Editorial Guide on

Hong Kong Clinical Terminology Table – Problem & Procedure

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1.0	Original version	05 Jan 2015
1.1	Amendment on Section 3.4 Age validation	01 Mar 2017
1.2	Amendment on the Name of Bureau from Food and Health Bureau to Health Bureau	01 Jul 2022
1.3	Amendment on Section 1.1.2, 1.1.3, 1.2.2 for Chinese Medicine	01 Apr 2023
1.4	Change of eHealth logo	10 May 2024

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 The Hong Kong Clinical Terminology Table (HKCTT) is a standardized clinical terminology table, which is built to support the interoperable electronic health record (eHR) sharing system in Hong Kong. The table facilitates clinicians to document and review patient's condition. It also assists in the retrieval of data at the granular level as desired to support building of decision support system and other secondary purposes (such as conducting research or reporting data to various authorities). HKCTT is developed and maintained by the eHR Information Standards Office (eHRISO) through the Information Architecture Management System (IAMS).

1.1.2 The building of the HKCTT is based on the composition of terms in different knowledge domains, including

- Problem
- Procedure
- Laboratory
- Drug
- Chinese Medicines
- Chinese Medicine Problem
- Chinese Medicine Procedure

Each HKCTT term represents a unique concept in which it is assigned to a unique term identifier (Term ID). For details on the structure and content of HKCTT, please refer to section 3 of 'Editorial Guide on Hong Kong Clinical Terminology Table – Overview.'

1.1.3 As health information captured is dynamic and complex, no single set of terminology is able to represent all clinical concepts. In relation to this, the HKCTT is referenced to various international terminologies commonly used in Hong Kong, with an aim to befit the adoption by different domains. By linking the content of HKCTT to terminologies or classification schemes via mapping, comparability of data records between multiple practitioners using different references across diverse platforms is ensured. The mapping of HKCTT to various international references is based on practical usage and need. The reference terminologies include the following:

- Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT)
- International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10)
- International Classification for Primary Care, Second Edition (ICPC-2)
- Logical Observation Identifiers Names and Codes (LOINC)
- Registered Pharmaceutical Products (RPP)
- Classification and codes of diseases and ZHENG of traditional Chinese medicine (GB/T 15657-1995)
- Clinic terminology of traditional Chinese medical diagnosis and treatment - Therapeutic methods (GB/T 16751.3-1997)

1.2 PURPOSE

1.2.1 This document describes the editorial policies regarding the content of HKCTT in the problem and procedure domains, such as the validation rules and the mapping to various reference terminologies. The primary intended purpose is to provide principles and rules for those who are responsible for the creation and maintenance of HKCTT terms. Users who need to access HKCTT for searching problem and procedure terms for clinical documentation may also find this document useful.

1.2.2 This paper should be read in conjunction with the "Editorial Guide on Hong Kong Clinical Terminology Table – Overview" which provides an introductory overview of the content, structure and terminology of HKCTT. More detailed explanation on individual domains is documented in the corresponding domain specific papers:

- Editorial Guide on Hong Kong Clinical Terminology Table – Drug
- Editorial Guide on Hong Kong Clinical Terminology Table – Laboratory
- Editorial Guide on Hong Kong Clinical Terminology Table – Chinese Medicine Problem & Procedure
- Editorial Guide on Hong Kong Clinical Terminology Table – Chinese Medicines

2 CONTENT OF HKCTT

2.1 DEFINITIONS

2.1.1 The HKCTT aims to provide sufficient breadth and depth on various domain areas of health sciences, e.g. problem, procedure, laboratory data, pharmacy data, including their related components. Problem and procedure concepts are provided in HKCTT for the following purposes:

- To support clinical documentation;
- To ensure accuracy and interoperability for sharing of health data;
- To facilitate disease reporting and surveillance in public health;
- To generate medical knowledge for clinical research.

2.1.2 A problem can be defined as any of the following:

- Diagnosis
- Social issue
- Risk factor
- Allergy
- Significant abnormal physical sign and examination finding
- Pathophysiological state
- Reactions to food or drug
- Health alert

2.1.3 A procedure can be performed for any of the following purposes:

- Diagnostic
- Exploratory
- Treatment

2.2 CONVENTION OF DESCRIPTION

2.2.1 This section is documented in reference to 'Section 3.2.4 – Description' of the 'Editorial Guide on Hong Kong Clinical Terminology Table – Overview.' Please refer to the aforementioned paper for details on aspects of the structure and content of HKCTT.

2.2.2 Each HKCTT term is assigned to a description that carries a unique and coherent meaning which serves as a representation of clinical concepts in clinical information systems. The following principles have been developed to ensure consistency between all created HKCTT term descriptions in the problem and procedure domains. Conjunctionally, the eHRISO takes part in conducting ongoing table cleansing exercise to ensure consistency and accuracy of all terms.

i. Noun rather than adjective should be used for sites.
- For example: "Polyp of bronchus" instead of "Bronchial polyp"

ii. Medical term instead of lay term should be used
- For example: "Intestine" instead of "Gut" (gut can be added as alias, which is an alternative description to facilitate search of a specific term)

iii. Singular rather than plural should be used
- For example: "Anomaly" instead of "Anomalies" (unless the term obviously involves more than one sites)

iv. Capital letter should be used for the first letter only, except specific words in eponym.
- For example: "Acute renal failure" instead of "Acute Renal Failure"
- Except: "Von Willebrand's disease" or "Wolff-Parkinson-White syndrome"

v. Avoid use of abbreviation in full and eHR descriptions
- For example: "Haemolysis-elevated liver enzymes-low platelet count syndrome, antepartum" instead of "HELLP syndrome, antepartum"

vi. Avoid use of the following words/phases:

- Not elsewhere classified (NEC)
- Not otherwise specified (NOS)
- Unspecified
- Other (only used to convey meaning when necessary)

3 VALIDATION RULES ON CREATION AND MAINTENANCE OF HKCTT TERMS

3.1 INTRODUCTION

3.1.1 To facilitate reporting and analysis of clinical data, each HKCTT term is mapped to at least one or more reference terminologies. Appropriate code(s) from the relevant reference terminologies is assigned with each term. Assignment of codes should follow the validation rules and convention that are applied to the respective reference terminologies. Some validation rules are in–built for certain problem and procedure terms in order to ensure accurate and logical medical term usage for patients.

3.1.2 For Healthcare Provider (HCP) that would download HKCTT content and import it directly into HCP's own electronic medical record (eMR)/ electronic patient record (ePR) system, it is important to ensure that all validation rules are incorporated into the clinical system along with HKCTT content. Failure to apply validation flags could cause serious consequence in the alert checking when patient data is captured. For details on the adoption of HKCTT into clinical systems, please refer to 'Guide on Implementation and Maintenance of the Hong Kong Clinical Terminology Table.'

3.2 NATURE VALIDATION

3.2.1 HKCTT terms are grouped into natures according to the different domains. The "diagnosis" and "procedure" natures contain terms in the problem and procedure domains. Problem and procedure terms captured in patient record should be selected from the HKCTT term of the "diagnosis" and "procedure" natures only.

3.3 SEX VALIDATION

3.3.1 Problem and procedure terms are validated against patient's sex where appropriate, such as terms related to the genital system that are applicable to the specific sex only.

Terms are validated as follows:

Term ID	HKCTT Description	Sex Validation Rule
34094	Severe pre-eclampsia for antepartum care	To be used for female patients only
10013	Bleeding from benign prostatic hypertrophy	To be used for male patients only

Terms are validated as follows:

- Male: To be used for male patients only
- Female: To be used for female patients only
- Not Applicable (N/A): (default) To be used for both male and female patients

3.4 AGE VALIDATION

3.4.1 Problem and procedure terms are validated against patient age where appropriate. Terms related to neonates, childhood, and maternity are applicable to the specific age range only.

Terms are validated as follows:

Age	Validation Rule
Newborn	To be used only for patients less than 1 year old, data entry should not be allowed if rule failed
Baby	To be used only for patients less than 1 year old, data entry should be allowed even if rule failed
Paediatric	To be used only for patients less than 18 years old, data entry should not be allowed if rule failed
Maternal	To be used only for patients between 10 and 60 years old, data entry should not be allowed if rule failed
Not Applicable (N/A)	To be used for patients in all age groups

3.5 VALID FOR PRINCIPAL

3.5.1 The "Valid for principal" flag indicates that a term can be reported as principal diagnosis or procedure. This flag is being used to differentiate those HKCTT terms which are considered as main conditions ('Principal') and those terms which provide only supplementary ('non–principal') information. Terms with "Valid for principal" flag as "no" means they cannot be reported as principal and cannot be sequenced as the first diagnosis or procedure. These terms must be accompanied by other terms reported as the principal diagnosis or procedure. For guidelines on reporting diagnosis and procedure, please refer to the appendix.

Terms are validated as follows:

Valid for principal	Description
Y	Can be used as principal diagnosis or procedure
N	Cannot be used as principal diagnosis or procedure

For example, the external cause of physical injury should not be reported as principal diagnosis, rather it should be reported as supplementary while the physical injury itself is reported as principal diagnosis.

Term ID	HKCTT Description	ICD-10 code	Valid for principal
20568	Accidental fall from stairs	W10	N

4 OVERVIEW OF MAPPING

4.1 INTRODUCTION

In terminology management, mapping is defined as 'the process of associating concepts or terms from one coding system to concepts or terms in another coding system and defining their equivalence in accordance with a documented rationale and a given purpose [(1)]. In simple words, mapping is linking content from one terminology or classification scheme to other.

4.2 TERMINOLOGY VERSUS CLASSIFICATION (2)

4.2.1 Classification systems, such as International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), are designed for the purposes of collecting and reporting basic health statistics. It provides a method of organizing and grouping data for disease surveillance and other administrative purposes (e.g. billing purposes). Consequently, classification systems are not intended for primary documentation of clinical care as they would not provide all sufficient detail or information on different attributes of health conditions. Hence, clinical terminologies come into play to complement shortfall of classification systems.

4.2.2 Clinical terminologies, such as Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT), are structured concept-based controlled medical vocabulary used in clinical practice to accurately describe the care and treatment of patients and enable coverage to complex concepts [(3)]. In contrast to classification, it is designed for covering complex concepts which enable it to serve the primary purpose of clinical care documentation. Additionally, clinical terminologies allow for data retrieval, aggregation and analysis by the meaning of the concept.

4.2.3 Above all, terminology and classification are fundamentally different and serves different purposes. Terminology and classification are not designed to compete against one another, but to complement one another to represent a common medical language that allows data to be shared. Both terminology and classification are incorporated into eHR systems to achieve system interoperability and to realize the benefits of a territory-wide health information infrastructure.

4.3 REFERENCE TERMINOLOGIES

Terms under the nature of diagnosis and procedure are mapped with at least one of the following reference terminology systems:

- Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT)
- International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10)
    - 2001 release
    - 2010 release
    - Mental Health & Behavioural Disorders (MBD)
- International Classification for Primary Care, Second Edition (ICPC-2)

For details of the listed reference terminologies, please refer to Annex A: Reference Terminology in the "Editorial Guide on Hong Kong Clinical Terminology Table – Overview."

5 MAPPING HKCTT WITH REFERENCE TERMINOLOGIES

5.1 INTRODUCTION

5.1.1 Since different domains have their own requirements in data management, the HKCTT is mapped to various terminologies which are specific to that particular domain area at both local / international level.

5.1.2 Mapping of terminology is conducted in a manner where no further inference beyond the given patient should be made. It is only confined to the knowledge covered by the terminology, and it is not related to any particular patient record or patient encounter. For example, the diagnostic inference from 'This patient has myocardial infarction' to 'This patient has angina' is inappropriate as this is purely base on presentation of the patient and is beyond the context of the concept in itself.

5.1.3 Depending on the granularity of the terminology schemas being mapped, mapping may or may not be precise in terms of semantic meaning. For example, mapping of HKCTT to a classification (e.g. ICD-10) may introduce loss of detail in meaning. On the contrary, the semantic meaning of the concept is precisely preserved when mapping is conducted to a terminology (e.g. SNOMED-CT). The following example illustrates mapping of HKCTT to a terminology and a classification:

HKCTT Description	**SNOMED CT (Terminology)**	**ICD-10 (Classification)**
Term ID 39 Food poisoning due to vibrio vulnificus	Concept ID 414286000 Food poisoning due to Vibrio vulnificus (disorder)	ICD-10 Code A05.8 Other specified bacterial foodborne intoxications

5.2 MAPPING HKCTT WITH SYSTEMATIZED NOMENCLATURE OF MEDICINE – CLINICAL TERMS

5.2.1 Introduction

Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) is the most comprehensive, multilingual clinical healthcare terminology in the world that provides clinical content and expressivity for clinical documentation and reporting [(4)]. It has specific characteristics that differentiate itself from other existing terminologies. In particular, it adopts a poly-hierarchical structure to facilitate data

retrieval and supports the compositional terminology of building new concepts from the existing ones [(4)].

The mapping of HKCTT into SNOMED CT will enable the interoperability of the electronic health records in Hong Kong for interfacing with the health care information systems in other parts of the world. This will facilitate the storage of clinical information and data retrieval. Additionally, the mappings will support efficient query formulation and the application of decision support algorithms.

HKCTT terms will be mapped to SNOMED CT concepts in the international release as far as possible. However, there are occasions where rapid technological advancements and localized health care needs cannot be adequately catered for by the SNOMED CT international release. Therefore, the SNOMED CT Hong Kong Extension (HKSCT) has been developed for the purpose of compensating the gap as much as possible. HKSCT provides local variations and customizations of terms relevant to the Hong Kong healthcare community. For details of HKSCT, please refer to 'Section 5.2.4 - SNOMED CT Hong Kong Extension' in this document.

5.2.2 Structure of SNOMED CT

Content coverage of SNOMED CT is divided into multiple hierarchies. The basic components of SNOMED CT consist of concepts, descriptions and attributes [(4)]. For details on the structure and content of SNOMED CT, please refer to the 'Annex A: Reference terminology' in Editorial Guide on Hong Kong Clinical Terminology Table - Overview.

i. Concept: A SNOMED CT concept is a clinical meaning identified by a unique numeric identifier (ConceptID) that never changes. The sequence of a ConceptID does not reveal any information about the nature of the concept.

ii. Description: Concept description is the term or name assigned to a SNOMED CT concept in which it is identified by a unique description ID.

iii. Relationship: Relationships link concepts in SNOMED CT. Each concept in SNOMED CT is logically defined through its relationships to other concepts. One type of defining relationship is known as attribute relationship, which is an association between two concepts that specifies defining characteristic of one of

the concepts. Each attribute relationship has a name (the type of relationship) and a value (the destination of the relationship).

5.2.3 Mapping Principles

The mapping of HKCTT to SNOMED CT shall follow the principles below:

i. One HKCTT term shall be mapped to one SNOMED CT concept ("exact match" scenario) or one HKSCT concept ("post–coordination" scenario) only. For details on post–coordination, please refer to Section 5.2.4 SNOMED CT Hong Kong Extension (HKSCT) in this document.

ii. HKCTT terms in "Diagnosis" nature shall be mapped to SNOMED CT concepts in the following hierarchies:

- Clinical finding
- Situation with explicit context

iii. HKCTT terms in "Procedure" nature shall be mapped to SNOMED CT concept in the following hierarchy:

- Procedure
- Situation with explicit context

iv. Multiple HKCTT terms may have the same SNOMED CT mapping but among these concepts, only one remains "active" status ("Active" term means a term can be used in the clinical systems; "Inactive" term means a term cannot be used in the clinical systems. For reasons related to inactive status, please refer to section 3.2.8 of 'Editorial Guide on Hong Kong Clinical Terminology Table – Overview.') The following scenario may be applied:

Term ID	HKCTT Description	Status	SNOMED CT
22838	Repair of blepharoptosis	Active	69769008 Repair of blepharoptosis (procedure)
22839	Correction of eyelid ptosis	Inactive	69769008 Repair of blepharoptosis (procedure)

v. HKCTT terms with active status shall be mapped only to active use SNOMED CT concepts. HKCTT terms with inactive status can be mapped to SNOMED CT concepts with any status.

5.2.4 SNOMED CT Hong Kong Extension (HKSCT)

i. Introduction

The SNOMED CT Hong Kong Extension (HKSCT) is the local extension of the SNOMED CT, and is designed to be structurally identical to the SNOMED CT international release. The HKSCT is a unique set of reference terminology which encompasses Hong Kong locally developed terminology which is relevant to the Hong Kong healthcare community. When a HKCTT term cannot be mapped to a SNOMED CT concept from the international release with exact meaning, the concept shall be created as a new HKSCT concept. HKSCT concept is created by post-coordination. HKSCT is built to accommodate for future retrieval of localized data.

ii. Post-coordination rules and guidelines

Post-coordination is the representation of a clinical meaning using a combination of two or more concepts. Post-coordination in SNOMED CT occurs when none of the existing SNOMED CT concept carries the exact same meaning as the HKCTT term. Since clinical meanings can be represented in several different ways, the eHRISO has developed a set of guides on post-coordinating HKCTT terms with SNOMED CT under various scenarios to ensure consistency of the post–coordinated terms and facilitate future data reporting/retrieval. Please refer to Appendix C for post-coordination pattern examples.

Post-coordination would be performed based on following principles and rules (in correspondence to guidelines documented in SNOMED CT Editorial Guide [(4)]):

- Every HKSCT concept must have at least one IS-A parent concept. For creation of HKSCT concepts, the parent concepts must be selected from SNOMED CT international release. This enhances the consistency in semantic meanings, provides efficiency for future concept maintenance, and also facilitates the use of data-mining software for statistical data retrieval.

- The built post–coordination expression can be defined as “fully defined” or “primitive.”
  - Fully defined: The mapped post–coordination definition is known as ‘fully defined’ when the built post–coordination definition sufficiently expresses the meaning of the HKCTT concept. For example, if the concept “Red car”

is defined as [Is a = car] + [color = red], this definition is known as fully defined.

- Primitive: The mapped post–coordination definition is known as 'Primitive' when the built post–coordination definition has not sufficiently expressed the meaning of the HKCTT concept. For example, if the concept "Red sports car" is defined as [Is a = car] + [color = red], this definition is known as primitive as it did not cater to the type of car in this case.

- Combination of the concepts should have a linkage relationship called the attribute in between, e.g. "IS A", "Finding site", "Associated morphology" etc. For example,
  - The concept 'Pulmonary artery rupture' can be defined as [Is a = Rupture of artery (disorder)] + [Finding site = Pulmonary artery structure (body structure)]

- Each attribute can usually be applied to one hierarchy and for a few attributes to more than one hierarchy. For example, the "Associated morphology" attribute is applicable to the "Clinical Finding" hierarchy. For more information, please refer to 'SNOMED CT Editorial Guide [(4)]'.

- The attributes have a specific range of allowable values, e.g. "Finding site" has the range of allowable values "Anatomical or acquired body structure". For more information, please refer to 'SNOMED CT Editorial Guide [(4)]'.

- Under the hierarchy of "body structures," concepts that contain the word "entire" would be avoided as selection for post–coordination. For example,
  - The concept *"heart structure (body structure)"* would precede over *"entire heart (body structure)."*

- The semantic tag of child concepts should follow that of the parent concepts. For concepts with multiple parents which have different semantic tags, the more general semantic tag should be taken.
  - For example, if parents have semantic tags "finding" and "disorder," "finding" rather than "disorder" should be used.

- The HKSCT concepts created by post-coordination may be submitted to the SNOMED International for addition to SNOMED CT international release.

5.3 MAPPING HKCTT WITH INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES AND RELATED HEALTH PROBLEMS, TENTH REVISION (ICD-10)

5.3.1 Introduction

International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) is the international standard diagnostic classification used for the reporting of mortality and morbidity statistics by all WHO Member States. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records [(5)].

HKCTT has adopted three version of ICD-10, namely ICD-10 2001, ICD-10 2010 and ICD-10 Mental Health and Behavioural Disorders (ICD-10 MBD). The adoption of ICD-10 2001 in HKCTT was to support the reporting of mortality and morbidity data to Department of Health by all public and private hospitals. Subsequently, the ICD-10 2010 version was also added into HKCTT.

The ICD-10 Classification of Mental and Behavioural Disorders (ICD-10 MBD) was also developed by WHO and is derived from the chapter V on Mental and Behavioural Disorders (Chapter codes starting with alphabet “F”) of ICD-10. The ICD-10 MBD provides specific criteria for diagnoses that have been produced for general clinical and educational use by psychiatrists and other mental health professionals [(6)].

HKCTT is mapped to ICD-10 to directly empower the reporting of public health statistics by all the public and private hospitals in Hong Kong. This mapping will also facilitate a smooth implementation of the electronic health record sharing system (eHR) project in Hong Kong.

5.3.2 Structure of ICD-10 [(5)]

International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) consists of 25 chapters mainly divided by body systems. The code structure is comprised of alphanumeric digits. Each chapter is subdivided into homogeneous blocks of three-alphanumeric character categories with the first character being the alphabet denoting the body system. Each code can be

subdivided by the fourth and fifth numeric digits for further specification. The ICD-10 only contains diagnostic classification at present.

5.3.3 Mapping Principles

The mapping of HKCTT to ICD-10 shall follow the principles below:

i. One-to-many mapping

Since ICD-10 is a classification, one ICD-10 term could be assigned to more than one HKCTT terms.

ii. Default mapping

The HKCTT Term ID will be used for the grouping of concepts to be displayed in eHR viewer, which is a comprehensive summary of eHR patient record. For example, if a healthcare provider submits a recognized structured data (e.g. ICD10 code A08.3 Other viral enteritis) to eHR as patient record, the mapped HKCTT Term ID for this code would be traced back to determine whether grouping should be applied to this data on eHR viewer. In the case where the transmitted reference terminology is less granular than HKCTT, multiple HKCTT terms could be mapped to a single reference terminology code. Default mapping is applied where this reference terminology code would be assigned to the most appropriate HKCTT Term ID. Consequently, the assigned Term ID would help to group concepts together for the display in eHR viewer. This ensures similar concepts are bundled together for easy viewing.

Term ID	**HKCTT Description**	**ICD-10 Code**	**ICD-10 Description**
91	Enteritis due to calcivirus	A08.3	Other viral enteritis
92	Enteritis due to astrovirus	A08.3	Other viral enteritis
93	Enteritis due to enterovirus	A08.3	Other viral enteritis
94	**Enteritis due to viruses (default mapping)**	**A08.3**	**Other viral enteritis**
30359	Enteritis due to coxsackie virus	A08.3	Other viral enteritis
30360	Enteritis due to ECHO virus	A08.3	Other viral enteritis
32285	Enteritis due to enterovirus 71	A08.3	Other viral enteritis

iii. Split of combined concepts

The HKCTT is built as a terminology table rather than a classification set. This enables the table to support clinical documentation, facilitate decision support and assist in data retrieval and reporting. Consequently, the table minimizes on the use of combined concepts to avoid ambiguous terms being used in clinical systems. Since ICD-10 is a classification, combined concepts, e.g. S36.1 injury of liver or gallbladder, are common. The handling of these combined concepts in HKCTT is illustrated below:

- Components of the combined concepts would be split into individual concepts. For example, the ICD-10 term 'Injury of liver or gallbladder' would be split into two separate terms, 'Injury of liver' and 'Injury of gallbladder.'

HKCTT Description	Status
Injury of liver or gallbladder	Inactive
Injury of liver	Active
Injury of gallbladder	Active

- Newly added split concept(s) (e.g. 'Injury of liver' and 'Injury of gallbladder') would be mapped to a HKCTT term(s) with active status. If no appropriate active term is available, new active HKCTT concept would be created.

- To facilitate the circumstance where HCP may transmit an official ICD-10 code, the ICD-10 term (e.g. 'Injury of liver or gallbladder') would be added to HKCTT with an inactive status. This would facilitate the grouping of concepts to be displayed in eHR viewer based on Term ID.

iv. "Dagger" (+) & "Asterisk" (*) codes

The "dagger & asterisk" convention is used in ICD-10 to represent the relationship between an underlying generalized disease and a manifestation in a particular organ or site which is a clinical problem in its own right [(6)]. According to the WHO Instruction manual for ICD-10, the main code identifies the underlying disease and is marked with a dagger (+). An optional additional code for the manifestation is marked with an asterisk (*). This convention was provided because in certain circumstances, coding the underlying disease alone does not provide sufficient information for compiling statistics for particular specialties.

- Where the "dagger" & "asterisk" code-pair is specifically defined (e.g. a "dagger" code must tag along a specific "asterisk" code), a HKCTT term would be created and mapped to the code-pair. For example,

ICD Code	ICD-10 Description
A18.7+	Tuberculosis of adrenal glands (E35.1*)

- Where the "dagger" & "asterisk" code-pair is loosely defined (e.g. a "asterisk" code can be paired with any one "dagger" code within a specific group), a separate HKCTT term would be created and mapped to the "asterisk" code on demand. The "asterisk" code would not be added into HKCTT at the first instance, but would be only added on demand. For example,

ICD Code	ICD-10 Description
D63.0*	Anaemia in neoplastic disease (C00 – D48+)

Note: Users may not be able to find certain "asterisk codes" in HKCTT for capturing of patient data at first instance. Users may request for addition of new terms if found necessary. Please refer to Guide on 'Implementation & Maintenance of the Hong Kong Clinical Terminology Table' for details on request submission process.

v. "Other specified" and "Unspecified" codes

Since ICD-10 is a classification, some codes have been created to handle exceptional cases in all groupings. In general, "other specified" can be used if the patient record documentation provides detail for which a specific code does not exist in ICD-10. "Unspecified" terms are used when the patient record has not captured sufficient information for which a specific code can be assigned.

Given that ICD-10 is a classification, the inclusion of "other specified" and "unspecified" terms ensures that patient information can be assigned to at least one code. HKCTT, however, avoids the introduction of terms with description containing words "other specified" and "unspecified." It is difficult to define the meaning of such terms. As such, HKCTT has not included all ICD-10 "other specified" and "unspecified" codes. However, for the purpose of transmitting ICD-10 code data to eHR, all ICD-10 codes are accepted. For example,

Term ID	HKCTT Description	ICD-10 Code	ICD-10 Description
672	Listeriosis	A32.9	Listeriosis, unspecified

vi. Qualifying mapping

Inclusions and exclusions are listed for specific codes in classification systems whenever applicable. Inclusion notes are also called "Includes Notes," which appear under a code to supply further explanation. Exclusion notes are also called "Excludes Notes," which are statements that guard against using a category incorrectly.

Inclusion and exclusion notes would be taken into consideration during the mapping process. However, this information usually would not be reflected on the description of each term. For example,

Term ID	HKCTT Description	ICD-10 Code	ICD-10 Description (*Inclusion note)*
7871	Sick sinus syndrome	I49.5	Sick sinus syndrome Tachycardia-bradycardia syndrome
29276	Tachycardia-bradycardia syndrome		

5.4 MAPPING HKCTT WITH INTERNATIONAL CLASSIFICATION OF PRIMARY CARE, SECOND EDITION (ICPC-2)

5.4.1 Introduction

The International Classification of Primary Care, Second edition (ICPC-2) has been accepted by WHO as a classification for the primary care or general practice settings. ICPC-2 classifies patient data and clinical activity according to the frequency distribution of problems seen. It allows classification of the patient's reason for encounter (RFE), the problems and diagnoses managed, interventions, and the ordering of these data in an "episode of care" structure [(7)]. ICPC-2 has been used by

the Family Medicine specialty for the recording of primary care problems in the past decades.

5.4.2 Structure of ICPC-2 [7]

ICPC-2 code is bi-axial in structure. The 1st axis contains an alpha code based on body systems or problem areas. The 2nd axis contains a 2-digit numeric code that denotes the nature of the item, where the numeric codes are classified into 7 components:

1. Symptoms and complaints
2. Diagnostic screening and preventive procedures
3. Medication and treatment procedures
4. Test results
5. Administrative procedures
6. Referrals
7. Diseases

Each ICPC-2 code carries a description for that concept. Some codes might carry contents including inclusions, exclusions, and notes that specify the criteria on and considerations for using such code.

5.4.3 Mapping Principles

The mapping of HKCTT with ICPC-2 shall follow the principles below:

i. One-to-many mapping

Since ICPC-2 is a classification, one ICPC-2 term could be mapped to more than one HKCTT terms. The default mapping was assigned for situation when one ICPC-2 code is mapped to multiple Term IDs.

Term ID	HKCTT Description	ICPC-2 Code	ICPC-2 Description
4631	Disease of spleen	B99	Blood/lymph/spleen disease other
4642	Disease of blood	B99	Blood/lymph/spleen disease other
31120	Disease of lymphatic system	B99	Blood/lymph/spleen disease other
43200	Disease of blood / lymphatic system / spleen	B99	Blood/lymph/spleen disease other

Term ID	HKCTT Description	ICPC-2 Code	ICPC-2 Description
	(Default mapping)		

ii. Split of combined concepts

Since ICPC-2 is a classification, combined concepts, e.g. N71 meningitis / encephalitis, are common. While HKCTT is a terminology table rather than classification set, the handling of these combined concepts is illustrated below:

- Components of the combined concepts would be split into individual concepts. For example, the ICPC-2 term 'Meningitis / encephalitis' would be split into two separate terms, 'Meningitis' and 'Encephalitis'.

HKCTT Description	Status
Meningitis or encephalitis	Inactive
Meningitis	Active
Encephalitis	Active

- Newly added split concept(s) (e.g. 'Meningitis' and 'Encephalitis') would be mapped to a HKCTT term(s) with active status. If no appropriate active term is available, new active HKCTT concept would be created.

- To facilitate the circumstance where HCP may transmit an official ICPC-2 code, the ICPC-2 term (e.g. 'Meningitis or encephalitis') would be added to HKCTT with an inactive status. This term with inactive status would not available for capturing of patient data, but it would still be accepted as transmission of ICPC-2 code data to eHR.

iii. Selective mapping

The 7 components of code demonstrate different characteristics [7]:

- For Component 1 (Symptoms and complaints) and Component 7 (Diseases), each code represents a unique concept.

- For other components, each numeric code carries the same concept, only distinguishable by the alphabet that was appended as prefix, denoting the body system that was being referred to. A comprehensive mapping of these

concepts might result in an addition of groups of similar concepts in the HKCTT.

- Based on the consensus from members of the Hospital Authority Family Medicine Diagnosis Revamp Working Group, mapping from ICPC-2 to HKCTT was agreed to be carried out selectively. Comprehensive mapping would be conducted for Component 1 and Component 7, where mapping of list of concepts selected by Hospital Authority Family Medicine Diagnosis Revamp Working Group was processed for the other components.

- Because of the selectivity on mapping, a portion of HKCTT terms were not being assigned with ICPC-2 codes. Assignment of ICPC-2 codes would be carried out to HKCTT terms which were being selected for use in patient record and transmitted from HCP. On the other hand, ICPC-2 concepts being used on patient record directly would be another source for enriching the ICPC-2 / HKCTT mapping. A concept would be created in HKCTT for ICPC-2 codes which were transmitted to eHR and found not yet included in HKCTT.

iv. Qualifying mapping

- Inclusions and exclusions are listed for specific codes in classification systems whenever applicable. Inclusion notes provide further explanation about a particular ICPC-2 code. Exclusion notes guard against using a category incorrectly.

- Inclusion and exclusion notes would be taken into consideration during the mapping process. However, this information usually would not be reflected on the description of each term. For example,

Term ID	**HKCTT Description**	**ICPC-2 Code**	**ICPC-2 Description**
9185	Hiatus hernia	D90	Hiatus hernia
9184	Diaphragmatic hernia		Inclusion: diaphragmatic hernia Exclusion: oesophagitis/reflux D84

6 CONCLUSION

The Hong Kong Clinical Terminology Table (HKCTT) provides standard in representing clinical concepts to support the interoperable Electronic Health Record Sharing Systems (eHRSS) in Hong Kong. The problem and procedure concepts provided in HKCTT would help to support clinical documentation, to facilitate disease reporting and surveillance in public health and to ensure interoperability for sharing of health data. HKCTT users are encouraged to contribute its development upon the evolvement of new medical science.

The guidelines and standards listed in this document will be updated and revised as necessary. The ongoing revision of the guidelines and standards will ensure that they accurately reflect the changes in the international reference terminologies and development of clinical practice and medical science.

Appendix A Guidelines for Reporting Diagnosis

Principal diagnosis

- The primary purpose of 'principal diagnosis' is for the reporting of diagnosis to Department of Health for statistical and disease surveillance purposes. Both principal diagnosis and principal procedure are applied to inpatient episodes only.

- The principal diagnosis is defined as the condition, diagnosed at/after discharge, which is primarily responsible for the patient's need for treatment or investigation in that episode of hospitalization.

- The principal diagnosis is always sequenced first. It might not be the admitting diagnosis, but rather the diagnosis that proves to be the reason for hospitalization found after work up or surgery

- If there is more than one condition which accounts for the hospitalization, select the most severe condition or the most acute condition. If no diagnosis was made, the main symptom, abnormal finding or problem should be selected as the principal diagnosis.

Secondary diagnosis

- Secondary Diagnoses are those for which the patient received clinical evaluation, diagnostic evaluation, treatment (co-morbid condition), and affected the patient's treatment care plan, and/or increased the length of stay.

- They might have:
  - Existed at the time of the patient's admission to hospital
  - Developed during the patient's hospitalization;
  - Developed as a complication of the care provided to the patient whilst in hospital.

- Diagnoses that need not to be reported as secondary diagnoses are:
  - Those related to an earlier episode having no bearing on the current hospital stay.

Appendix B Guidelines for Reporting Procedure

Principal procedure

- Principal procedure is the most significant procedure that was performed for the treatment of the principal diagnosis.

- When no procedure was performed for treatment of the principal diagnosis, use the following hierarchy:
  - Procedure performed for treatment of additional diagnoses; or
  - Diagnostic/exploratory procedure related to the principal diagnosis; or
  - Diagnostic/exploratory procedure related to additional diagnoses.

Significant Procedures

- A significant procedure is defined as one that meets one of the following conditions:
  - Is surgical in nature;
  - Carries a procedural or anesthetic risk; or
  - Requires special facilities, equipment or specialized training.

- Surgery includes incision, excision, destruction, amputation, introduction, insertion, endoscopy, repair, suturing and manipulation.

- All significant procedures performed during the reported episode are to be reported. Do not report the procedures which are not done in the reported episodes

Appendix C Post–coordination Pattern Examples

i. Problem

Index	Pattern	Post–coordination pattern	HKCTT Example
D01	Dx 1 **and** Dx 2	**Is a** Dx1 **Is a** Dx2	**Rheumatic mitral stenosis and aortic regurgitation** **Is a** rheumatic mitral stenosis (disorder) **Is a** rheumatic aortic regurgitation (disorder)
D02	Dx, **initial episode**	**Is a** Dx	**Acute myocardial infarction of anterolateral wall, initial episode of care** ***Definition: Primitive*** **Is a** acute myocardial infarction of anterolateral wall (disorder)
D03	Dx, **subsequent episode**	**Is a** Dx	**Acute myocardial infarction of anterior wall, subsequent episode of care** ***Definition: Primitive*** **Is a** acute myocardial infarction of anterolateral wall (disorder)
D04	Dx [injury] **with loss of consciousness**	**Is a** Dx [injury]	**Closed fracture of vault of skull with loss of consciousness**

		associated with loss of consciousness (finding)	**Is a** closed fracture of vault of skull (disorder) **associated with** loss of consciousness (finding)
D05	Dx [injury] **with brief / less than 1 hour loss of consciousness**	**Is a** Dx [injury] **associated with** brief loss of consciousness (finding)	**Closed fracture of vault of skull with brief loss of consciousness (disorder)** **Is a** closed fracture of vault of skull (disorder) **associated with** brief loss of consciousness (finding)
D06	Dx [injury] **with moderate / 1-24 hours loss of consciousness**	**Is a** Dx [injury] **associated with** moderate duration loss of consciousness (finding)	**Cerebral laceration and contusion with loss of consciousness 1-24 hours** **Is a** cerebral laceration and contusion (disorder) **associated with** moderate duration loss of consciousness (finding)
D07	Dx [injury] **with prolonged / more than 24 hours loss of consciousness**	**Is a** Dx [injury] **associated with** prolonged loss of consciousness (finding)	**Closed fracture of vault of skull with intracranial hemorrhage, with prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level** ***Definition: Primitive*** **Is a** closed fracture of vault of skull with intracranial hemorrhage (disorder) **associated with** prolonged loss of consciousness (finding)

D08	Dx, **non-rheumatic** **Non-rheumatic** Dx	**Is a** Dx **Is a** non-rheumatic heart valve disorder (disorder)	**Non-rheumatic mitral valve disorder** **Is a** mitral valve disorder (disorder) **Is a** non-rheumatic heart valve disorder (disorder)
D09	Dx1 **with** Dx2 Dx1 **related to** Dx2 Dx **with [unspecified] complications** Dx **with [other specified] manifestations**	**Is a** Dx 1 **associated with** Dx 2	**Headache related to hypertension** **Is a** headache (finding) **associated with** hypertensive disorder, systemic arterial (disorder)
D10	**History** of Dx **Personal history** of Dx **Past history** of Dx	**Is a** history of Dx (situation) **associated with** Dx	**History of pulmonary tuberculosis** **Is a** history of infectious disease (situation) **associated with** pulmonary tuberculosis (disorder)
D11	**Family history** of Dx	**Is a** family history of disorder (situation) **associated finding** Dx	**Family history of parasitic diseases** **Is a** family history of disorder (situation) **associated finding** disease caused by parasite (disorder)

D12	**Sequelae** of Dx **Late effects** of Dx	**Is a** sequelae of disorders (disorder) **after** Dx	**Sequelae of myocardial infarction** **Is a** sequelae of disorders (disorder) **after** myocardial infarction (disorder)
D13	Dx1 **without** Dx2 *(absent, no, negation)*	**Is a** Dx 1	**Coronary occlusion without myocardial infarction** ***Definition: Primitive*** **Is a** coronary occlusion (disorder)
D14	Dx, **residual**	**Is a** Dx	**Residual pulmonary valvar stenosis** ***Definition: Primitive*** **Is a** pulmonic valve stenosis (disorder)
D15	Dx, **idiopathic**	**Is a** Dx **associated with** idiopathic disease (disorder)	**Pulmonary trunk dilatation, idiopathic** **Is a** pulmonary trunk dilatation (disorder) **associated with** idiopathic disease (disorder)
D16	Dx, **advanced**	**Is a** Dx	**Advanced Mobitz type II second degree atrioventricular block** ***Definition: Primitive***

			Is a Mobitz type II atrioventricular block (disorder)
D17	Dx **with level** *(numeric, level, digits)*	**Is a** Dx	**Fracture of cervical spine, single level, no neurology** ***Definition: Primitive*** **Is a** fracture of cervical spine (disorder)
D18	**Mixed** Dx	**Is a** Dx	**Mixed cerebral palsy** ***Definition: Primitive*** **Is a** cerebral palsy (disorder)
D19	**Ill-defined** Dx **Other specified** Dx	**Is a** Dx	**Other ill-defined heart diseases** ***Definition: Primitive*** **Is a** heart disease (disorder)
D20	Dx, **non-traumatic**	**Is a** Dx	**Subarachnoid haemorrhage, non-traumatic** ***Definition: Primitive*** **Is a** subarachnoid intracranial hemorrhage (disorder)
D21	Dx, **spontaneous**	**Is a** Dx	**Spontaneous intracerebral haemorrhage** ***Definition: Primitive***

			Is a cerebral hemorrhage (disorder)
D22	Dx1, **post-Dx2**	**Is a** Dx1 **after** Dx2	**Pericardial effusion, post myocardial infarction** **Is a** pericardial effusion (disorder) **after** myocardial infarction (disorder)
D23	Dx, **post-infection**	**Is a** Dx **after** infectious disease (disorder)	**Grand mal epilepsy, post infection** **Is a** tonic-clonic epilepsy (disorder) **after** infectious disease (disorder)
D24	Dx, **post-traumatic**	**Is a** Dx **after** traumatic injury (disorder)	**Post-traumatic osteoarthritis** **Is a** osteoarthritis (disorder) **after** traumatic injury (disorder)
D25	Dx, **post- Px (procedure)**	**Is a** Dx **after** Px	**Post-thyroidectomy hypoparathyroidism** **Is a** hypoparathyroidism (disorder) **after** thyroidectomy (procedure)

D26	Dx, **post-operative**	**Is a** Dx **after** surgical procedure (procedure)	**Pulmonary embolism, postoperative** **Is a** pulmonary embolism (disorder) **after** surgical procedure (procedure)
D27	Dx, **post-procedure** **Post-procedural** Dx	**Is a** Dx **after** procedure (procedure)	**Post-procedural pulmonary trunk stenosis** **Is a** pulmonary trunk stenosis (disorder) **after** procedure (procedure)
D28	Dx1 **due to** Dx2 Dx1 **secondary to** Dx2 Dx1 **resulting from** Dx2	**Is a** Dx1 **due to** Dx2	**Benign secondary hypertension due to renal disorder** **Is a** secondary benign hypertension (disorder) **due to** kidney disease (disorder)
D29	Dx, **in endocrine disease** OR Dx, **in nutritional disease** OR Dx, **in metabolic disease** OR Dx, **in other disease**	**Is a** Dx1 **Is a** disorder of endocrine system (disorder) OR nutritional disorder (disorder) OR metabolic disease (disorder) OR disease (disorder)	**Nephritis in other disease** **Is a** nephritis (disorder) **Is a** disease (disorder)

D30	Dx, **congenital [structural defect]**	**Is a** Dx **Is a** congenital malformation (disorder)	**Aortic valvar dysplasia, congenital** **Is a** aortic valve dysplasia (disorder) **Is a** congenital malformation (disorder)
D31	Dx, **congenital** **Congenital** Dx	**Is a** Dx **Is a** congenital disease (disorder)	**Congenital epilepsy** **Is a** epilepsy (disorder) **Is a** congenital disease (disorder)
D32	Dx, **iatrogenic**	**Is a** Dx **Is a** iatrogenic disorder (disorder)	**Iatrogenic diabetes mellitus** **Is a** diabetes mellitus (disorder) **Is a** iatrogenic disorder (disorder)
D33	Dx, **correct substance properly administered**	**Is a** Dx **Is a** adverse effect, due to correct medicinal substance properly administered (disorder)	**Toxic epidermal necrolysis, drug induced, correct substance properly administered** **Is a** toxic epidermal necrolysis due to drug (disorder) **Is a** adverse effect, due to correct medicinal substance properly administered (disorder)

D34	Dx **due to XX [organism]**	**Is a** Dx **causative agent** **XX** (organism) **pathological process** infectious process (qualifier value)	**Endocarditis due to streptococcus suis** **Is a** endocarditis (disorder) **causative agent** Streptococcus suis (organism) **pathological process** infectious process (qualifier value)
D35	Dx, **drug - induced [non-specified drug]** OR Dx, **[induced by specified drug]**	**Is a** Dx **causative agent** drug or medicament (substance) OR **Is a** Dx **causative agent** XX (substance)	**Drug-induced gastroenteritis** **Is a** gastroenteritis (disorder) **causative agent** drug or medicament (substance) OR **Ketamine induced depression** **Is a** depression (disorder) **causative agent** ketamine (substance)
D36	Dx **involving body structure** Dx of **body structure** Dx, **body structure**	**Is a** Dx **finding site** XX (body structure)	**Pulmonary artery rupture** **Is a** rupture of artery (disorder) **finding site** pulmonary artery structure (body structure)

D37	**Mild** Dx	**Is a** Dx **severity** mild (qualifier value)	**Mild dehydration** **Is a** dehydration (disorder) **severity** mild (qualifier value)
D38	**Moderate** Dx	**Is a** Dx **severity** moderate (qualifier value)	**Moderate dehydration** **Is a** dehydration (disorder) **severity** moderate (qualifier value)
D39	**Severe** Dx	**Is a** Dx **severity** severe (qualifier value)	**Severe dehydration** **Is a** dehydration (disorder) **severity** severe (qualifier value)
D40	**Acute** Dx	**Is a** Dx **clinical course** sudden onset AND/OR short duration (qualifier value)	**Acute pulmonary embolism** **Is a** pulmonary embolism (disorder) **clinical course** sudden onset AND/OR short duration (qualifier value)

D41	**Chronic** Dx	**Is a** Dx **clinical course** chronic (qualifier value)	**Chronic paraplegia** **Is a** paraplegia (disorder) **clinical course** chronic (qualifier value)
D42	**Previous** Px **History of** Px	**Is a** history of Px (situation) **associated procedure** Px	**Previous open prostatectomy** **Is a** history of surgery (situation) **associated procedure** open prostatectomy (procedure)
D43	**Encounter** for **Px**	**Is a** procedure with explicit context (situation) **associated procedure** Px	**Attendance for prophylactic chemotherapy** ***Definition: Primitive*** **Is a** procedure with explicit context (situation) **associated procedure** prophylactic chemotherapy (procedure)
D44	**Patient with** Px [Done]	**Is a** postprocedural state finding (finding) **after** Px	**Patient with joint replacement** **Is a** postprocedural state finding (finding) **after** implantation of joint prosthesis (procedure)

D45	**Observation for** Dx **Examination and observation for** Dx	**Is a** procedure with explicit context (situation) **procedure context** indicated (qualifier value) **associated procedure** patient status observation (procedure) **associated procedure** Px	**Observation for suspected myocardial infarction** **Is a** procedure with explicit context (situation) **procedure context** indicated (qualifier value) **associated procedure** patient status observation (procedure) **associated procedure** examination for suspected cardiovascular disease (procedure)

ii. Procedure

Index	Pattern	Post–coordination pattern	HKCTT Example
P01	(Closed/open) **reduction of fracture with** (internal/external) fixation	**Is a** (closed / open) reduction of fracture with (internal / external) fixation (procedure) **procedure site – direct** XX (body structure)	**Close reduction with internal fixation of mandibular fracture** **Is a** closed reduction of fracture with internal fixation (procedure) **procedure site - direct** bone structure of mandible (body structure)
P02	XX **[type of flap]**	**Is a** skin flap operation (procedure) **using substance** XX flap (substance)	**Deltopectoral pedicle skin flap** **Is a** skin flap operation (procedure) **using substance** deltopectoral flap (substance)
P03	XX **[type of flap/graft] to body structure**	**Is a** [type of flap/graft] (procedure) **procedure site – direct** XX (body structure)	**Partial thickness skin graft of foot** **Is a** split thickness skin graft (procedure) **procedure site – direct** skin structure of foot (body structure)
P04	**Open** Px	**Is a** Px **access** open approach - access (qualifier value)	**Open biopsy of seminal vesicles** **Is a** biopsy of seminal vesicle (procedure) **access** open approach - access (qualifier value)

P05	**Closed** Px	**Is a** Px **access** closed approach - access (qualifier value)	**Closed biopsy of prostate** **Is a** biopsy of prostate (procedure) **access** closed approach - access (qualifier value)
P06	**Percutaneous aspiration of body structure**	**Is a** percutaneous aspiration (procedure) **procedure site – direct** XX (body structure)	**Percutaneous aspiration of prostate** **Is a** percutaneous aspiration (procedure) **procedure site - direct** prostatic structure (body structure)
P07	**Percutaneous** Px	**Is a** Px **access** percutaneous approach - access (qualifier value)	**Lysis of adhesions of spinal cord and nerve roots, percutaneous** **Is a** lysis of adhesions of spinal cord and nerve roots (procedure) **access** percutaneous approach - access (qualifier value)
P08	**Trans-XX** Px	**Is a** Px **surgical approach** trans-XX(qualifier value)	**Transsphenoidal repair of cerebrospinal fluid fistula** **Is a** repair of cranial cerebrospinal fluid fistulae (procedure) **surgical approach** transsphenoidal approach (qualifier value)

P09	Px **for** Dx	**Is a** Px **has focus** Dx	**Radiosurgery for acoustic neuroma** **Is a** Stereotactic radiosurgery (procedure) **has focus** Acoustic neuroma (disorder)
P10	Px, **left**	**Is a** Px **procedure site - direct** *left side of procedure site of Px* (body structure)	**Epididymectomy, left** **Is a** epididymectomy (procedure) **procedure site - direct** structure of left epididymis (body structure)
P11	Px, **right**	**Is a** Px **procedure site - direct** *right side of procedure site of Px* (body structure)	**Epididymectomy, right** **Is a** epididymectomy (procedure) **procedure site - direct** structure of right epididymis (body structure)
P12	Px, **bilateral**	**Is a** Px **procedure site - direct** *left side of procedure site of Px* (body structure) **procedure site - direct** *right side of procedure site of Px* (body structure)	**Ureteroscopy, bilateral** **Is a** ureteroscopy (procedure) **procedure site - direct** structure of left ureter (body structure) **procedure site - direct** structure of right ureter (body structure)

P13	**Simple** excision	**Is a** excision	**Simple excision of axillary lymph node** ***Definition: Primitive*** **Is a** excision of axillary lymph node (procedure)
P14	**Wide** excision	**Is a** excision	**Wide excision of axillary lymph node** ***Definition: Primitive*** **Is a** excision of axillary lymph node (procedure)
P15	**Radical** excision	**Is a** excision	**Radical excision of soft tissue of hand** ***Definition: Primitive*** **Is a** excision of soft tissue of hand (procedure)
P16	Px, **robot assisted**	**Is a** Px **using device** robot, device (physical object)	**Robotic-assisted total thyroidectomy** **Is a** total thyroidectomy (procedure) **using device** robot, device (physical object)

P17	**Percutaneous fine needle aspiration biopsy of [site] with imaging guidance**	**Is a** fine needle aspiration biopsy using imaging guidance (procedure) **access** percutaneous approach – access (qualifier value) **procedure site – direct** XX (body structure)	**Percutaneous fine needle aspiration biopsy of thyroid with imaging guidance** **Is a** fine needle aspiration biopsy using imaging guidance (procedure) **access** percutaneous approach – access (qualifier value) **procedure site – direct** thyroid structure (body structure)
P18	**Percutaneous transluminal angioplasty of [blood vessel]**	**Is a** percutaneous transluminal angioplasty (procedure) **procedure site – direct** XX (body structure)	**Percutaneous transluminal angioplasty of thoracic vein** **Is a** percutaneous transluminal angioplasty (procedure) **procedure site – direct** structure of vein of thorax (body structure)
P19	**Endovascular stenting of [blood vessel]**	**Is a** endovascular insertion of stent (procedure) **procedure site – indirect** XX (body structure)	**Endovascular stenting of thoracic vein** **Is a** endovascular insertion of stent (procedure) **procedure site – indirect** structure of vein of thorax (body structure)
P20	**Extraction of foreign body from [site] with imaging guidance**	**Is a** imaging guided removal of foreign body (procedure) **procedure site – indirect** XX (body structure)	**Extraction of foreign body from pelvic cavity with imaging guidance** **Is a** imaging guided removal of foreign body (procedure) **procedure site – indirect** pelvic cavity structure (body structure)

REFERENCES

1. Bronnert J, Clark J, Cook J, Fenton S, Scichilone R, Williams M, Wilson P. Data Mapping Best Practices. [Internet]. American Health Information Management Association (AHIMA). 2011.

2. American Health Information Management Association (AHIMA). Relationship of Terminologies and Classifications. [Internet].

3. National E-Health Transition Authority (nehta). Clinical Terminology. [Internet].

4. SNOMED International. SNOMED CT Editorial Guide: July 2021 International Release (US English). 2021

5. World Health Organization, Geneva. ICD-10: International Statistical Classification of Diseases and Related Health Problems, Tenth Revision -Volume 2. 2012.

6. World Health Organization, Geneva The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic criteria for research. [Internet]; 2013.

7. Verbeke M, Schrans D, Deroose S, De Maeseneer J. The International Classification of Primary Care (ICPC-2): an essential tool in the EPR of the GP. Stud Health Technol Inform. 2006; 124: 809-14.