34, C43(M), C50(F) |
| C79.4 | Other part of nervous system | C34, C43(M), C50(F), C61(M), C84 (excluding C84.6, C84.7), C91.4, C96 |
| C79.5 | Bone and bone marrow | C34, C50(F), C61(M) |
| C79.6 | Ovary | C18(F), C50(F), C57(F) |
| C79.7 | Adrenal gland | C18(F), C34, C50(F) |
| C79.8 | Other specified sites | C18, C34, C43(M), C50(F), C57(F), C61(M), C67(M) |
| C79.9 | Unspecified site | C18, C34, C43(M), C50(F), C57(F), C61(M), C67(M) |
| J91.0 | Malignant pleural effusion | C15(M), C18(M), C34, C50(F), C57(F), C61(M), C64(M), C68(M) |
| R18.0 | Malignant ascites | C16, C18, C21(M), C25, C34(M), C49, C50(F), C57(F) |

a. "M" indicates cancer site should be used for males only; "F" indicates cancer site should be used for females only.

b. For likely primary cancer sites that have multiple possible IMBA or external organs, see Section 4.9.

c. If "C44" is indicated as a likely primary cancer, the "non-melanoma skin-basal cell (BCC)" model should be used.

4.0 **DISCUSSION**

4.1 **HIGHEST NONMETABOLIC ORGAN**

The dose estimate for a number of tissues is based on the highest nonmetabolic organ dose, which is designated as “Highest non-met org/tiss” in the table. Metabolic organs are those that are specifically modeled by the ICRP for a particular element. The biokinetic models are based on the behavior of the particular element in the body, so the metabolic organs vary with the element of interest. The metabolic organs include the gastrointestinal tract from ICRP Publication 30 (ICRP 1979) and, in the case of inhalation, the respiratory tract from ICRP Publication 66 (ICRP 1994).

When the energy that is emitted by a radionuclide is primarily alpha or beta radiation, the soft tissue compartment becomes the primary source of dose. This compartment contains all the organs that are not specifically accounted for in the metabolic model (i.e., nonmetabolic organs). This compartment accounts for the dose that is delivered by material that is actually deposited in that tissue. Under this scenario most of the nonmetabolic organs receive the same dose.

An additional source of exposure to the tissue is known as photon cross-irradiation. Cross-irradiation is the exposure to a tissue from photons that originate in other tissues. For radionuclides for which photon emissions are a major source of the emitted energy, the nonmetabolic organ doses can vary due to their relative proximity to the metabolic organs in which the radionuclides concentrate.

IMBA calculates the dose from both sources of irradiation (i.e., alpha and beta radiation to the source organ and photon cross-irradiation from a different source organ) and sums them. Therefore, choosing the highest nonmetabolic organ is a realistic assumption with only minor (if any) overestimation.

It is conceivable that a situation could arise in which a photon-emitting radionuclide causes a large difference in doses that are delivered to nonmetabolic organs. In accordance with OCAS-IG-002, *Internal Dose Reconstruction Implementation Guideline* (NIOSH 2002b), it is acceptable in these situations to base the dose on an organ that is not the highest nonmetabolic organ. The choice in these cases should be based on the proximity of the model organ to the actual organ of interest. For example, the thymus is relatively close to the thyroid so would not be included when determining the highest nonmetabolic organ for an intake of ¹³¹I. Further discussion may be found in ORAUT-OTIB-0060, *Internal Dose Reconstruction* (ORAUT 2018).

4.2 **MEDICAL REVIEW**

Due to the complexity of determining the appropriate organs and tissues for some ICD-10 code cancers, a medical review by an Oak Ridge Associated Universities (ORAU) Team physician is required to determine the organs and tissues to use in IMBA for those cancers. These cancers have been designated in Table 3-1 as “Medical review.” The ORAU Team physician will recommend to the dose reconstructor the appropriate organs and tissues for dose estimation purposes. A copy of this medical review will be placed in the claim file.

4.2.1 **Medical Review for Appropriate Line in Table 3-1**

Although the ICD-10 coding system is generally more specific than the previous ICD-9 system, there are some exceptions to this rule where the older system was more specific than ICD-10. In these cases, multiple lines have been entered into Table 3-1 for this ICD-10 code with different options for the internal organ, external organ, and IREP model, depending on the location of the cancer. If the cancer description from DOL is not specific enough to select the appropriate line, a medical review is required to determine which line (by “Cancer code explanation” is most appropriate for assessment).

The organs and IREP models are already selected for each line in the table, so only the appropriate line needs to be determined by the medical review.

For example, ICD-10 code C96.20 refers to “Malignant mast cell neoplasm” without giving a specific location. Because location is key to determining the appropriate organs of interest, there are nine separate lines for ICD-10 code C96.20 corresponding to different locations. The line with the appropriate location should be used for assessment. If a medical review cannot determine the location, the first line (for unspecified location) should be used because it is most favorable to claimants.

There are instances that require a medical review to determine the correct line to use as well as the appropriate internal organ for assessment. An example of this is ICD-10 code D49.7, where not only does the medical review need to determine the appropriate line (nervous system versus endocrine glands), it also needs to determine the internal organ of interest. Both selections should be made during a single medical review.

4.3 THYROID OR REMAINDER SELECTION FOR EXTERNAL DOSE

For cancer sites for which Table 3-1 lists “Thyroid/Remainder” for the external organ selection, there is no external dose model for the organ of interest and the organ is in proximity to the thyroid. The thyroid has higher organ dose conversion factors than the remainder selection, which maximizes the dose. If a more realistic dose assessment is required rather than a maximizing dose assessment, the remainder organ should be selected to calculate dose.

4.4 REMAINDER SELECTION FOR EXTERNAL DOSE

For cancer sites for which Table 3-1 lists “Remainder” for the external organ selection, the organ location should be determined through a medical review and an organ in physical proximity should be selected.

If the medical review determines there are cancers of multiple organs denoted by a single ICD-10 code by DOL, the information for each of those organs should be assessed and the largest of the outcomes used for the assessment. If the medical review determines that the cancer site is unknown, the remainder organ should be selected as the model to apply dose since that value represents the collection of organs/tissues that are not defined separately in ICRP Report 60 (ICRP1991) as discussed in ICRP Report 74 (ICRP1996).

4.5 BLADDER

If Table 3-1 lists “Bladder” with no modifier, this represents the urinary bladder. If the organ of interest is the gallbladder, “Gallbladder” is specified clearly.

4.6 MULTIPLE IREP MODELS

If Table 3-1 lists multiple IREP models for a given cancer type, the IREP model(s) to be run is determined based on the use of the words “or” and “and” in the IREP Model column.

For multiple IREP models that are connected by “or”, only the model that best fits the actual cancer type should be selected and run in IREP. For example, ICD-10 code C44.00 is listed as “Non-melanoma skin-Basal cell or Non-melanoma skin-Squamous cell” in the IREP Model column. The appropriate IREP model should be selected and run based on the type of skin cancer (basal cell or squamous cell) that is listed in the claim’s NIOSH Referral Summary Document (NRSD).

For multiple IREP models that are connected by the word “and”, separate IREP runs should be made for each listed model, and compensability would be determined based on the model that results in the highest POC, which is favorable to the claimant. For example, ICD-10 code D07.1 is listed as “Female genitalia less ovary and Ovary” in the IREP Model column. Separate IREP runs should be made using each model, and compensability would be based on the model that results in the highest POC.

4.7 SKIN CANCER MODEL CLARIFICATION

If the IREP Model column lists “Non-melanoma skin-basal cell or Non-melanoma skin-squamous cell”, and the skin cancer is named but not clearly as squamous or basal, the non-melanoma squamous cell model is to be used. This model was developed with all named, non-melanoma, non-basal cell carcinomas included.

For example, for ICD-10 code C44, if the named cancer is fibrosarcoma of skin, this is not clearly either squamous cell or basal cell carcinoma. However, because fibrosarcoma is a specific, named cancer, the non-melanoma squamous cell model should be used (rather than using both models and selecting the higher POC).

The only exceptions to this rule are the named cancers basalsquamous cell carcinoma and squamobasal cell carcinoma. Because these are transitional forms, both IREP models should be run and the one that yields the larger POC should be selected.

For the ICD-10 code C44 (skin cancers), the fifth digit clarifies the type of skin cancer (if known) as follows:

- 0 = Unspecified type of cancer – compare BCC and SCC
- 1 = Basal cell – use BCC
- 2 = Squamous cell – use SCC
- 9 = Other specified – use SCC unless specified as basalsquamous cell carcinoma or squamobasal cell carcinoma (see direction above)

For instances where the SCC and BCC models are to be compared, the BCC model can be run and used as the more favorable to the claimant of the two models with no need to run the SCC model. This is due to the fact that all of the dose inputs are identical and the BCC model will always yield a larger POC value than the SCC model.

4.8 ADENOCARCINOMA OF THE DISTAL (LOWER THIRD) ESOPHAGUS

If adenocarcinoma is indicated in the distal esophagus (also known as the lower third, abdominal, lower thoracic esophagus, gastroesophageal, cardioesophageal junction, or esophageal cardia), the appropriate IMBA, external, and IREP organ model is the stomach. To use the stomach model, both conditions must be met (adenocarcinoma and correct location). If either condition is not met, the esophagus for the IMBA, external, and IREP organ model is appropriate. The specific codes potentially impacted are C15.5 and C15.8.

4.9 SECONDARY CANCERS – LIKELY PRIMARY CANCER SITES WITH MULTIPLE IMBA, EXTERNAL, AND IREP ORGAN MODEL OPTIONS

For secondary cancers with unknown primary cancer sites, the likely primary cancer sites are listed in Table 3-2. Because the likely primary cancer sites are listed only by ICD-10 code (three-character code with no extensions), it is possible for a single likely primary cancer site to have multiple options

for IMBA, external, and IREP organ model selection. In this case, each possible option must be assessed, and the option that yields the largest POC should be submitted.

For example, secondary cancer code C77.2 has a likely primary cancer site of ICD-10 code C68. ICD-10 code C68 has an Internal Dosimetry Organ selection of highest nonmetabolic organ and bladder depending on the extension of the ICD-10 code. Because it is an unknown location, each of these organs must be run for internal dose purposes, and the one yielding the largest dose over the exposure period should be selected for use in the IREP run.

A special case of this also arises for secondary cancer code C77.2, which has another likely primary cancer site of ICD-10 code C18. ICD-10 code C18 has an Internal Dosimetry Organ selection of upper large intestine (ULI), lower large intestine (LLI), and colon, depending on the extension of the ICD-10 code. Normally, each of these organs would be run for internal dose purposes, and the one yielding the largest dose over the exposure period should be selected for use in the IREP run.

To facilitate the dose reconstruction process, a comparison of all nuclide and type combinations available in the CAD tool was made for ULI and LLI (ORAUT 2011). For the majority of nuclides, the LLI is more favorable to claimants than the ULI. The exceptions are noted below.

ULI yields a larger dose for:

- I-133
- I-134
- I-135
- Mn-56
- Na-24
- Pa-234
- Se-75
- Te-131

The comparison of ULI and LLI was inconclusive for the following radionuclides, so both need to be run and compared:

- Eu-152
- Eu-154
- Ac-227 (Type F only)
- Ag-110m (Type F only)

For all remaining individual nuclide and type combinations in the CAD tool, LLI yields an equal or larger dose than the ULI. Therefore, ULI calculations do not need to be run for them.

In addition, because the colon is a weighted average of the ULI and LLI, the colon does not need to be run at all for comparison; the ULI or LLI will always be greater than an average of the two.

4.10 MULTIPLE SECONDARY CANCERS WITH UNKNOWN PRIMARY CANCER SITE OR MULTIPLE PRIMARY AND SECONDARY CANCERS

In some claims, multiple secondary cancers with unknown primary cancer locations might be indicated. In such cases, unless DOL specifically states differently: each likely primary cancer site from each secondary cancer is to be treated separately, with individual IREP POC determinations, and combined as separate primary cancers.

For example, consider a claim that has indicated separate secondary cancers of C77.0 (Lymph nodes of head, face, and neck) and C78.7 (Liver, specified as secondary), with no indication of the cancers being metastasized from a single unknown primary cancer site. When each of the likely primary cancer sites is assessed, ICD-10 code C33 (Lung) yields the largest POC for each at 38% (for this example only). Because it is possible that each secondary cancer came from a separate likely primary lung cancer, the POC results for each likely primary lung cancer should be combined to yield a final POC of 61.56% (per multiple cancer calculation in IREP).

The same type of situation might occur when primary and secondary cancers are both indicated by DOL. The same logic applies that, unless specifically directed otherwise by DOL, each cancer should be treated as a separate cancer for the determination of POC and for combining them for the final POC. It should not be assumed by the dose reconstructor that any listed secondary cancer has metastasized from another listed primary cancer.

4.11 CHRONIC LYMPHOCYtic LEUKEMIA

Chronic lymphocytic leukemia (CLL) originates in the B lymphocytes rather than in a well-defined organ as with other cancers. These lymphocytes are distributed throughout the lymph system and can travel throughout the body with their inventories in various compartments of the body changing significantly with age, gender, health status, and other factors. Estimation of dose to the cancer site for CLL cases requires the calculation of the radiation dose to this population of CLL precursor cells. This is more complex than dose assessment to other cancer sites because CLL precursor cells can be present in different compartments of the lymphatic system throughout the body, and these compartments can receive substantially different doses.

Due to the complex modeling necessary for CLL, a specific organ is not defined in Table 3-1. The method of assessing internal and external doses to various organs in the model is given in ORAUT-OTIB-0082, *Dose Reconstruction Method for Chronic Lymphocytic Leukemia* (ORAUT 2012). When referring to the organ of interest in the dose reconstruction, the term "B lymphocytes" should be used.

4.12 ORGAN BB FOR CARCINOMA IN SITU OF TRACHEA

Due to its specific location, ICD-10 code D02.1 (Carcinoma in situ of trachea) states to use BB as the internal organ of interest. This is a specific location based on the respiratory tract from ICRP Publication 66 (ICRP 1994). The IMBA program does not give the dose specifically to the BB region, but rather calculates dose to the BB_{seq} and BB_{bas} regions (secretory and basal cells, respectively). Based on guidance in Section 9.4.3.1 in Publication 66, the BB region is the average of the BB_{seq} and BB_{bas} regions.

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