

---

**Document filename: Implementation Guidance for the National Interim Clinical Imaging Procedure Code Set**

<b>Directorate / Programme</b>	Information Standards Delivery	<b>Project</b>	Clinical Terminologies Service
<b>Document Reference</b>		NPFIT-NCR-DES-1087.14	
<b>Programme Director</b>	Ken Lunn	<b>Status</b>	FINAL
<b>Owner</b>	Ian Arrowsmith	<b>Version</b>	15.0
<b>Author</b>	Ian Arrowsmith Rhidian Bramley Karim Nashar	<b>Version issue date</b>	01/04/2014

# National Interim Clinical Imaging Procedure (NICIP) Code Set Implementation Guidance

# Document Management

## Revision History

Version	Date	Summary of Changes
0.1		First draft for internal review
0.2	21/12/2006	Amended after internal review
1.0	26/01/2007	Final amendments prior to release
1.1	19/07/2007	Re-draft for October 2007 release
1.2	05/10/2007	Re-draft after initial review
2.0	22/10/2007	Approved for distribution with October 2007 release
2.1	10/03/2008	Re-draft for April 2008 release internal review
2.2	14/03/2008	Re-draft for CIMG review
3.0	01/04/2008	Approved for distribution with April 2008 release
3.1	22/08/2008	Re-draft for CIMG review prior to October 2008 review
4.0	29/09/2008	Approved for distribution with October 2008 release
4.1	05.03.2009	Re-draft for CIMG review prior to April 2009 review
5.0	01.04.2009	Approved for distribution with April 2009 release
5.1	20.08.2009	First redraft for October 2009 release
5.2	11.09.2009	Second redraft for CIMG review prior to October 2009 release
6.0	22.09.2009	Approved for distribution with October 2009 release
6.1	01.10.2009	First redraft to include extra safety implementation guidance
6.2	04.11.2009	Re-draft following ISB Final Stage Submission
7.0	25.03.2010	Approved for distribution with April 2010 release
7.1	16.08.2010	First re-draft for October 2010 release
7.2	19.08.2010	Second re-draft after consultation
8.0	31.08.2010	Approved for distribution with October 2010 release
8.1	26.01.2011	First re-draft for April 2011 release
8.2	24.02.2011	Second re-draft after consultation
9.0	08.03.2011	Approved for distribution with April 2011 release
9.1	11.08.2011	First re-draft for October 2011 release
10.0	08.09.2011	Approved for distribution with October 2011 release
10.1	19.01.2012	First re-draft for April 2012 release
11.0	15.03.2012	Approved for distribution with April 2012 release.
11.1	15.08.2012	First re-draft for October 2012 release
12.0	12.09.2012	Approved for distribution with October 2012 release.
12.1	14.02.2013	First re-draft for April 2013 release
13.0	08.03.2013	Approved for distribution with April 2013 release
13.1	01.08.2013	First re-draft for October 2013 release

14.0	25/09/2013	Approved for distribution with October 2013 release
14.1	06/02/2014	First re-draft for April 2014 release
15.0	21/03/2014	Approved for distribution with the April 2014 release

## Reviewers

This document must be reviewed by the following people:

Reviewer name	Title / Responsibility	Date	Version
Elaine Wooler	Advanced Terminology Specialist	03/2014	15.0
Sheree Hemingway	Terminology Specialist	03/2014	15.0

## Approved by

This document must be approved by the following people:

Name	Signature	Title	Date	Version
Ian Arrowsmith		Chief Terminologist	03/2014	15.0
Clinical Imaging Management Group (CIMG)		Various	03/2014	15.0

## Glossary of Terms

Term / Abbreviation	What it stands for

### Document Control:

The controlled copy of this document is maintained in the HSCIC corporate network. Any copies of this document held outside of that area, in whatever format (e.g. paper, email attachment), are considered to have passed out of control and should be checked for currency and validity.

# Contents

<b>1</b>	<b>About this Document</b>	<b>5</b>
1.1	Purpose	5
1.2	Audience	5
1.3	Scope	5
<b>2</b>	<b>Background</b>	<b>7</b>
2.1	Prior imaging procedure lists	7
2.2	NICIP code set	8
2.3	Relationship to SNOMED CT	8
<b>3</b>	<b>Release Mechanism and Updates</b>	<b>9</b>
3.1	Distribution	9
3.2	Update frequency	10
3.3	Safety Considerations	10
3.4	Requests for change	11
<b>4</b>	<b>Technical Considerations</b>	<b>13</b>
4.1	Migration from existing code sets	13
4.2	Mapping Procedure Codes	14
<b>5</b>	<b>Clinical and Business considerations</b>	<b>17</b>
5.1	Local Implementation Guidance	17
<b>6</b>	<b>Appendix - NICIP Code Set excel file tabs guide</b>	<b>21</b>
6.1	NICIP_Code_Set_withSCT_YYYYMMDD.xls	21
6.2	NICIP_Code_Set_withoutSCT_YYYYMMDD.xls	22

# 1 About this Document

## 1.1 Purpose

This document is to support the implementation of the standard National Interim Clinical Imaging Procedure (NICIP) code set.

The NICIP code set can be found in both spreadsheet and tab delimited text file formats in the document “National interim descriptions for Clinical Imaging Procedures” NPFIT-NCR-DES-1091.

The principles on which it is based can be found in the document “National Interim Standard Descriptions for Clinical Imaging Procedures to support PACS/RIS implementations” NPFIT-NCR-DES-1076.

The NICIP code set has been mandated for in-scope use cases across the NHS by the Information Standards Board for Health and Social Care (ISB). The information standard ISB 0148 can be viewed at: <http://www.isb.nhs.uk/library/standard/125>.

This implementation guidance has been created to assist sites with migration to the NICIP code set, and provide guidance to address specific implementation issues on how the codes should be used in practice. It is intended to be iterative and will address new issues as they are identified and will be updated in accordance with the future release schedule.

The guidance is not intended to describe system behaviour or message population for the standard HL7v3 messages to the Summary Care Record.

## 1.2 Audience

This document has been written for suppliers and local collaborators working to configure applications used in the clinical imaging domain as well as end users of those systems. It is strongly recommended that the implementation guidance contained within this document is followed and checked for changes with each new release.

## 1.3 Scope

All conventional imaging modalities are in scope for the use of the NICIP code set. The NICIP code set provides a consistent description of imaging procedures and a standard terminology for describing aspects of clinical imaging procedures. This facilitates identification of images undertaken in an imaging examination along with the communication of clinical information associated with the identified procedures. These include imaging service requests, patient imaging reports, statistical measures of activity and assisting with workflow aspects of the business of imaging departments such as resource scheduling. Those use cases the NICIP code set supports from the outset are:

- Comprehensive, dynamic catalogue of unique orderable coded imaging procedures to enable accurate, precise ordering of procedures and direct commissioning of services.

- Workflow management and scheduling in imaging departments.
- Generation of KH12 radiation monitoring statistics.
- Procedure image identification for external viewing.

Those use cases not in scope but which may be supported by the NICIP code set are:

- Integrated requesting and results reporting to ordering clinicians/organisations including incorporation of these reports into electronic patient records and electronic ordering of procedures from NCRS systems by utilisation of the direct relationship with equivalent concepts in SNOMED CT.
- Efficient generation of diagnostics HRG data for Payment by Results by traversing the intermediate relationships with SNOMED CT and OPCS-4.
- Local clinical audit to determine efficacy of diagnostic tests and interventions by virtue of the comprehensive and precise, consistent descriptions and comparison with other imaging departments.
- Local analysis to determine departmental efficiency and inform business planning and resource usage and comparison with other imaging departments.
- Direct booking of procedures from primary care using the equivalent SNOMED CT codes and an extension to the Choose and Book service finding function.

Procedures that are not part of the services offered by clinical imaging departments are also considered to be out of scope for the NICIP code set. An example of this is laboratory tests. Imaging and nuclear medicine non-imaging therapeutic and measurement procedures that have limited representation at present include cardiology, histopathology, clinical photography and ophthalmology.

Representation of any item other than clinical imaging procedures is considered out of scope for the NICIP code set.

### **1.3.1 Former National Programme for IT in the NHS (NPfIT)**

There were two main work streams of the NPfIT that were expected to utilise the new NICIP code set from the outset - the NHS Care Record Service (NCRS) and the Picture Archiving and Communication Programme (PACS), and this implementation guidance is focussed upon achieving safe and effective implementation of the NICIP code set to these work streams. It is anticipated that in the future other work streams such as the Secondary Uses Service (SUS) and Choose and Book (CAB) will be able to make use of the code set: however, such uses currently remain outside of the scope of this implementation guidance. The NICIP code set may not currently meet the requirements of these differing use cases: for example, GP requesting in a primary care setting may not have a requirement for a full range of interventional procedures.

The NCRS comprises a mix of national and local IT services designed to provide a cradle-to-grave Electronic Care Record for each patient, which will transcend traditional care organisations' boundaries.

The PACS programme will deliver applications to support the creation and sharing of digital images and reports across healthcare communities.

The adoption of common standards, including procedure codes, is an essential requirement to enable full interoperability between systems. In the NCRS and PACS, it is recommended the NICIP code set is implemented in the following clinical systems:

- Electronic Remote Requesting (ordercomms)
- RIS including work flow management
- Imaging modalities
- PACS
- Result Reporting and Acknowledgement

### **1.3.2 Existing Systems**

The SNOMED CT Clinical Imaging Management Group recommend that the NICIP code set is used in all integrated clinical application systems. This approach was endorsed by all stakeholders including the Royal College of Radiologists, British Nuclear Medicine Society, British Medical Association, Royal College of General Practitioners, the Society of Radiographers, the Department of Health, former NHS Connecting for Health (now the Health and Social Care Information Centre), and representatives of England, Scotland, Wales, and Northern Ireland.

## **2 Background**

### **2.1 Prior imaging procedure lists**

Historically, imaging departments have developed their own set of procedure codes to support their local operational and business requirements. Research has shown a lot of commonality between these lists, but there is also significant variance as the lists have evolved to meet local requirements. Whilst this diversity provides local flexibility, it has become an obstacle to wider system integration and interoperability, and limits the ability for sites to collate data across healthcare providers.

In response to this challenge, a number of stakeholders, including the Royal College of Radiologists (RCR), former NPfIT and Local Service Providers (LSPs), collaborated to produce a common set of procedure codes and descriptions to support initial deployments in the NHS Connecting for Health PACS programme. This list is referred to as CRS Radiology Catalogue v2.0 (Examination Code Set), NPfIT-LON-LBP-0228.06, or more commonly just as the v2.0 code set. This list has formed the basis of the NICIP code set and now includes additional content and a greater degree of editorial stringency and consistency but follows the same format for the code creation.

This implementation guidance is intended both for those adopting this type of list for the first time and for those moving from the most recently released code set.

## 2.2 NICIP code set

The NICIP code set has been developed as a collaborative effort with formal management arrangements and the participation of all known major stakeholders.

A group has been established to oversee the developments – the Clinical Imaging Management Group (CIMG). This management group reports into the Department of Health National Imaging Board via the National Clinical Lead for Imaging.

The editorial principles applied in the creation of this list are described in the document “National Interim Standard Descriptions for Clinical Imaging Procedures to support PACS/RIS implementations”, File-CM reference NPFIT-NCR-DES-1076.

The list itself, first released in January 2007 is documented in Excel format in the document “National interim codes and descriptions for Clinical Imaging Procedures”, with File-CM reference NPFIT-NCR-DES-1091.

The NICIP code set is available in four variants in two separate spreadsheets (please see Section 6 - Appendix for the NICIP excel file tabs guide):

### **With maps to SNOMED CT and with limited term history information**

This version is for those organisations that are migrating from a previous version of the list and use the data in an integrated environment (with systems using SNOMED CT)

### **Without maps to SNOMED CT but with limited term history information**

This version is for those organisations who are migrating from a previous version of the list and do not use the data in an integrated environment (with systems using SNOMED CT)

### **A simple list of the latest current descriptions without SNOMED CT mappings and without term history information**

This version is for those organisations who are using the list for the first time and do not use the data in an integrated environment (with systems using SNOMED CT)

### **A simple list of the latest current descriptions with SNOMED CT mappings and without term history information**

This version is for those organisations that are using the list for the first time, and that use the data in an integrated environment (with systems using SNOMED CT)

## 2.3 Relationship to SNOMED CT

The NICIP code set is designed to bridge the gap until all clinical systems can natively support SNOMED CT. In time, when all clinical systems are utilising SNOMED CT, it is



anticipated that the representation of clinical imaging procedures in NCRS applications will be entirely by the use of SNOMED CT coded concepts.

## 3 Release Mechanism and Updates

The NICIP descriptions have been designed to be a maximum of 40 characters to enable use in the existing systems that have this constraint. The convention for patterns of descriptions, punctuation, abbreviations and implicit information is described in detail within the editorial principles, which can be found here:

<http://systems.hscic.gov.uk/data/uktc/imaging>.

In order to achieve truncation/abbreviation within the 40 character limit, some of the conventions had required the use of special characters (for example: &). Following consultation and approval from the CIMG, the character '&' was removed from all descriptions to reduce local maintenance requirements and to avoid potential safety and interoperability issues. The word 'and' is used where the meaning of a description is altered by the removal of '&'. The meaningful code that has been developed for each entry is constructed according to a pattern described in section 4.5 of the editorial principles document.

In each release, some NICIP descriptions or associated data may be modified as the code set regularly undergoes quality assurance review processes. For minor changes, the NICIP codes associated with these procedures are not replaced by new codes as there has been no change to the meaning of the code. In view of this, it is important that the full version of NICIP (not extracts from it) is updated after each new release.

In order to provide more accurate descriptions for each NICIP release, the value list for 'reason if deprecated' has been reviewed by the CIMG. From the October 2011 release, reasons for inactivation of a NICIP code will be represented as follows:

- I – Incompatible with the editorial principles.
- X – Update of mapping to more appropriate SNOMED CT code.
- M – Update of multiplication factor of body part.
- D – Change of status between interventional or diagnostic.

### 3.1 Distribution

From the 1<sup>st</sup> October 2009 all supporting documentation and varieties of the NICIP code set, both with and without SNOMED CT mappings, have been available from the Technology Reference data Update Distribution (TRUD) service, and can be obtained electronically by registering on line via the TRUD link at <http://systems.hscic.gov.uk/data/uktc/imaging>.

In order to utilise the mappings to SNOMED CT, all recipients must be SNOMED CT license holders – there is the facility to sign up for a SNOMED CT license at this site which is free of charge. All NICIP supporting documentation, including this implementation guidance, will be also be made available via the HSCIC website at:

<http://systems.hscic.gov.uk/data/uktc/imaging>.

## 3.2 Update frequency

The first release of the NICIP code set took place on January 26<sup>th</sup> 2007.

Since then the NICIP code set has been and will continue to be updated to reflect the dynamism of clinical practice.

In order to fully integrate with the NCRS mandated standards for interoperability, the relationship to SNOMED CT must be synchronised.

The second NICIP code set release coincided with the October 2007 SNOMED CT release. Biannual releases occur on the 1<sup>st</sup> April and 1<sup>st</sup> October every year thereafter. This implementation guidance, along with the editorial principles, is updated to coincide with releases of the NICIP code set.

It is important that all connected systems use the same version of the NICIP code set and that they all are updated synchronously and as near to the most recent release date as possible. The NICIP code set has now been approved by the Information Standards Board for Health and Social Care (ISB). The DSCN (27/2009) requires each organisation using the NICIP code set to update to the most recent version within 2 months of its release date.

## 3.3 Safety Considerations

Responsibility for deployment and implementation of the NICIP code set is devolved to local level, with updated safety guidance for implementation available with each release. All mapping between PACS and RIS systems must undergo local testing and assurance to ensure data integrity, and the testing should be reassessed at each interim update. SNOMED CT compliant systems **MUST** support full post coordination mapping on the code sets in order for the SNOMED CT codes to be used as the primary key for each full post coordinated concept in the list (i.e. including the laterality codes). Where systems cannot fully support post coordination, the NICIP procedure codes may be utilised to map concepts between systems.

It is mandated for in-scope use cases for organisations to update to the most recent version of the NICIP code set as soon as possible after each release and no later than 2 months after the formal release date. The full NICIP code set, rather than extracts from it, should be updated with each new release to prevent inconsistencies when receiving information from other organisations. This action will also prevent inconsistencies where there have been small changes made to some representations, such as capitalisation, without retiring the code.

Short codes are created using an approved formula documented in the NICIP editorial principles. For clinical safety reasons, short codes **should not** be relied upon as the sole mechanism to identify procedures within clinical systems. Users must check the accompanying 40 character description to ensure that the correct NICIP code has been utilised.

Any actions taken locally to address issues specific to local PACS/ RIS systems must be the subject of a local safety assessment. It is also important that each organisation implementing

the NICIP code set has a local method of data validation in place. Where local modifications are made, responsibility for the safety and integrity of such changes will remain local.

### 3.3.1 Clinical Safety Incident Reporting (CSIR) Procedure

Incidents with potential implications for clinical safety identified with implementation of the NICIP Code Set will follow the existing Clinical Safety Incident Reporting Procedure.

It is essential that clinical risk issues and incidents are reported to **both** the Clinical Safety Helpdesk and also the Information Standards Service Desk . Reporting in this manner will facilitate an assessment of the impact of any identified issue of clinical risk on the standard as a whole.

Contact:

[safety.incident@hscic.gov.uk](mailto:safety.incident@hscic.gov.uk)  
[information.standards@hscic.gov.uk](mailto:information.standards@hscic.gov.uk)

All safety issues discovered with non-live applications (assuming the supplier verifies that the defect isn't also present in any live application version), cannot present hazards to real patients and will not be reported as safety incidents. They will, however, be reported as serious (normally severity 1) defects and resolution tracked before go-live.

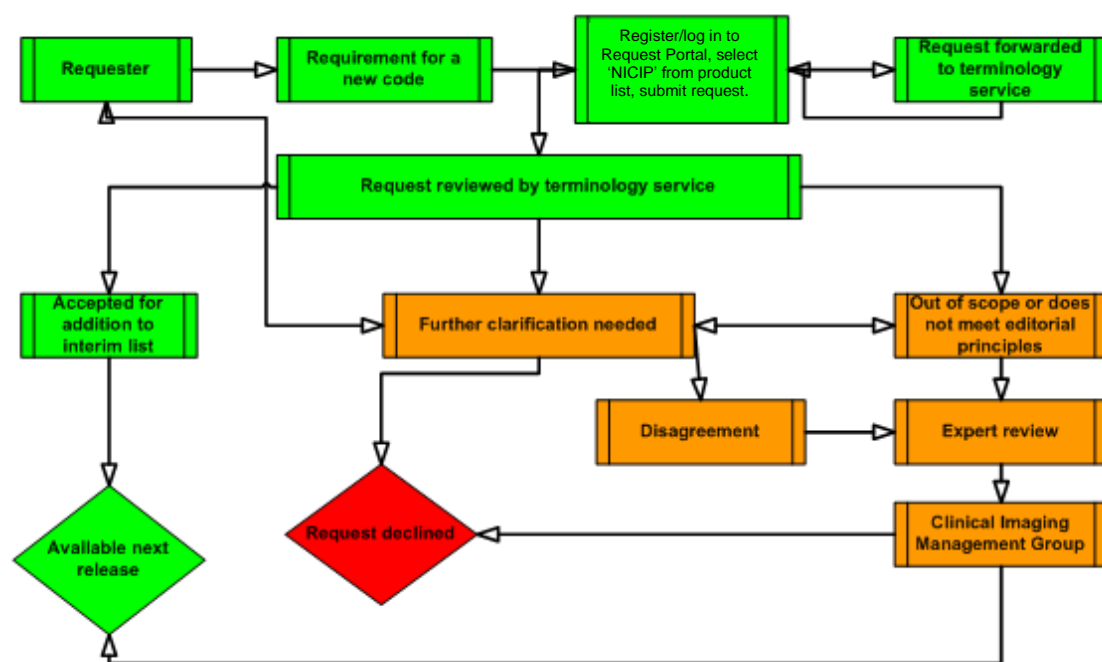
## 3.4 Requests for change

Requests for changes to the NICIP code set should be made via the UK Terminology Centre Request Submission Portal at <https://www.uktcregistration.nss.cfh.nhs.uk/rsp-nicip/user/authenticated/home.jsf>

Information regarding the level of detail required and frequently asked questions when making a request for additions can be found on the website:  
<http://systems.hscic.gov.uk/data/uktc/imaging>

Limited resources are available to make changes, so all requests will be prioritised according to guidelines established by the CIMG. Requests for change to the implementation guidance or editorial principles should be submitted through stakeholder representatives on the CIMG.

Addition of new content will need to cease some considerable time before the release date to allow sufficient time for data preparation and review of release artefacts. It may be possible in limited circumstances to add a new NICIP code after authoring for SNOMED CT has ceased for a particular release. However, this will only be possible where a new request can be mapped to an existing procedure code within SNOMED CT and where the new request fulfils the stipulations of the editorial principles.



**Figure 1** – The NICIP code request mechanism

## 4 Technical Considerations

### 4.1 Migration from existing code sets

#### 4.1.1 Migration to the NICIP code set from a local code set

It is mandated for in scope use cases that all NHS clinical imaging centres in England adopt the NICIP code set. This will inevitably require the replacement of any current local procedure codes.

It is a local decision whether to attempt to map the former code system to the new NICIP representation – to aid analysis of old and new data together, for instance – or whether to end date (retire) all existing codes and start afresh with the new NICIP codes. In either case, only the approved NICIP code set should be used for new data entry (see section 4.2.1 on mapping existing procedure codes).

Where local codes are replaced with a NICIP equivalent, an audit trail must be retained to ensure that local codes remain meaningful in the historical data within the clinical system.

#### 4.1.2 Migration to the new NICIP code set from a previous version (including the 'v2.0' code set)

It is important to note that where only a minor change has been required to a description to comply with editorial principles, the same code will continue to be used with the new description.

To assist with the migration process, all old codes and descriptions will be maintained and linked to their replacements (see 6.1 Appendix for the NICIP code replacement format).

It is a matter for the local implementers to decide which of the available descriptions (synonyms) to make available to their local users. It is also permitted to introduce additional local descriptions as long as they are linked to the NICIP codes and descriptions, refer to exactly the same concept as the NICIP code, are clinically synonymous and are not a refinement of it.

#### 4.1.3 Timing of migration to the NICIP code set

It is mandated for all in scope use cases that all sites migrate to the updated NICIP code set as soon as is practicable after its release. Where systems are integrated, migration should be coordinated to enable switch over to the new data set across all systems at the same time. For strategic based services, such as multi-site/organisation radiology information systems, this will require cooperation between all participating organisations to minimise any downtime and risk of system errors due to non-matching codes in the interfaced systems.

## 4.2 Mapping Procedure Codes

### 4.2.1 Mapping to existing local procedure codes and descriptions

Only approved NICIP codes should be used in communication between systems. Sites may implement the NICIP description or an approved synonym from the national list.

Sites may map their existing codes to the new NICIP codes. This may require a data migration exercise whereby all references to an existing code within the system are replaced with the corresponding national code. E.g. a local code *C01 Chest X-ray* would be updated to *XCHES Chest X-ray* throughout the system. If a system is capable of recording more than one procedure code per procedure, the new NICIP code can be used in addition to the local code, provided that it is the NICIP code that is used in communication with other integrated systems.

When mapping individual codes, sites should follow the local implementation guidance (section 5.1). If there is no corresponding NICIP code, the local code should be end dated so that it cannot be used for new data entry.

Any organisation wishing to retain their own local codes and descriptions, including Read codes, should undertake a risk assessment to determine the impact on interoperability with interfaced systems, and any clinical risk that may ensue.

### 4.2.2 Mapping to SNOMED CT

To support eventual migration from the NICIP code set to SNOMED CT, a mapping from each entry to a corresponding SNOMED CT concept has been developed. All NICIP codes now map directly to an equivalent concept within SNOMED CT. With the exception of OPCS-4, no support will be provided for mapping from the NICIP code set to other code systems (including Read codes). The current NICIP mapped representation list can be obtained through the approved release mechanism route (see 3.1 above). Any request for change to the mapping should be submitted via the national route. The release dates for the updated products (NICIP code set and SNOMED CT) have now been synchronised to facilitate the process of mapping.

It should be noted that where items in the NICIP code set terms include laterality, this additional information will not be directly incorporated in pre-coordinated SNOMED CT. The release table has additional fields equivalent to the post-coordinated representation which must be used to fully describe the procedure within SNOMED CT. For further information, please refer to the IHTSDO SNOMED CT Technical Implementation Guide:

[http://ihtsdo.org/fileadmin/user\\_upload/doc/](http://ihtsdo.org/fileadmin/user_upload/doc/)

E.g.

CANKL, CT Ankle Lt maps to 241575006 CT of ankle,  
**plus** 272741003 Laterality = 7771000 Left

The structure of the imaging procedure concepts in SNOMED CT is rather more complex than in the NICIP code set, with additional properties needing to be defined in order to conform to the concept model and term construction rules.

Also, some of the constraints of the systems that the NICIP descriptions were developed for are not restrictive to the same degree in SNOMED CT.

IHTSDO guidance requires all abbreviated terms to be fully expanded within SNOMED CT. No abbreviations will be allowable within the fully specified name. For the preferred term it has been agreed that abbreviations will be allowable where the abbreviation is documented within the editorial principles as an exception. For all other cases the abbreviation will be followed by the fully expanded term in brackets. This will aid searches using abbreviated terms.

Example: CT (computed tomography) of abdomen.

The key differences between the NICIP code set representation and SNOMED CT are illustrated in the following table:

Interim representation	SNOMED CT
40 character description limit	255 character description limit
Synonyms permitted	Synonyms permitted
6 character alphabetic codes	12-18 character numeric codes
Fully enumerated	Possible to further qualify concepts (e.g. 'urgency')
Laterality explicitly included (3 variants – left, right, both)	Laterality post-coordinated
Many aspects 'implied' (see editorial principles)	Implied meaning not permitted
Flat list	Hierarchical relationships
Modality defined by first character of code	Modality defined by 'method' attribute
Abbreviations allowed from an agreed list of abbreviations, acronyms, truncations.	Abbreviations not permitted. All acronyms or abbreviations must be fully expanded.
Limited history mechanism, concepts never removed	Full component history, concepts never removed

### 4.2.3 Mapping to OPCS-4

To support current and future data collection in all imaging departments, a mapping to the latest version of OPCS-4 will be maintained (currently OPCS-4.7). As new content from the NICIP code set is added to SNOMED CT, a default map to OPCS-4 will routinely be assigned as part of the process. All procedures within the NICIP code set now have a direct map to an equivalent SNOMED CT concept, and thus have a direct default map to OPCS-4.

The first release of the NICIP-OPCS-4 mapping table was in October 2009 and the current release is still a **test product**. The table is currently considered a value added extra to the NICIP codes. It is highly recommended that the mapping table is subjected to local validation and assessment processes prior to use, although it has been reviewed by clinical imaging and coding experts. Feedback from any local validation/test use is welcome and



can be submitted via the Information Standards Service Desk at [information.standards@hscic.gov.uk](mailto:information.standards@hscic.gov.uk).

The UK Terminology Centre (UKTC) of the Health and Social Care Information Centre (HSCIC) are consulting with stakeholders to determine whether the National Interim Clinical Imaging Procedures (NICIP) to OPCS-4 mapping table is being used in the production of data to inform the Payment by Results (PbR) data in the field of Clinical Imaging. The consultation is intended to inform the decision making process and plans to adjust the mapping table to meet user requirements.

The mapping table is part of the national release of the NICIP code set. It is only available from the Technology Reference data Update Distribution (TRUD) service and can be obtained electronically by registering on line via the TRUD link at <http://systems.hscic.gov.uk/data/uktc/imaging>.

#### 4.2.4 Mapping codes to Körner codes

As per notification in April 2010, Körner bands have been removed from the NICIP code set release and will no longer be maintained or distributed with any future releases. This change to the NICIP code set has been approved by the Information Standard Board and details of the amendment to the standard can be found at: <http://www.isb.nhs.uk/library/release/456>.

#### 4.2.5 Mapping for KH12 returns and body part multiplication factor

Clinical Imaging departments are required to submit KH12 returns to the Department of Health. To facilitate automation of this process, each procedure in the NICIP representation, where appropriate, has been given a suggested map to the relevant KH12 modality grouping and body part multiplication factor for KH12 returns. Any identified inconsistencies, queries or requests for change to the mapping should be submitted via the UK Terminology Centre Request Submission Portal at:

<https://www.uktcregistration.nss.cfh.nhs.uk/rsp-nicip/user/authenticated/home.jsf>

It is important to note that this mapping is indicative only and has not been formally validated: users are requested to exercise caution in use.

#### 4.2.6 Interventional flag

It is necessary in KH12 mandatory returns to indicate whether a particular examination was interventional in nature. The list includes a flag to indicate whether each examination was indeed considered interventional or not.

This flag is possibly contentious in some examples; however, it is the opinion of the CIMG that providing all organisations utilise the same scheme, then the advantages of having consistent returns outweigh the potential disadvantage that a small number of the flags may be assigned incorrectly.

There is also a field to indicate whether a procedure is considered to be diagnostic. For the purposes of this return, a procedure is considered to be interventional in nature if it effects treatment of the patient. Although some interventional procedures often have a



diagnostic element it is not permissible for any procedure to be marked as both diagnostic and interventional.

### 4.2.7 Mapping to Imaging Acquisition Protocols

The NICIP codes are not intended to map 1:1 with imaging acquisition protocols. Acquisition protocols can vary more widely, and the protocol performed may depend on local clinician's preferences, the patient's diagnosis and condition, and the imaging equipment used.

Some procedures may only have one matching acquisition protocol, but others map to several different imaging protocols. In CT scanning, for example, there are a large number of different acquisition protocols covered by relatively few procedure codes, e.g. *CT abdo/pelvis*. The imaging acquisition protocol should be determined when the requested procedure is justified, based on the full clinical information in the request. Some systems support procedure mapping enabling users to select one of a range of acquisition protocols appropriate to an imaging procedure.

## 5 Clinical and Business considerations

### 5.1 Local Implementation Guidance

#### 5.1.1 Local Tailoring

Many prior lists were administered locally, with few requirements for detailed procedure information to be shared or collated across organisations. Administrators were able to make changes to the local list as and when the perceived need arose. The implementation of a National data set for clinical imaging procedures will restrict the ability to incorporate local changes.

There will be occasions when a procedure is required but has not yet been incorporated in the NICIP code set. In this instance, the procedure could be coded as a more general procedure, but also submitted *via* the UKTC Terminology Centre Request Submission Portal (<https://www.uktcregistration.nss.cfh.nhs.uk/rsp-nicip/user/authenticated/home.jsf>) for consideration for addition to the NICIP code set.

National codes are not provided for research/experimental/prototype tests until their mainstream use is proven. In such circumstances it may be appropriate to utilise a local code.

Where code extensions are possible locally, each new procedure description could be appended to a national, more general, procedure.

Where code extensions are not possible locally, if a local code is used whilst awaiting consideration for addition to the NICIP code set, then the structured code should commence with a Z to indicate very clearly it is not part of the NICIP code set. If the procedure is subsequently successfully accepted into the NICIP code set then a link must be maintained from these temporary code entries to the new NICIP code. Where the item is not accepted, it should be replaced by the nearest National equivalent for anything other than local use.

These codes, whether “temporary local” or “permanently local”, should not be communicated outside the local system.

For instance, a new examination, ‘Fluoroscopic angiography and embolisation of palmar artery’, is developed. This would be represented prior to submission and approval on the NICIP code set with the code for ‘Fluoroscopic angiography and embolisation of upper limb artery’ or as ‘Fluoroscopic angiography and embolisation of palmar artery’ with a code commencing with a Z (which must not be a duplicate of any other local code).

Similarly, where local codes are required to support the local business or workflow of an imaging department then the local code must commence with a Z to indicate very clearly it is not part of the NICIP code set. These codes should not be communicated outside the local system and must be unique within that system.

### 5.1.2 Administrative Procedures

It has been agreed that the NICIP representation will be comprised of only the clinical aspects related to the technique of the procedure, rather than any administrative properties.

Other factors which are necessary to support the business of the individual clinical imaging departments, such as ‘location’ (e.g. on ward, in theatre), report status (e.g. unreported) and visit number (e.g. bowel transit study – 3<sup>rd</sup> visit) are excluded from this representation.

### 5.1.3 Laterality

Many procedure descriptions have already been pre-coordinated with a laterality of Lt, Rt or Both. The ‘Both’ description should be used whenever both sides of the lateralisable object are acquired and reported as a single examination. For example, a procedure where bilateral nephrostomies are performed should be entered as ‘Nephrostomy Both’. If the patient attended for a right nephrostomy and then subsequently for a left nephrostomy and they are reported separately, then they should be entered as 2 separate procedures (Nephrostomy Rt, and Nephrostomy Lt).

### 5.1.4 Contrast

For some procedures, the use of radiographic contrast media is implicit and understood to be a standard part of the procedure (e.g. angiography, arthrography). Where contrast use is not implicit, only the variants ‘with contrast’ and the base procedure with no mention of contrast – e.g. ‘CT brain with contrast’ and ‘CT brain’ will both exist as separate codes. A patient having a procedure ‘with and without contrast’ (e.g. a CT brain scan) should be coded as a single procedure ‘with contrast’ unless the procedure is performed as 2 separate examinations and reported separately.

However, even where contrast is not explicitly stated it cannot always be assumed that contrast was not used.

It should also be noted that the generic description of “contrast” (when not further qualified) actually means intravascular contrast. This is with the exception of arthrogram procedures,

where use of contrast is also implicit in the procedure but where the contrast is injected directly into the joint. For all other cases, use of contrast via a route other than intravascular will be explicitly specified, e.g. intrathecal contrast.

Though generally it is accepted that contrast is used in angiography procedures, this is not necessarily true for MR Angiography where delineation of the blood vessels can be accomplished by other means. Additionally, MRI Arthrography procedures may or may not also utilise intravascular contrast. In these cases when intravascular as well as intra-articular contrast is utilised, it must also be specified in the description. E.g. MRI arthrogram with contrast.

### 5.1.5 Multi-modality examinations

The general principle is that when an examination is performed and reported as a single examination, it should be recorded by a single procedure code. As such a multi-modality examination should be coded by a single procedure code where possible. For example, a barium enema using fluoroscopy and computed radiography should be recorded as a single barium enema examination with a single procedure code.

It follows that where a multimodality exam could be described by more than one modality procedure code, then only the dominant modality should be recorded. For example, a nephrostomy using fluoroscopy and ultrasound would be coded using either Fluoroscopic Nephrostomy or US Nephrostomy. If the procedures are performed and reported separately, however, then both procedure codes should be entered.

In the case of PET/CT and SPECT/CT it is important to use the combination descriptions to differentiate the procedure from routine PET and SPECT.

### 5.1.6 Multi-body part examinations

The general principle again is that when an examination is performed and reported as a single examination, it should be recorded by a single procedure code. For example, an ultrasound of the abdomen including the liver, spleen and kidneys should be recorded as a single code for ultrasound of the abdomen, rather than as separate procedure codes for each body part.

For CT and MR examinations, the NICIP code set includes codes for individual body areas (e.g. CT Thorax) and a number of common combined area procedure codes (e.g. CT Thorax Abdomen Pelvis). As with other multi-body part examinations, a single procedure code should be used where possible. Where an appropriate multi-body part code does not exist, the procedures may be coded separately under the same attendance event (e.g. CT Brain and CT Thorax Abdomen Pelvis). In this situation, images may be acquired under the appropriate body part code by selecting each procedure code in turn from the work list.

### 5.1.7 Imaging to support interventional procedures

If the imaging is considered to be a full equivalent diagnostic procedure that takes place alongside the interventional procedure, then it should be coded as two procedures: 'the

imaging’ plus ‘the imaging guidance for the intervention’. If the imaging was simply to assist or guide the intervention, then the format would be ‘imaging guided interventional procedure’.

For example, including full diagnostic scan:

- US Breast Left
- US Guided FNA breast Left
- If the scan is not of full diagnostic quality that procedure would be omitted.
- US Guided FNA breast Left

### **5.1.8 Procedures with unspecified body site**

Almost all DI procedures will have a target ‘site’ for the imaging, whether this be a discrete body part or a complete subsystem.

There will be, however, be a number of procedures where the multitude of possible sites for performing a CT biopsy on, for instance, would make it impractical to pre-coordinate all possible combinations.

In these cases the generic description CT biopsy would be used with some other way of indicating what the site was – this could possibly be an additional text field which might mean the site is only captured in the report if that is the only field available.

Other examples of such procedures follow:

- Injection under US control
- Intravascular foreign body retrieval
- Linogram

### **5.1.9 Import and Review of Outside Imaging**

Prior code sets have included administrative codes for import and review of ‘outside’ imaging performed at other organisations. Although it is important to capture this activity, these codes do not adequately describe the actual imaging procedure that is being imported and reviewed. It is therefore recommended that all procedures are entered as the imaging procedure (e.g. CT Thorax) and the fact that this imaging was performed elsewhere is captured in the imaging location field. For example, the imaging procedure imported (e.g. thorax) could be assigned to a room ‘outside imaging’. The room location can then be used in management reports to distinguish local from externally performed procedures.

Using the actual imaging procedure also ensures the imaging procedure description on RIS will match the imaging procedure on PACS. The intention is that the creation of new RIS entries for imported procedures can then be automated in future, using international standard workflow (IHE import reconciliation workflow – see <http://www.ihe.net/>).

## 6 Appendix - NICIP Code Set excel file tabs guide

The following 2 subsections provide some guidance for interpreting the tabs that contain the NICIP code content.

### 6.1 NICIP\_Code\_Set\_withSCT\_YYYYMMDD.xls

#### Procedure-withSCT-noHistory Tab

All currently active NICIP codes with respective SNOMED CT mappings. No historically deprecated NICIP codes are present in this tab.

#### Procedure-withSCT-withHistory Tab

All NICIP codes since the first release in January 2007 – Active, Inactive, and Retired – with respective SNOMED CT mappings, and with a historical trail of all deprecated NICIP codes.

- **Inactive** – The only currently accepted reasons for code inactivation are outlined in Section 3 of this document (shown in bold font when scrolling over the headers of the excel file tabs). Inactivated NICIP codes will always be replaced by the 'Recommended substitute procedure' NICIP code.
- **Retired** – Code retirement is rare but will take place if a NICIP code is found to be incompatible and irreconcilable with editorial policy (see NICIP Editorial Principles documentation). Within the excel file, retired content is relatively moderate and the majority of these retirements were made close to the inception of the NICIP Code Set, in parallel with the rapid advancement of editorial policy. Retired NICIP codes are not substituted, with the exception of 8 codes that were subject to earlier versions of editorial policy and were replaced by substitute codes. In current NICIP policy, the minor number of existing substituted retirements would be considered as inactivations.
- **Representation of inactivated code substitutes** – Depending on the reason for NICIP code inactivation, the code fields are ordinarily substituted for a more accurate representation of the clinical imaging procedure with the same Short Code, but there are also instances where a different Short Code is required e.g. for a more accurate Short Code and procedure, or an existing released duplicate procedure. The substitute active NICIP code is placed along the same row number and unique ID that belongs to the inactivated code (see Recommended substitute procedure column). If the substitute NICIP code uses the same Short Code or maps to a new procedure code, it is also replicated as a new active code row with a new unique ID and is presented in the final rows of the excel tab amongst the new NICIP content due for release (in both the withHistory and noHistory tabs).
- **NICIP code history trail** – The convention specified in the point above sees that the final tuple of the same NICIP Short Code is the only active and most subsequent version of the code i.e – the highest row number and highest unique ID for that specific code. There are a minor set of exceptions to this rule, again due to early developmental stages of the NICIP Code Set. This list can be provided on request.

#### New-Procedure-Codes Tab

All new NICIP codes added to the Code Set with respective SNOMED CT mappings, for a given release.

**New-SCT-Mappings Tab**

All existing NICIP codes that have been remapped to a more accurate SNOMED CT code, for a given release.

**Replaced-or-Retired-Codes Tab**

All inactivated NICIP codes (with recommended substitute code) and retired NICIP codes, for a given release.

## 6.2 NICIP\_Code\_Set\_withoutSCT\_YYMMDD.xls

**Procedure-withoutSCT-noHistory Tab**

All currently active NICIP codes without SNOMED CT mappings. No historically deprecated NICIP codes are present in this tab.

**Procedure-withSCT-withHistory Tab**

All NICIP codes since the first release – Active, Inactive, and Retired – without SNOMED CT mappings, and with a historical trail of all deprecated NICIP codes. The history trail of each code is represented as bulleted for the Procedure-withSCT-withHistory Tab above.

**New-Procedure-Codes Tab**

All new NICIP codes added to the Code Set for a given release.

**Replaced-or-Retired-Codes Tab**

All inactivated NICIP codes (with recommended substitute code) and retired NICIP codes, for a given release.