Briefing Note
Primary Malignant Neoplasm v Malignant Neoplasm and other Issues
February, 2019

## Purpose:

The purpose of this brief is to seek advice on the clinical language used to support the recording of information in the care and management of patients with malignant neoplastic disease. This includes clinical oncologists, pathologists with an interest in the histological diagnosis of malignant neoplasm and Cancer Registries.

## Background:

SNOMED International is currently undertaking a Quality Initiative to address the structural quality of SNOMED CT. Structural quality is defined as "the consistent conformance of concepts to the SNOMED CT Concept Model as defined by domain specific templates" and is key to ensuring the correctness and completeness of the relationships between clinical concepts. This supports accurate and consistent extraction of clinical information for the purposes of data analysis. The current focus is on ensuring that existing content conforms to editorial policy and adheres to the SNOMED CT modelling principles.

## Scope:

The scope of this project is limited to establishing consensus on the use and definitions of the clinical concepts and descriptions that describe malignant neoplasms and their associated morphologies. Having established consensus, we will then apply the agreed descriptions and definitions to existing content through the use of standardised 'templates'.

We will not be attempting to add additional content at this time. However, in defining the standardised templates this will then enable the addition of new content in a consistent form which will lead to more efficient authoring and more consistent and accurate reporting.

What follows is a short basic description of a SNOMED CT concept in order for the audience to appreciate the context of the questions being asked.

## SNOMED CT Basics:

A SNOMED CT concept is a clinical idea (e.g. Malignant neoplasm of the lung) made up of a 'Fully Specified Name' (FSN) which is specific and explicit and describes the clinical condition represented by the concept and any further descriptions which have the same meaning as the FSN. These additional descriptions are called synonyms (e.g. Superior sulcus tumour also known as Pancoast tumour).

The FSN is what is used by the author to inform the modeling of the concept, which is why it is important to ensure that it is unique within SNOMED CT (e.g.it is not a duplicate of an existing SNOMED CT concept) The SNOMED CT Editorial Guide describes a number of principles to which the FSN should conform in terms of word order and style.

> *Note: The FSN is not usually seen by the end user and has a semantic tag attached e.g. (disorder) which signifies that the concept is of type 'disorder'. Procedures would have a semantic tag of (procedure) etc.*

An example within the domain of malignant neoplasms might be:

- 78411000119107 |Ewing sarcoma of bone of pelvis (disorder)|

In modelling this concept we would be able to state:

1. The tumour has been identified within the bony pelvis:

   363698007 |Finding site (attribute)|

   118645006 |Bone structure of pelvis (body structure)|

2. The tumour has a specified morphology:

   116676008 |Associated morphology (attribute)|

   76909002 |Ewing's sarcoma (morphologic abnormality)|

   *Note:SNOMED CT includes detailed anatomy to support the identification of specific anatomical sites and a comprehensive set of morphologies currently based upon ICD-O 3*

This level of detail is necessary to accurately model the clinical concept. We apply description logic and an industry standard ontology classifier to reason and compute where this concept sits within the hierarchical structure of SNOMED CT.

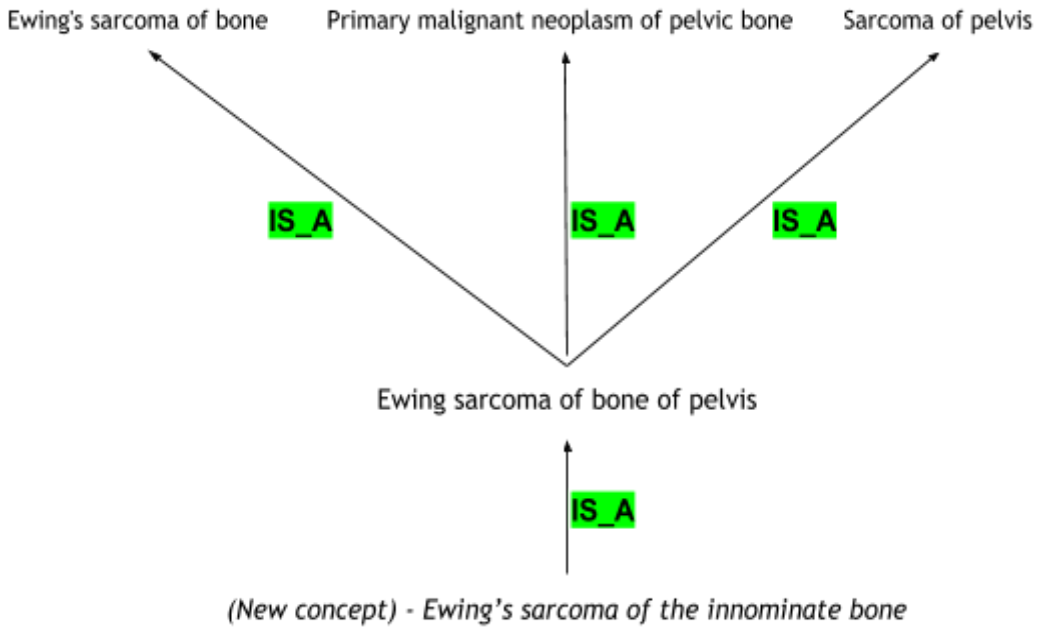
Applying the classifier to this concept results in the concept having parent relationships (*also known as IS_A relationships*) of:

307608006 |Ewing's sarcoma of bone (disorder)|

93951006 |Primary malignant neoplasm of pelvic bone (disorder)|

447885009 |Sarcoma of pelvis (disorder)|

There are currently no 'child' concepts, however, one could add a new concept of '*Ewing's sarcoma of the innominate bone*' which when classified would sit as a child of 78411000119107 |Ewing's sarcoma of bone of pelvis (disorder)| as illustrated below:



## The Terminology of Malignant Neoplasms:

SNOMED CT currently has the following range of fully specified names for neoplasms of the colon:

126838000 |Neoplasm of colon (disorder)|

**Non malignant concepts:**

92065004 |Benign neoplasm of colon (disorder)|

**Malignant (Primary) concepts:**

363406005 |Malignant neoplasm of colon (disorder)|

93761005 |Primary malignant neoplasm of colon (disorder)|

Some concepts have 'tumor' rather than 'neoplasm'

363412000 |Malignant tumor of ascending colon (disorder)|

314965007 |Local recurrence of malignant tumor of colon (disorder)|

**Secondary malignant concepts:**

94260004 |Secondary malignant neoplasm of colon (disorder)|

314998002 |Metastasis from malignant tumor of colon (disorder)|

285611007 |Metastasis to colon of unknown primary (disorder)|

Some concepts have 'to' and 'of' as synonyms

94328005 |Secondary malignant neoplasm of hepatic flexure of colon (disorder)|

Synonym 'Metastatic malignant neoplasm to hepatic flexure of colon'

**Other**

94801006 |Neoplasm of uncertain behavior of colon (disorder)|

92568009 |Carcinoma in situ of colon (disorder)|

The history of SNOMED CT is such that it has inherited its content from SNOMED Reference Terminology and Read Codes (CTV3) which themselves have been influenced by content available within classifications like the International Classification of Diseases. Hence the lack of consistency in the descriptions currently available. This inconsistency is also noted within academic literature and in widely used international classifications.

With the help of domain experts SNOMED has an opportunity to review and improve the wording of FSNs so that they are unique, unambiguous and internationally accepted by the clinical community. In order to achieve this for malignant neoplasms we need to have the following questions answered:

**For Primary malignant neoplasms:**

1. Do the descriptions “Primary malignant neoplasm of xxx site” and “Malignant neoplasm of xxx site” have the same meaning (definition)?
2. If these 2 descriptions are not considered to represent the same meaning what are the differences and what are their internationally accepted definitions?
3. If these 2 descriptions represent the same clinical concept (i.e. they are synonymous) which description would be considered as the prefered description for use by practicing clinicians?
4. If these terms are considered to be synonymous, should we only make available the description which is considered to be the ‘preferred term’ or should both be available for clinicians to use?
5. If each of these descriptions represents a different concept would it be necessary to have available within SNOMED CT a concept of ‘Primary malignant neoplasm’ and ‘Malignant neoplasm’ for each ‘xxx site’?
6. A number of concepts have synonym descriptions which either have the word ‘neoplasm’ or ‘tumor’. Should these be considered as true synonyms and if they are, which one would be the preferred word. If they are not synonymous what are their respective definitions and how should they be used?

**For Secondary Malignant Neoplasms:**

7. Are ‘Secondary malignant neoplasm’ and ‘Metastatic malignant neoplasm’ true synonyms and if not, what are their definitions. If they are synonyms which is considered to be the preferred term?
8. Is it necessary to have either or both of ‘Metastasis to xxxx site’ and Metastasis from xxx site’. If they are both required please could you provide the use case for these 2 concepts?
9. A number of concepts have synonyms of the form ‘Secondary malignant neoplasm ***of*** xxx site’ and ‘Metastatic malignant neoplasm ***to*** xxx site’. Are these descriptions considered to be synonymous and if not what is the difference?

## The Terminology of the Morphology of Neoplasms:

As previously discussed, the morphology of malignant neoplasms closely aligns to and is mapped to ICD-O 3. We are in discussion with members of IARC regarding updating this to ICD-O 3.1 and and with alignment to the morphology concepts used in the IARC Blue Books, 5th Edition.

The morphology of neoplasms section within SNOMED CT, while including the concepts from ICD-O 3, also include a number of concepts of the form ‘Primary ….’ or ‘Secondary ….’:

720346009 |Primary seminoma (morphologic abnormality)|

418789003 |Primary cutaneous plasmacytoma (morphologic abnormality)|

450594004 |Primary malignant adenomatous neoplasm (morphologic abnormality)|

703692009 |Secondary osteosarcoma (morphologic abnormality)|

734064008 |Secondary dedifferentiated intraosseous ameloblastic carcinoma (morphologic abnormality)|

Is it normal practice to specify whether a malignant neoplasm is primary or secondary via the histological findings or is it to be expected that the histological findings identify the cell type, and hence is site of origin and then the site of the specimen provides the basis for stating it is the primary or secondary (metastatic) site?

If the latter method is the accepted method of recording whether the neoplasm is primary or secondary may we consider removing all of those concepts within the existing SNOMED CT malignant neoplasm hierarchy which include the words ‘primary’ and ‘secondary’ ensuring that a concept exists which describes the base histological finding i.e. |Secondary osteosarcoma (morphologic abnormality)| would become |osteosarcoma (morphologic abnormality)|?