Digital Imaging and Communications in Medicine (DICOM)

Supplement 65: Chest Computer-Aided Detection SR SOP Class

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DICOM Standards Committee

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Foreword

This supplement to the DICOM standard introduces the DICOM format for the results of computer-aided detection (CAD) of potential malignancies in chest radiographs. The supplement provides the means for encoding a CAD system's chest analysis. This includes such basic information as:

- Lesion type, e.g., lung nodule
- Bounding regions of lesions, as given by a rectangle, ellipse or polyline

The supplement does not define a DICOM format for advanced chest findings more commonly associated with computer-aided diagnosis. Examples of such findings include the morphology of lesions, descriptions of the chest architecture, and interpretations of inferred pathology and disease for the chest radiograph. The existing structure will be extensible, such that inclusion of computer-aided diagnosis information may be added when these results and the most clinically appropriate reporting structure are better understood.

This document is a Supplement to the DICOM Standard. It is an extension to the following parts of the published DICOM Standard:

PS 3.3	-	Information Object Definitions
PS 3.4	-	Service Class Specifications
PS 3.6	-	Data Dictionary
PS 3.16	-	Content Mapping Resource

Scope and Field of Application

This supplement to the DICOM standard only defines how the results of a computer's chest analysis should be encoded. It does not define or describe inputs to the chest CAD system other than use of chest CAD output (e.g. prior report) as input to subsequent temporal analyses; nor does it describe output for studies other than chest radiographs. Note that the input may be comprised of digitized or digitally acquired X-ray images, CT slices or other germane 2-D chest images. Some of the information described is beyond that which current chest CAD systems can produce. However, the DICOM committee includes it because it is expected to become relevant.

The chest CAD output is in the form of a DICOM Structured Report. The report can be used on its own, for example for displaying the detected lesions on a monitor or printer. It can be used within a larger Structured Report document, e.g., as part of a comprehensive chest imaging report. It can even be used as input to a chest CAD system, for example to provide information on detections in prior chest radiography procedures. In all cases, the output is a Structured Report (SR), so readers should become familiar with the Comprehensive SR IOD and corresponding SOP class. In addition, provision has been made to allow description of the chest CAD output using common chest terminology and nomenclature (see additions to PS 3.16, Normative References).

This document specifies the Chest CAD SR IOD and the corresponding Chest CAD SR Storage SOP class. It is modeled after the DICOM Mammography CAD SR IOD and its corresponding Mammography CAD SR Storage SOP class.

The Chest CAD SR IOD is designed to allow minimal content, depending on the capabilities of the chest CAD system producing this object. Since the content tree defined in this document can incorporate many of the same interpretations a human observer would make (at least for a period of time), it is not a requirement that chest CAD systems be able to fully encode all content items in the content tree templates. Instead, chest CAD systems may populate optional content items as they see fit, to meet the requirements of the market; different chest CAD systems may produce different content.

The content sparseness does put more burden onto devices parsing and interpreting the content tree. Interoperability needs may force parsers to handle a broad array of sparsely populated content trees.

Add the following to PS 3.3 Section 4 Symbols and Abbreviations

Chest CAD Computer-Aided Detection and/or Computer-Aided Diagnosis for chest radiography

Part 3, Annex A Addendum

Add the following to PS 3.3 Annex A

Update the Composite Module Table to include Chest CAD SR IOD and Modules

IODs Modules	Chest CAD SR
Patient	**M**
Specimen Identification	**C**
General Study	**M**
Patient Study	**U**
SR Document Series	**M**
General Equipment	**M**
SR Document General	**M**
SR Document Content	**M**
SOP Common	**M**

A.35 STRUCTURED REPORT DOCUMENT INFORMATION OBJECT DEFINITIONS

A.35.X CAD SR Information Object Definition

A.35.X.1 Chest CAD SR Information Object Description

The Chest CAD SR IOD is used to convey the detection and analysis results of a chest CAD device. The content may include textual and a variety of coded information, numeric measurement values, references to the SOP Instances, and spatial regions of interest within such SOP Instances. Relationships by-reference are enabled between Content Items.

A.35.X.2 Chest CAD SR IOD Entity-Relationship Model

The E-R Model in Section A.1.2 of this Part applies to the Chest CAD SR IOD. The Frame of Reference IE, and the IEs at the level of the Image IE in Section A.1.2 are not components of the Chest CAD SR IOD. Table A.35.X-1 specifies the Modules of the Chest CAD SR IOD.

A.35.X.3 Chest CAD SR IOD Module Table

Table A.35.X-1 specifies the Modules of the Chest CAD SR IOD.

Table A.35.X-1
CHEST CAD SR IOD MODULES

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Specimen Identification	C.7.1.2	C - Required if the Observation Subject is a Specimen
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
Series	SR Document Series	C.17.1	M
Equipment	General Equipment	C.7.5.1	M
Document	SR Document General	C.17.2	M
	SR Document Content	C.17.3	M
	SOP Common	C.12.1	M

A.35.X.3.1 Chest CAD SR IOD Content Constraints

A.35.X.3.1.1 Template Constraints

- The document shall be constructed from TID 4100 Chest CAD Document Root invoked at the root node.
- When a content item sub-tree from a prior document is duplicated by-value, its observation context shall be defined by TID 1001, Observation Context, and its subordinate templates, as described in PS 3.16, DCMR Templates.

Note: All Template and Context Group definitions are located in PS 3.16, DICOM Content Mapping Resource, in the Annexes titled DCMR Templates and DCMR Context Groups, respectively.

A.35.X.3.1.2 Value Type

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17.3-1 for Value Type definitions):

TEXT
CODE
NUM
DATE
TIME
PNAME
SCOORD
TCOORD
COMPOSITE
IMAGE
CONTAINER
UIDREF
WAVEFORM

A.35.X.3.1.3 Relationship Constraints

The Chest CAD SR IOD makes use of by-reference INFERRED FROM, by-reference SELECTED FROM, and by-reference HAS PROPERTIES relationships. Other relationships by-reference are forbidden. Table A.35.X-2 specifies the relationship constraints of this IOD. See Table C.17.3-2 for Relationship Type definitions.

Table A.35.X-2
RELATIONSHIP CONTENT CONSTRAINTS FOR CHEST CAD SR IOD

Source Value Type	Relationship Type (Enumerated Values)	Target Value Type
CONTAINER	CONTAINS	CODE, NUM, IMAGE[1], CONTAINER.
TEXT, CODE, NUM, CONTAINER	HAS OBS CONTEXT	TEXT, CODE, NUM, DATE, TIME, PNAME, UIDREF, COMPOSITE[1].
IMAGE, WAVEFORM	HAS ACQ CONTEXT	TEXT, CODE, DATE, TIME, NUM.
CONTAINER, CODE, COMPOSITE	HAS CONCEPT MOD	TEXT, CODE[2].
TEXT, CODE, NUM	HAS PROPERTIES	TEXT, CODE, NUM, DATE, IMAGE[1], WAVEFORM[1], SCOORD, TCOORD.
CODE, NUM	INFERRED FROM	CODE, NUM, IMAGE[1], WAVEFORM[1], SCOORD, TCOORD, CONTAINER.
SCOORD	SELECTED FROM	IMAGE[1].
TCOORD	SELECTED FROM	SCOORD, IMAGE[1], WAVEFORM[1].

Note: 1. Which SOP Classes the IMAGE or COMPOSITE Value Type may refer to, is documented in the Conformance Statement for an application (see PS 3.2 and PS 3.4).

2. The HAS CONCEPT MOD relationship is used to modify the meaning of the Concept Name of a Source Content Item, for example to provide a more descriptive explanation, a different language translation, or to define a post-coordinated concept.

Update the following in PS 3.3, Annex L

ANNEX L Mammography CAD (INFORMATIVE)

L.1 Mammography CAD SR Content Tree Structure

…

The Summary of Detections and Summary of Analyses sub-trees identify the algorithms used and the work done by the ~~**mammography**~~ CAD device, and whether or not each process was performed on one or more entire images or selected regions of images. The findings of the detections and analyses are not encoded in the summary sub-trees, but rather in the ~~**Overall Impression/Recommendation**~~**CAD Processing and Findings Summary** sub-tree. ~~**Chest**~~ CAD processing may produce no findings, in which case the sub-trees of the ~~**Overall Impression/Recommendation**~~**CAD Processing and Findings Summary** sub-tree are incompletely populated. This occurs in the following situations:

…

Add the following to PS 3.3

ANNEX X Chest CAD (INFORMATIVE)

X.1 Chest CAD SR Content Tree Structure

The templates for the Chest CAD SR IOD are defined in PS 3.16, Annex A, DCMR Templates. Relationships defined in the Chest CAD SR IOD templates are by-value, unless otherwise stated. Content items referenced from another SR object instance, such as a prior Chest CAD SR, are inserted by-value in the new SR object instance, with appropriate original source observation context. It is necessary to update Rendering Intent, and referenced content item identifiers for by-reference relationships, within content items paraphrased from another source.

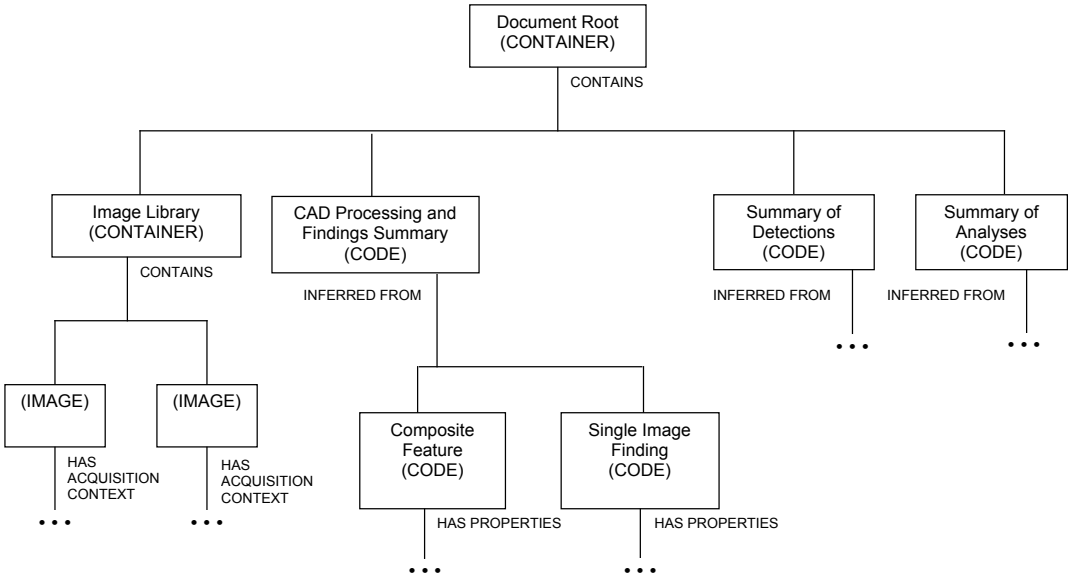


Figure X.1-1: Top Levels of Chest CAD SR Content Tree

The Document Root, Image Library, CAD Processing and Findings Summary, and Summaries of Detections and Analyses sub-trees together form the content tree of the Chest CAD SR IOD. See Annex L, Mammography CAD SR Content Tree Structure, for additional explanation of the Summaries of Detections and Analyses sub-trees.

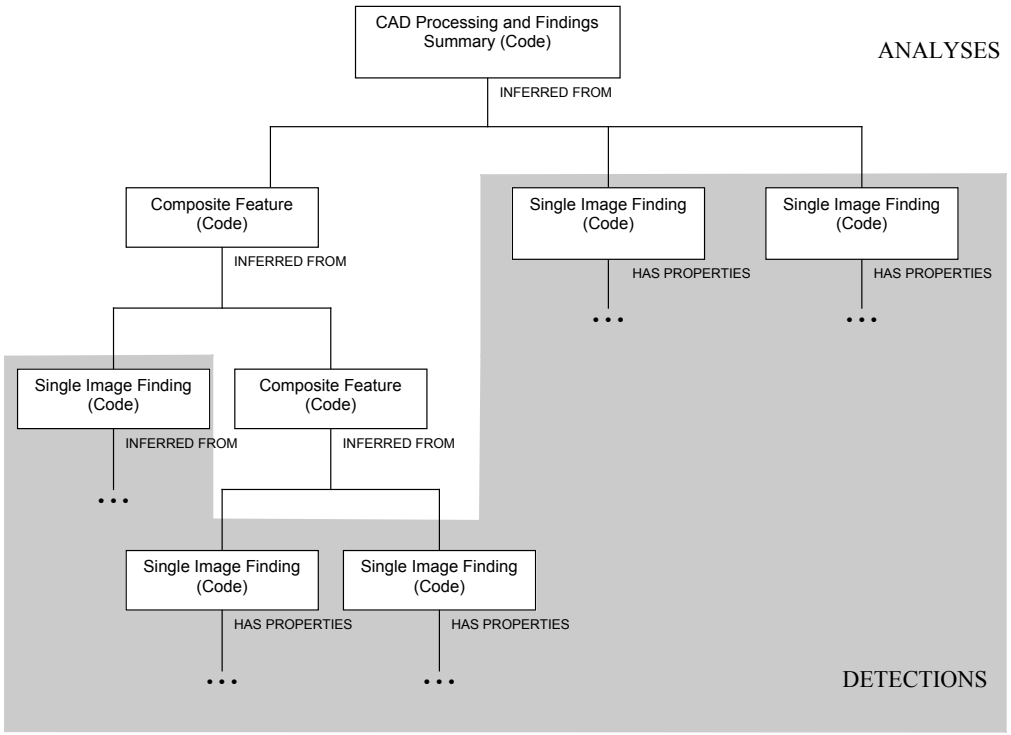


Figure X.1-2: Example of CAD Processing and Findings Summary sub-tree of Chest CAD SR Content Tree

The shaded area in Figure X.1-2 demarcates information resulting from Detection, whereas the unshaded area is information resulting from Analysis. This distinction is used in determining whether to place algorithm identification information in the Summary of Detections or Summary of Analyses sub-trees.

The identification of a lung nodule within a single image is considered to be a Detection, which results in a Single Image Finding. The temporal correlation of a lung nodule in two instances of the same view taken at different times, resulting in a Composite Feature, is considered Analysis.

Once a Single Image Finding or Composite Feature has been instantiated, it may be referenced by any number of Composite Features higher in the CAD Processing and Findings Summary sub-tree.

X.2 Chest CAD SR Observation Context Encoding

- Any content item in the Content tree that has been inserted (i.e., duplicated) from another SR object instance has a HAS OBS CONTEXT relationship to one or more content items that describe the context of the SR object instance from which it originated. This mechanism may be used to combine reports (e.g., Chest CAD SR 1, Chest CAD SR 2, Human).
- By-reference relationships within Single Image Findings and Composite Features paraphrased from prior Chest CAD SR objects need to be updated to properly reference Image Library Entries carried from the prior object to their new positions in the present object.

The CAD Processing and Findings Summary section of the SR Document Content tree of a Chest CAD SR IOD may contain a mixture of current and prior single image findings and composite features. The content items from current and prior contexts are target content items that have a by-value INFERRED FROM relationship to a Composite Feature content item. Content items that come from a context other than the Initial Observation Context have a HAS OBS CONTEXT relationship to target content items that describe the context of the source document.

In Figure X.2-1, Composite Feature and Single Image Finding are current, and Single Image Finding (from Prior) is duplicated from a prior document.

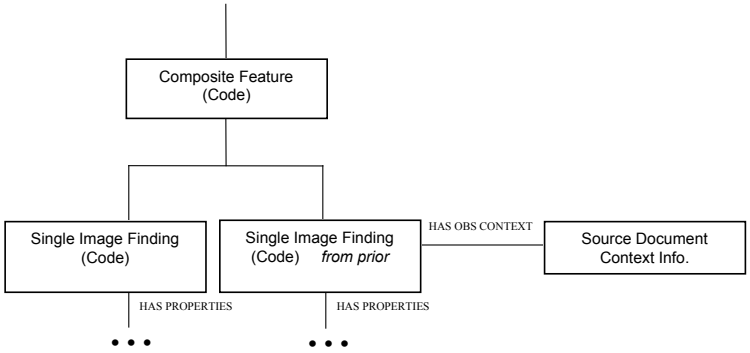


Figure X.2-1: Example of Use of Observation Context

X.3 Chest CAD SR Examples

The following is a simple and non-comprehensive illustration of an encoding of the Chest CAD SR IOD for chest computer aided detection results. For brevity, some mandatory content items are not included, such as several acquisition context content items for the images in the Image Library.

X.3.1 Example 1: Lung Nodule Detection with No Findings

A chest CAD device processes a typical screening chest case, i.e., there is one image and no nodule findings. Chest CAD runs lung nodule detection successfully and finds nothing.

The chest radiograph resembles:

PROJECTION CHEST

Figure X.3-1: Chest radiograph as Described in Example 1

The content tree structure would resemble:

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1	Chest CAD Report		4100
1.1	Image Library		4100
1.1.1		IMAGE 1	4020

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.1.1.1	Image View	Postero-anterior	4020
1.1.1.2	Study Date	19980101	4020
1.2	CAD Processing and Findings Summary	All algorithms succeeded; without findings	4101
1.3	Summary of Detections	Succeeded	4100
1.3.1	Successful Detections		4015
1.3.1.1	Detection Performed	Nodule	4017
1.3.1.1.1	Algorithm Name	“Lung Nodule Detector”	4019
1.3.1.1.2	Algorithm Version	“V1.3”	4019
1.3.1.1.3		Reference to node 1.1.1	4017
1.4	Summary of Analyses	Not Attempted	4100

X.3.2 Example 2: Lung Nodule Detection with Findings and Anatomy/Pathology Interpretation

A chest CAD device processes a screening chest case with one image, and a lung nodule detected. The chest radiograph resembles:

PROJECTION CHEST

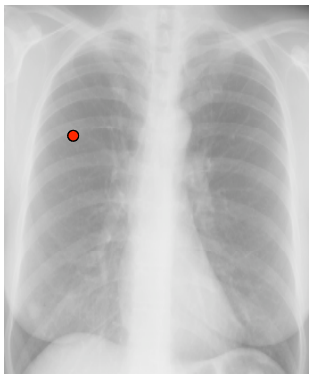


Figure X.3-2: Chest radiograph as Described in Example 2

The content tree structure in this example is complex. Structural illustrations of portions of the content tree are placed within the content tree table to show the relationships of data within the tree. Some content items are duplicated (and shown in boldface) to facilitate use of the diagrams.

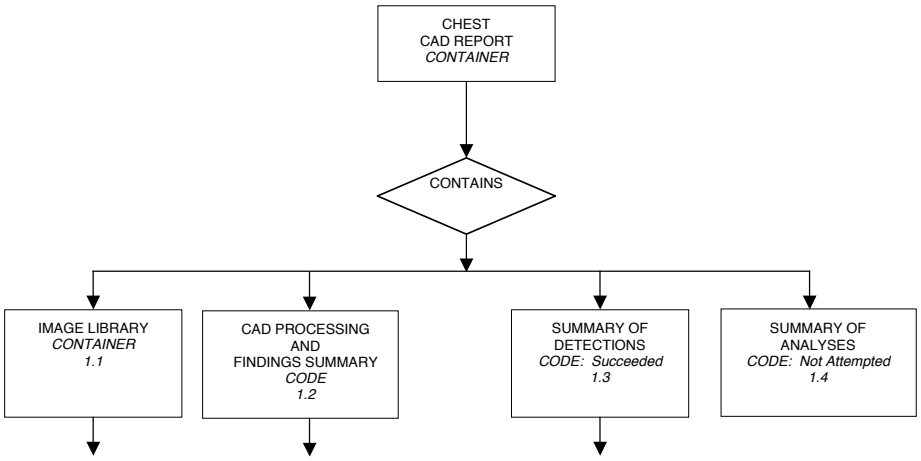


Figure X.3-3: Content Tree Root of Example 2 Content Tree

The content tree structure would resemble:

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1	Chest CAD Report		4100
1.1	Image Library		4100
1.2	CAD Processing and Findings Summary	All algorithms succeeded; with findings	4101
1.3	Summary of Detections	Succeeded	4100
1.4	Summary of Analyses	Not Attempted	4100

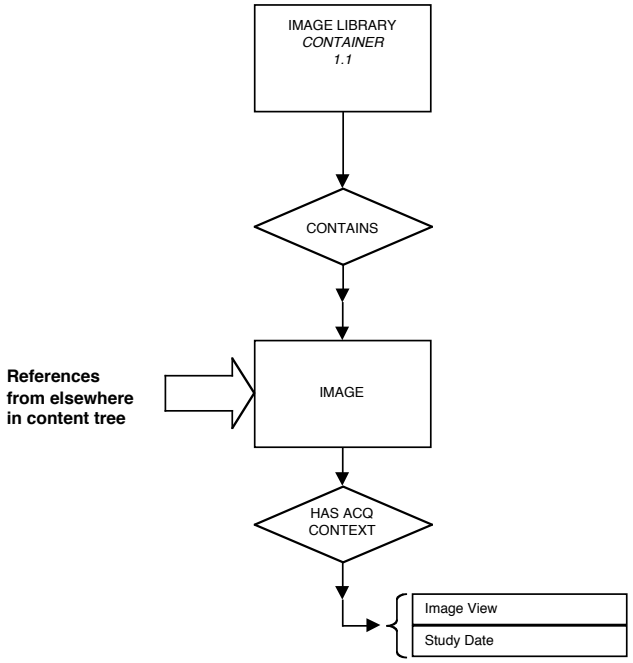


Figure X.3-4: Image Library Branch of Example 2 Content Tree

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.1	Image Library		4100
1.1.1		IMAGE 1	4020
1.1.1.1	Image View	Postero-anterior	4020
1.1.1.2	Study Date	19990101	4020

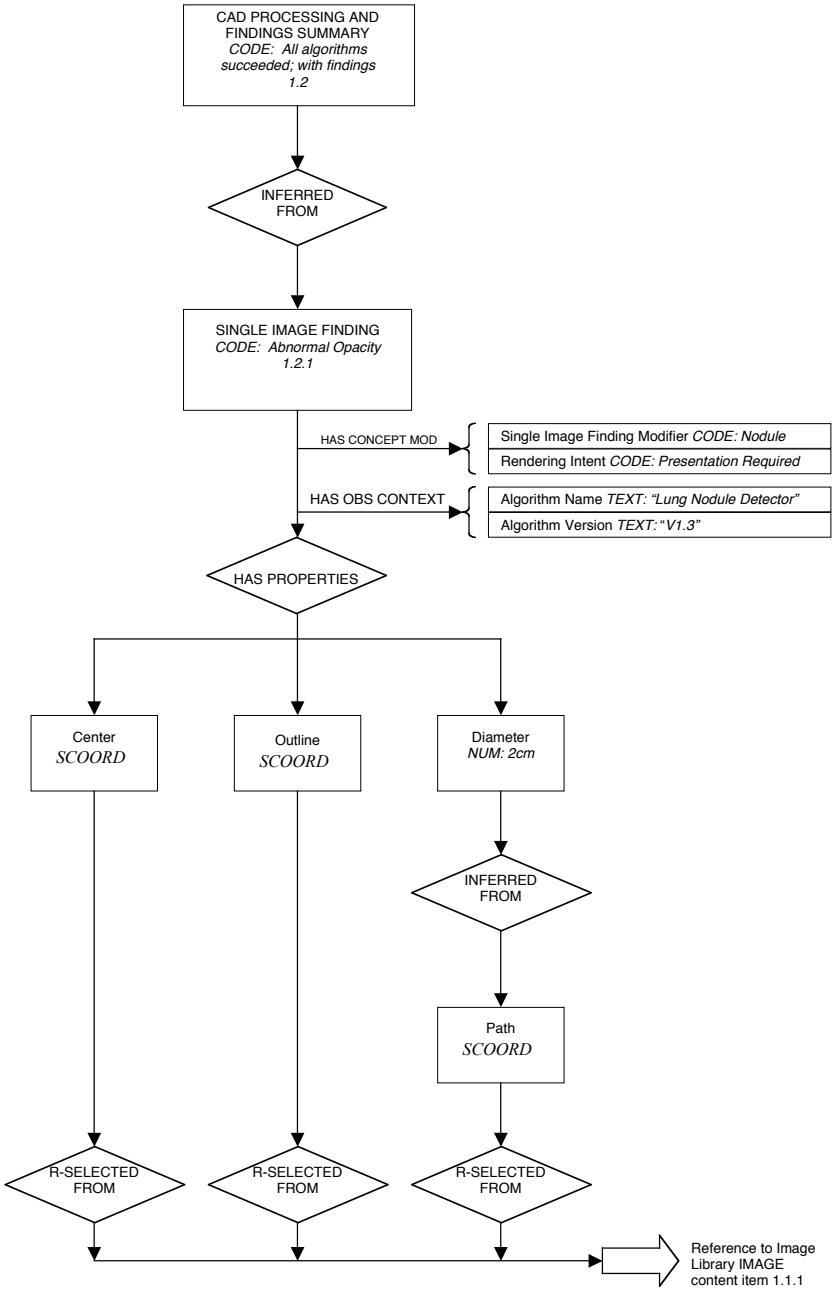


Figure X.3-5: CAD Processing and Findings Summary Portion of Example 2 Content Tree

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.2	CAD Processing and Findings Summary	All algorithms succeeded; with findings	4101
1.2.1	Single Image Finding	Abnormal Opacity	4104
1.2.1.1	Single Image Finding Modifier	Nodule	4104
1.2.1.2	Rendering Intent	Presentation Required:…	4104
1.2.1.3	Algorithm Name	“Lung Nodule Detector”	4019
1.2.1.4	Algorithm Version	“V1.3”	4019
1.2.1.5	Center	POINT	4107
1.2.1.5.1		Reference to Node 1.1.1	4107
1.2.1.6	Outline	POLYLINE	4107
1.2.1.6.1		Reference to Node 1.1.1	4107
1.2.1.7	Diameter	2 cm	1400
1.2.1.7.1	Path	POLYLINE	1400
1.2.1.7.1.1		Reference to Node 1.1.1	1400

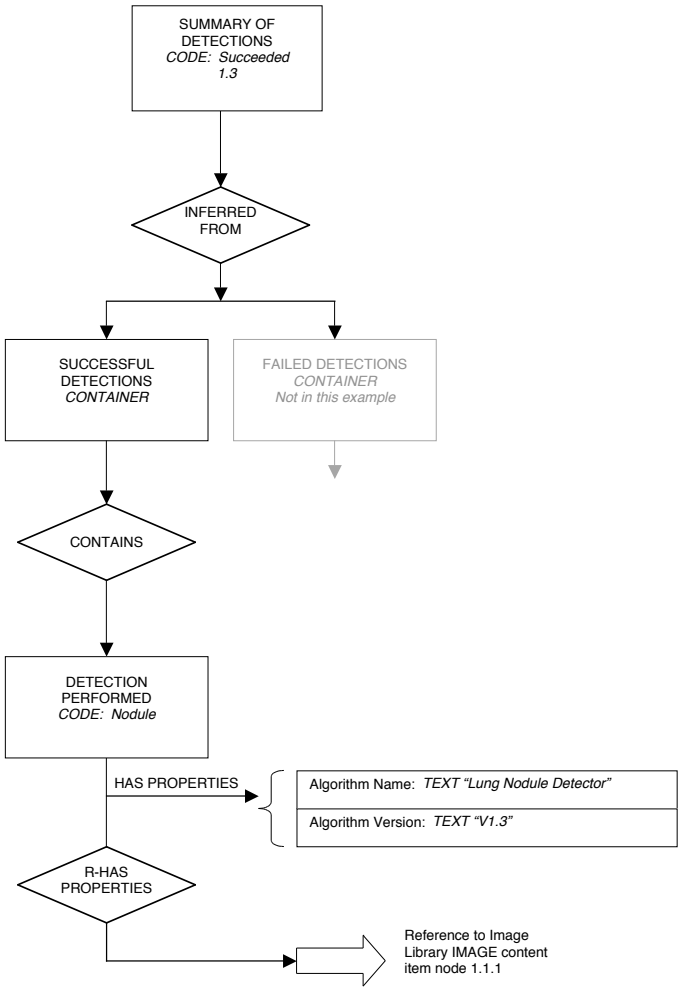


Figure X.3-6: Summary of Detections Portion of Example 2 Content Tree

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.3	Summary of Detections	Succeeded	4100
1.3.1	Successful Detections		4015
1.3.1.1	Detection Performed	Nodule	4017
1.3.1.1.1	Algorithm Name	"Lung Nodule Detector"	4019
1.3.1.1.2	Algorithm Version	"V1.3"	4019
1.3.1.1.3		Reference to node 1.1.1	4017

X.3.3 Example 3: Lung Nodule Detection, Temporal Differencing with Findings

The patient in Example 2 returns for another chest radiograph. A more comprehensive chest CAD device processes the current chest radiograph, and analyses are performed that determine some temporally

related content items for Composite Features. Portions of the prior chest CAD report (Example 2) are incorporated into this report. In the current chest radiograph the lung nodule has increased in size.

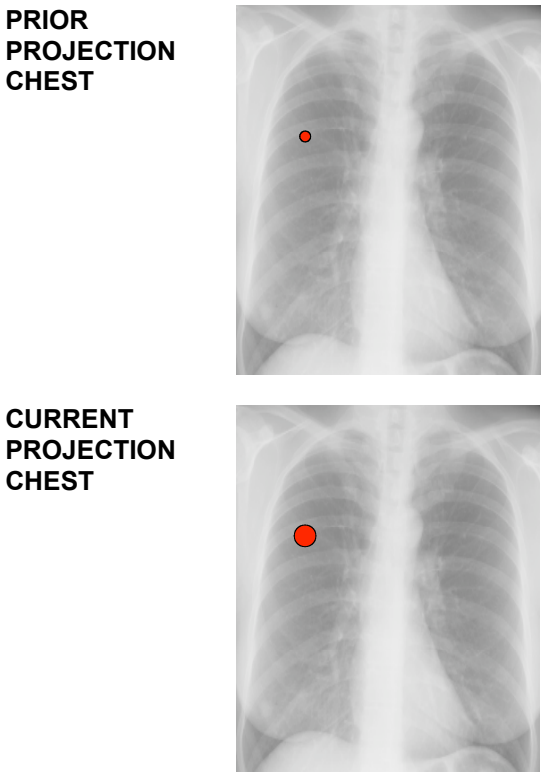


Figure X.3-8: Chest radiographs as Described in Example 3

Italicized entries (*xxx*) in the following table denote references to or by-value inclusion of content tree items reused from the prior Chest CAD SR instance (Example 2).

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1	Chest CAD Report		4100

While the Image Library contains references to content tree items reused from the prior Chest CAD SR instance, the images are actually used in the chest CAD analysis and are therefore not italicized as indicated above.

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.1	Image Library		4100
1.1.1		IMAGE 1	4020
1.1.1.1	Image View	Postero-anterior	4020
1.1.1.2	Study Date	20000101	4020
1.1.2		IMAGE 2	4020

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.1.2.1	Image View	Postero-anterior	4020
1.1.2.2	Study Date	19990101	4020

The CAD processing and findings consist of one composite feature, comprised of single image findings, one from each year. The temporal relationship allows a quantitative temporal difference to be calculated:

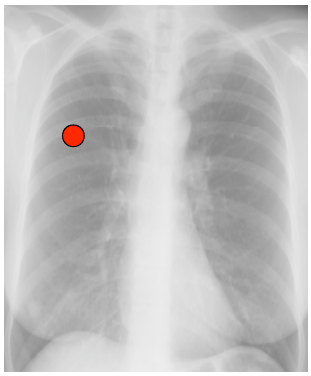
Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.2	CAD Processing and Findings Summary	All algorithms succeeded; with findings	4101
1.2.1	Composite Feature	Abnormal Opacity	4102
1.2.1.1	Composite Feature Modifier	Nodule	4102
1.2.1.2	Rendering Intent	Presentation Required: …	4102
1.2.1.3	Algorithm Name	“Nodule Change”	4019
1.2.1.4	Algorithm Version	“V2.3”	4019
1.2.1.5	Composite Type	Target content items are related temporally	4103
1.2.1.6	Scope of Feature	Feature detected on multiple images	4103
1.2.1.7	Certainty of Feature	85%	4103
1.2.1.8	Difference in size	2 cm	4103
1.2.1.8.1		Reference to Node 1.2.1.9.8	4103
1.2.1.8.2		Reference to Node *1.2.1.10.8*	4103
1.2.1.9	Single Image Finding	Abnormal Opacity	4104
1.2.1.9.1	Single Image Finding Modifier	Nodule	4104
1.2.1.9.2	Rendering Intent	Presentation Required: …	4104
1.2.1.9.3	Tracking Identifier	“Watchlist #1”	4108
1.2.1.9.4	Algorithm Name	“Lung Nodule Detector”	4019
1.2.1.9.5	Algorithm Version	“V1.3”	4019
1.2.1.9.6	Center	POINT	4107
1.2.1.9.6.1		Reference to Node 1.1.1	4107
1.2.1.9.7	Outline	POLYLINE	4107
1.2.1.9.7.1		Reference to Node 1.1.1	4107
1.2.1.9.8	Diameter	4 cm	1400
1.2.1.9.8.1	Path	POLYLINE	1400
1.2.1.9.8.1.1		Reference to Node 1.1.1	1400
1.2.1.10	Single Image Finding	Abnormal Opacity	4104
1.2.1.10.1	Single Image Finding Modifier	Nodule	4104

Node	Code Meaning of Concept Name	Code Meaning or Example Value	TID
1.2.1.10.2	Rendering Intent	Presentation Required: …	4104
1.2.1.10.3	[Observation Context content items]		4022
1.2.1.10.4	Algorithm Name	"Lung Nodule Detector"	4019
1.2.1.10.5	Algorithm Version	"V1.3"	4019
1.2.1.10.6	Center	POINT	4107
1.2.1.10.6.1		Reference to Node 1.1.2	4107
1.2.1.10.7	Outline	POLYLINE	4107
1.2.1.10.7.1		Reference to Node 1.1.2	4107
1.2.1.10.8	Diameter	2 cm	1400
1.2.1.10.8.1	Path	POLYLINE	1400
1.2.1.10.8.1.1		Reference to Node 1.1.2	1400
1.3	Summary of Detections	Succeeded	4100
1.3.1	Successful Detections		4015
1.3.1.1	Detection Performed	Nodule	4017
1.3.1.1.1	Algorithm Name	"Lung Nodule Detector"	4019
1.3.1.1.2	Algorithm Version	"V1.3"	4019
1.3.1.1.3		Reference to node 1.1.1	4017
1.4	Summary of Analyses	Succeeded	4100
1.4.1	Successful Analyses		4016
1.4.1.1	Analysis Performed	"Temporal correlation"	4018
1.4.1.1.1	Algorithm Name	"Nodule Change"	4019
1.4.1.1.2	Algorithm Version	"V2.3"	4019
1.4.1.1.3		Reference to node 1.1.1	4018
1.4.1.1.4		Reference to node 1.1.2	4018

X.3.4 Example 4: Lung Nodule Detection in Chest Radiograph, Spatially Correlated with CT

The patient in Example 3 is called back for CT to confirm the Lung Nodule found in Example 3. The patient undergoes CT of the Thorax and the initial chest radiograph and CT slices are sent to a more comprehensive CAD device for processing. Findings are detected and analyses are performed that correlate findings from the two data sets. Portions of the prior CAD report (Example 3) are incorporated into this report.

PROJECTION CHEST (PRIOR)



CT SLICES (CURRENT)

Slice 103 Slice 104 Slice 105

Figure X.3-9: Chest radiograph and CT slice as described in Example 4

Italicized entries (*xxx*) in the following table denote references to or by-value inclusion of content tree items reused from the prior Chest CAD SR instance (Example 3).

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1	Chest CAD Report		4100
1.1	Language of Content Item and Descendants	English	1204
1.2	Image Library		4100
1.3	CAD Processing and Findings Summary	All algorithms succeeded; with findings	4101
1.4	Summary of Detections	Succeeded	4100
1.5	Summary of Analyses	Succeeded	4100

While the Image Library contains references to content tree items reused from the prior Chest CAD SR instance, the images are actually used in the CAD analysis and are therefore not italicized as indicated above.

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.2	Image Library		4100
1.2.1		IMAGE 1	4020
1.2.1.1	Image View	Postero-anterior	4020
1.2.1.2	Study Date	20000101	4020

Most recent examination content:

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3	CAD Processing and Findings Summary	All algorithms succeeded; with findings	4101
1.3.1	Composite Feature	Abnormal opacity	4102

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1	Composite Feature	Abnormal opacity	4102
1.3.1.1	Composite Feature Modifier	Nodule	4102
1.3.1.2	Rendering Intent	Presentation Required: …	4102
1.3.1.3	Tracking Identifier	“Watchlist #1”	4108
1.3.1.4	Algorithm Name	“Chest/CT Correlator”	4019
1.3.1.5	Algorithm Version	“V2.1”	4019
1.3.1.6	Composite type	Target content items are related spatially	4103
1.3.1.7	Scope of Feature	Feature detected on images from multiple modalities	4103
1.3.1.8	Diameter	4 cm	1400
1.3.1.8.1	Path		1400
1.3.1.8.1.1		IMAGE 3 [CT slice 104]	1400
1.3.1.9	Volume estimated from single 2D region	3.2 cm3	1402
1.3.1.9.1	Perimeter Outline		1402
1.3.1.9.1.1		IMAGE 3 [CT slice 104]	1402
1.3.1.10	Size Descriptor	Small	4105
1.3.1.11	Border Shape	Lobulated	4105
1.3.1.12	Location in Chest	Mid lobe	4105
1.3.1.13	Laterality	Right	4105
1.3.1.14	Composite Feature	Abnormal opacity	4102
1.3.1.15	Single Image Finding	Abnormal opacity	4104

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14	Composite Feature	Abnormal opacity	4102
1.3.1.14.1	Composite Feature Modifier	Nodule	4102
1.3.1.14.2	Rendering Intent	Presentation Required: …	4102
1.3.1.14.3	Tracking Identifier	“Nodule #1”	4108
1.3.1.14.4	Algorithm Name	“Nodule Builder”	4019
1.3.1.14.5	Algorithm Version	“V1.4”	4019
1.3.1.14.6	Composite type	Target content items are related spatially	4103

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14.7	Scope of Feature	Feature detected on multiple images	4103
1.3.1.14.8	Diameter	4 cm	1400
1.3.1.14.9	Volume estimated from single 2D region	3.2 cm3	1402
1.3.1.14.10	Single Image Finding	Abnormal opacity	4104
1.3.1.14.11	Single Image Finding	Abnormal opacity	4104
1.3.1.14.12	Single Image Finding	Abnormal opacity	4104

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14.10	Single Image Finding	Abnormal opacity	4104
1.3.1.14.10.1	Single Image Finding Modifier	Nodule	4104
1.3.1.14.10.2	Rendering Intent	Presentation Required: …	4104
1.3.1.14.10.3	Tracking Identifier	“Detection #1”	4108
1.3.1.14.10.4	Algorithm Name	“CT Nodule Detector”	4019
1.3.1.14.10.5	Algorithm Version	“V2.5”	4019
1.3.1.14.10.6	Center	POINT	4107
1.3.1.14.10.6.1		IMAGE 2 [CT slice 103]	4107
1.3.1.14.10.7	Outline	POLYLINE	4107
1.3.1.14.10.7.1		IMAGE 2 [CT slice 103]	4107

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14.11	Single Image Finding	Abnormal opacity	4104
1.3.1.14.11.1	Single Image Finding Modifier	Nodule	4104
1.3.1.14.11.2	Rendering Intent	Presentation Required: …	4104
1.3.1.14.11.3	Tracking Identifier	“Detection #2”	4108
1.3.1.14.11.4	Algorithm Name	“CT Nodule Detector”	4019
1.3.1.14.11.5	Algorithm Version	“V2.5”	4019
1.3.1.14.11.6	Center	POINT	4107
1.3.1.14.11.6.1		IMAGE 3 [CT slice 104]	4107
1.3.1.14.11.7	Outline	POLYLINE	4107
1.3.1.14.11.7.1		IMAGE 3 [CT slice 104]	4107

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14.12	Single Image Finding	Abnormal opacity	4104
1.3.1.14.12.1	Single Image Finding Modifier	Nodule	4104
1.3.1.14.12.2	Rendering Intent	Presentation Required: …	4104

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.14.12.3	Tracking Identifier	“Detection #3”	4108
1.3.1.14.12.4	Algorithm Name	“CT Nodule Detector”	4019
1.3.1.14.12.5	Algorithm Version	“V2.5”	4019
1.3.1.14.12.6	Center	POINT	4107
1.3.1.14.12.6.1		IMAGE 4 [CT slice 105]	4107
1.3.1.14.12.7	Outline	POLYLINE	4107
1.3.1.14.12.7.1		IMAGE 4 [CT slice 105]	4107

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.3.1.15	Single Image Finding	Abnormal opacity	4104
1.3.1.15.1	Single Image Finding Modifier	Nodule	4104
1.3.1.15.2	Rendering Intent	Presentation Required: …	4104
1.3.1.15.3	Tracking Identifier	“Watchlist #1”	4108
1.3.1.15.4	[Observation Context content items]		4022
1.3.1.15.5	Algorithm Name	“Lung Nodule Detector”	4019
1.3.1.15.6	Algorithm Version	“V1.3”	4019
1.3.1.15.7	Center	POINT	4107
1.3.1.15.7.1		Reference to node 1.2.1	4107
1.3.1.15.8	Outline	POLYLINE	4107
1.3.1.15.8.1		Reference to node 1.2.1	4107
1.3.1.15.9	Diameter	4 cm	1400
1.3.1.15.9.1	Path	POLYLINE	1400
1.3.1.15.9.1.1		Reference to Node 1.2.1	1400

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.4	Summary of Detections	Succeeded	4100
1.4.1	Successful Detections		4015
1.4.1.1	Detection Performed	Nodule	4017
1.4.1.1.1	Algorithm Name	“CT Nodule Detector”	4019
1.4.1.1.2	Algorithm Version	“V2.5”	4019
1.4.1.1.3		IMAGE 2 [CT slice 103]	4017
1.4.1.1.4		IMAGE 3 [CT slice 104]	4017
1.4.1.1.5		IMAGE 4 [CT slice 105]	4017
1.5	Summary of Analyses	Succeeded	4100
1.5.1	Successful Analyses		4016

Node	Code Meaning of Concept Name	Code Meaning of Example Value	TID
1.5.1.1	Analysis Performed	“Spatial colocation analysis”	4018
1.5.1.1.1	Algorithm Name	“Chest/CT Correlator”	4019
1.5.1.1.2	Algorithm Version	“V2.1”	4019
1.5.1.1.3		Reference to node 1.2.1	4018
1.5.1.1.4		IMAGE 2 [CT slice 103]	4018
1.5.1.1.5		IMAGE 3 [CT slice 104]	4018
1.5.1.1.6		IMAGE 4 [CT slice 105]	4018
1.5.1.2	Analysis Performed	“Spatial colocation analysis”	4018
1.5.1.2.1	Algorithm Name	“Nodule Builder”	4019
1.5.1.2.2	Algorithm Version	“V1.4”	4019
1.5.1.2.3		IMAGE 2 [CT slice 103]	4018
1.5.1.2.4		IMAGE 3 [CT slice 104]	4018
1.5.1.2.5		IMAGE 4 [CT slice 105]	4018

Part 4 Addendum

Add the following to PS 3.4 Section 4 Symbols and Abbreviations

Chest CAD Computer-Aided Detection and/or Computer-Aided Diagnosis for chest radiography

Update Annex B and I SOP Class tables

Add Chest CAD SR Storage SOP Class to Table B.5-1

B.5 STANDARD SOP CLASSES

SOP Class Name	SOP Class UID	IOD (See PS 3.3)
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Chest CAD SR IOD

B.5.1.5 Structured Reporting Storage SOP Classes

The requirements of Annex O apply to the following SOP Classes:

- …
- **Chest CAD SR**

Add Chest CAD SR Storage Media Storage SOP Classes to Table I.4-1

I.4 MEDIA STANDARD STORAGE SOP CLASSES

SOP Class Name	SOP Class UID	IOD (See PS 3.3)
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Chest CAD SR IOD

I.4.1.2 Structured Reporting Storage SOP Classes

The requirements of Annex O apply to the following SOP Classes:

- …
- **Chest CAD SR**

Update Annex O

O.2 BEHAVIOR

O.2.1 Behavior of an SCU

O.2.1.1 Mammography CAD SR and Chest CAD SR SOP Classes

Rendering Intent concept modifiers in the Mammography CAD SR **and Chest CAD SR** objects shall be consistent. Content items marked “For Presentation” shall not be subordinate to content items marked “Not for Presentation” or “Presentation Optional” in the content tree. Similarly, content items marked “Presentation Optional” shall not be subordinate to content items marked “Not for Presentation” in the content tree.

Content items referenced from another SR object instance, such as a prior Mammography CAD SR **or Chest CAD SR**, shall be inserted by-value in the new SR object instance, with appropriate original source observation context. It is necessary to update Rendering Intent, and referenced content item identifiers for by-reference relationships, within content items paraphrased from another source.

O.2.2 Behavior of an SCP

…

O.2.2.1 Mammography CAD SR and Chest CAD SR SOP Classes

The Mammography CAD SR **and Chest CAD SR** object**s** contain~~s~~ data not only for presentation to the clinician, but also data solely for use in subsequent CAD analyses.

The SCU provides rendering guidelines via “Rendering Intent” concept modifiers associated with ”Individual Impression/Recommendation”, “Composite Feature” and “Single Image Finding” content items. The full meaning of the SR is provided if all content items marked “Presentation Required” are rendered down to the first instance of “Not for Presentation” or “Presentation Optional” for each branch of the tree. Use of the SCU’s Conformance Statement is recommended if further enhancement of the meaning of the SR can be accomplished by rendering some or all of the data marked “Presentation Optional”. Data marked “Not for Presentation” should not be rendered by the SCP; it is embedded in the SR content tree as input to subsequent chest CAD analysis work steps.

O.4 CONFORMANCE

…

O.4.1 Conformance Statement for an SCU

…

O.4.1.1 Mammography CAD SR and Chest CAD SR SOP Classes

The following shall be documented in the Conformance Statement of any implementation claiming conformance to the Mammography CAD SR SOP Class as an SCU:

- Which types of detections and/or analyses the device is capable of performing:
    - From detections listed in Context Group 6014 Mammography Single Image Finding
    - From analyses listed in Context Group 6043 Types of Mammography CAD Analysis

The following shall be documented in the Conformance Statement of any implementation claiming conformance to the Chest CAD SR SOP Class as an SCU:

- **Which types of detections and/or analyses the device is capable of performing:**
    - **From detections listed in Context ID 6101 Chest Finding or Feature, or Context ID 6102 Chest Finding or Feature Modifier**
    - **From analyses listed in Context ID 6137 Types of Chest CAD Analysis**

The following shall be documented in the Conformance Statement of any implementation claiming conformance to the Mammography CAD SR or Chest CAD SR SOP Class as an SCU:

- Which optional content items are supported
- Conditions under which content items are assigned Rendering Intent of “Presentation Optional”
- Conditions under which content items are assigned Rendering Intent of “Not for Presentation”

O.4.2 Conformance Statement for an SCP

…

O.4.2.1 Mammography CAD SR and Chest CAD SR SOP Classes

The following shall be documented in the Conformance Statement of any implementation claiming conformance to the Mammography CAD SR **or Chest CAD SR** SOP Class as an SCP:

- Conditions under which the SCP will render content items with Rendering Intent concept modifier set to “Presentation Optional”

Part 6 Addendum

ANNEX A (NORMATIVE): REGISTRY OF DICOM UNIQUE IDENTIFIERS (UID)

Add the following UIDs to Part 6 Annex A:

UID Value	UID NAME	UID TYPE	Part
1.2.840.10008.5.1.4.1.1.88.65	Chest CAD SR	SOP Class	3.4

Part 16 Addendum

Add the following to PS 3.16 Section 2 Normative References

ACR Position Statement

American College of Radiology. ACR Position Statement. In: Standards. Reston, Va: 2001:iv.

Fraser and Pare Terminology

References to [Fraser and Pare] are made in the description of the Chest CAD SR templates and context groups. Specifically, these references are to the "Terms Used in Chest Radiology" and "Terms For CT of the Lungs", from Fraser and Pare's Diagnosis of Diseases of the Chest, Fourth Edition, Volume I, pp. xvii-xxxi and pp. xxxiii-xxxvi, respectively.

Performance of CT for Detection of Pulmonary Embolism in Adults

American College of Radiology. ACR Standard for the Performance of Computed Tomography for the Detection of Pulmonary Embolism in Adults. In: Standards. Reston, Va: 2001:109-113.

Performance of High-Resolution CT of the Lungs in Adults

American College of Radiology. ACR Standard for the Performance of High-Resolution Computed Tomography (HRCT) of the Lungs in Adults. In: Standards. Reston, Va: 2001:115-118.

Performance of Pediatric and Adult Chest Radiography, ACR

American College of Radiology. ACR Standard for the Performance of Pediatric and Adult Chest Radiography. In: Standards. Reston, Va: 2001:95-98.

Performance of Pediatric and Adult Thoracic CT

American College of Radiology. ACR Standard for the Performance of Pediatric and Adult Thoracic Computed Tomography (CT). In: Standards. Reston, Va: 2001:103-107.

RECIST

References to the Response Evaluation Criteria In Solid Tumors are made from the Chest CAD SR templates and context groups. These references are based on the article "New Guidelines to Evaluate the Response to Treatment in Solid Tumors", by Patrick Therasse et.al., Journal of the National Cancer Institute, Vol. 92, No. 3, February 2, 2000, pp. 205-216. See also http://www.eortc.be/recist/ .

WHO

WHO Handbook for Reporting Results for Cancer Treatment, World Health Organization, Geneva, 1979, WHO Offset Publication No. 48. See also http://whqlibdoc.who.int/publications/9241700483.pdf.

Add the following to PS 3.16 Section 4 Symbols and Abbreviations

Chest CAD	Computer-Aided Detection and/or Computer-Aided Diagnosis for chest radiography
RECIST	Response Evaluation Criteria In Solid Tumors
WHO	World Health Organization

Add the following Templates to Part 16 Annex A DCMR Templates (Normative):

A.X: CHEST CAD SR IOD TEMPLATES

The templates that comprise the Chest CAD SR IOD are interconnected as in Figure A.X-1. In Figure A.X-1, '• • •' indicates possible recursive application of subordinate templates.

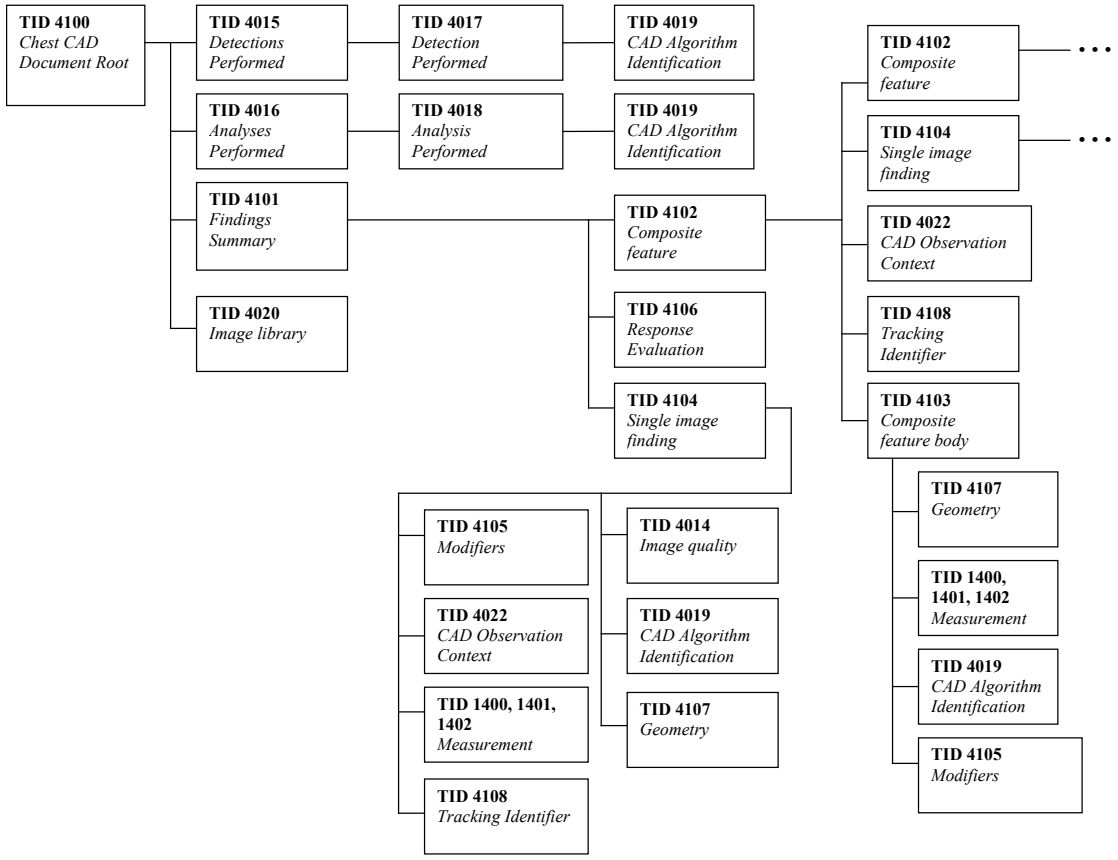


Figure A.X-1: Chest CAD SR IOD Template Structure

TID 4100 Chest CAD Document Root Template

This template forms the top of a content tree that allows a chest CAD device to describe the results of detection and analysis of chest evidence. This template, together with its subordinate templates, describes both the results for presentation to radiologists and partial product results for consumption by chest CAD devices in subsequent chest CAD reports.

This template defines a Container that contains an Image Library, the CAD results, and summaries of the detection and analysis algorithms performed. The Image Library contains the Image SOP Class and Instance UIDs, and selected attributes for each image referenced in either the algorithm summaries or chest CAD results.

The atomic CAD results of Single Image Findings and Composite Features are described in the Chest CAD Findings Summary sub-tree.

The Summary of Detections and Summary of Analyses sub-trees gather lists of algorithms attempted, grouped by success/failure status. Algorithms not attempted are not mentioned in these sub-trees. This information forms the basis for understanding why a chest CAD report may produce no (or fewer than anticipated) results. Chest CAD results are constructed bottom-up, starting from Single Image Findings (see TID 4104), associated as Composite Features (see TID 4102).

See the figure entitled “Top Levels of Chest CAD SR Content Tree” in the “Chest CAD” Annex of PS 3.3.

TID 4100
CHEST CAD DOCUMENT ROOT

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (112000, DCM, “Chest CAD Report”)	1	M		
2	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) Language of Content Item and Descendants	1	M		
3	>	CONTAINS	CONTAINER	EV (111028, DCM, “Image Library”)	1	U		
4	>>	CONTAINS	INCLUDE	DTID (4020) CAD Image Library Entry	1-n	M		$ImageLaterality = DCID (244) Laterality $ImageView = DCID (4010) DX View $ImageViewMod = DCID (4011) DX View Modifier
5	>	CONTAINS	INCLUDE	DTID (4101) Chest CAD Findings Summary	1	M		
6	>	CONTAINS	CODE	EV (111064, DCM, “Summary of Detections”)	1	M		DCID (6042) Status of Results
7	>>	INFERRED FROM	INCLUDE	DTID (4015) CAD Detections Performed	1	MC	Shall be present unless the value of row 6 is (111225, DCM, “Not Attempted”)	$DetectionCode = DCID (6101) Chest Finding or Feature, DCID (6102) Chest Finding or Feature Modifier
8	>	CONTAINS	CODE	EV (111065, DCM, “Summary of Analyses”)	1	M		DCID (6042) Status of Results
9	>>	INFERRED FROM	INCLUDE	DTID (4016) CAD Analyses Performed	1	MC	Shall be present unless the value of row 8 is (111225, DCM, “Not Attempted”)	$AnalysisCode = DCID (6137) Types of Chest CAD Analysis

Content Item Descriptions

Image Library	The “Image Library” section of the Content Tree (TID 4100, row 3) may include all Image SOP Instances from the Current Requested Procedure Evidence Sequence (0040,A375) attribute of the SR Document General module. If a portion of another instance of a Chest CAD SR IOD is duplicated in the “Chest CAD Findings Summary” section of the Content Tree, the “Image Library” may also include all Image Library Entries referenced from the duplicated portions of the Chest CAD SR. The Image Library is intended to be used in cases where the acquisition context content items differ from image to image, such as different views and/or laterality in projection X-ray.
Detections Performed	The “Detections Performed” and “Analyses Performed” sections of the Content Tree (TID 4100, rows 7 and 9) together shall reference all Image SOP Instances included in the Current Requested Procedure Evidence Sequence (0040,A375) attribute of the SR Document General module.
Analyses Performed	

TID 4101 Chest CAD Findings Summary Template

The contents of this template describe the findings and aggregate features that the chest CAD device detected for the chest evidence presented. This template forms the chest CAD results sub-tree of the Chest CAD Document Root (TID 4100). The data from which the details are inferred are expressed in the Composite Features (see TID 4102) and/or Single Image Findings (see TID 4104), of which there may be several.

The sub-tree headed by this template is illustrated in the figure entitled “Example of CAD Processing and Findings Summary sub-tree of Chest CAD SR Content Tree” in the “Chest CAD” Annex of PS 3.3.

TID 4101
CHEST CAD FINDINGS SUMMARY

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (111017, DCM, “CAD Processing and Findings Summary”)	1	M		DCID (6047) CAD Processing and Findings Summary
2	>	INFERRED FROM	INCLUDE	DTID (4102) Chest CAD Composite Feature	1-n	U		
3	>	INFERRED FROM	INCLUDE	DTID (4104) Chest CAD Single Image Finding	1-n	U		
4	>	HAS PROPERTIES	INCLUDE	DTID (4106) Response Evaluation	1-n	U		

Content Item Descriptions

CAD Processing and Findings Summary	This code value is used to express if and why the Chest CAD Findings Summary sub-tree is empty. The Summary of Detections and Summary of Analyses sub-trees of the Document Root node contain detail about which (if any) algorithms succeeded or failed. If the code value indicates that there were no findings, then the code value can be used to determine whether chest CAD processing occurred successfully, without parsing the Summary of Detections and Summary of Analyses sub-trees.

TID 4102 Chest CAD Composite Feature Template

This template collects a composite feature for a lesion, anatomy, non-lesion object, or correlation of related objects (see TID 4101). The details of the composition are expressed in the Chest CAD Composite Feature Body (see TID 4103). The data from which the details are inferred, are expressed in the Composite Features (see TID 4102) and/or Single Image Findings (see TID 4104), of which there may be several.

A Composite Feature shall be INFERRED FROM any combination of two or more Composite Features or Single Image Findings or mixture thereof.

TID 4102
CHEST CAD COMPOSITE FEATURE

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (111015, DCM, "Composite Feature")	1	M		DCID (6101) Chest Finding or Feature
2	>	HAS CONCEPT MOD	CODE	EV (112023, DCM, "Composite Feature Modifier")	1	U		DCID (6102) Chest Finding or Feature Modifier
3	>	HAS CONCEPT MOD	TEXT	EV (112050, DCM, "Anatomic Identifier")	1	U		
4	>	HAS CONCEPT MOD	CODE	EV (112003, DCM, "Associated Chest Component")	1	MC	Shall be present IFF value of row 1 is (112005, DCM, "Radiographic anatomy")	DCID (6100) Chest Component Categories
5	>	HAS CONCEPT MOD	CODE	EV (112037, DCM, "Non-lesion Modifier")	1	UC	May be present IFF value of row 1 is (111102, DCM, "Non-lesion")	DCID (6139) Non-lesion Modifiers
6	>	HAS CONCEPT MOD	CODE	EV (112038, DCM, "Osseous Modifier")	1	UC	May be present IFF value of row 2 is from DCID (6114) Osseous Anatomy Finding or Feature	DCID (6115) Osseous Anatomy Modifiers
7	>	HAS CONCEPT MOD	CODE	EV (111056, DCM, "Rendering Intent")	1	M		DCID (6034) Intended Use of CAD Output
8	>	HAS OBS CONTEXT	INCLUDE	DTID (4108) Tracking Identifier	1	U		
9	>	HAS OBS CONTEXT	CODE	EV (112016, DCM, "Baseline Category")	1	U		DCID (6145) Baseline Category
10	>	HAS OBS CONTEXT	INCLUDE	DTID (4022) CAD Observation Context	1	MC	Shall be present IFF this feature is duplicated from a different report than its parent.	
11	>	HAS OBS CONTEXT	INCLUDE	DTID (4019) CAD Algorithm Identification	1	M		
12	>	HAS PROPERTIES	INCLUDE	DTID (4103) Chest CAD Composite Feature Body	1	M		
13	>	INFERRED FROM	INCLUDE	DTID (4102) Chest CAD Composite Feature	1-n	MC	At least two items shall be present: two of row 13, two of row 14, or one of each.	
14	>	INFERRED FROM	INCLUDE	DTID (4104) Chest CAD Single Image Finding	1-n	MC	At least two items shall be present: two of row 13, two of row 14, or one of each.	

Content Item Descriptions

Anatomic Identifier	An identifier of an anatomic feature when a multiplicity of features of that type may be present, such as “Rib 1”, “Rib 2” or thoracic vertebrae “T1” or “T2”.
Rendering Intent	This content item constrains the SCP receiving the Chest CAD SR IOD in its use of the contents of this template and its target content items. Chest CAD devices may opt to use data marked “Not for Presentation” or “Presentation Optional” as input to subsequent chest CAD processing steps. Refer to PS 3.4, Annex O Structured Reporting Standard SOP Classes for SCU and SCP Behavior.

TID 4103 Chest CAD Composite Feature Body Template

The details of a composite feature are expressed in this template. It is applied to Chest CAD Composite Feature (TID 4102).

TID 4103
CHEST CAD COMPOSITE FEATURE BODY

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (111016, DCM, "Composite type")	1	M		DCID (6035) Composite Feature Relations
2			CODE	EV (111057, DCM, "Scope of Feature")	1	M		DCID (6036) Scope of Feature
3			NUM	EV (111011, DCM, "Certainty of feature")	1	U		UNITS = EV (%, UCUM, "Percent") Value = 0 – 100
4			INCLUDE	DTID (4107) Chest CAD Geometry	1	U		
5			INCLUDE	DTID (1400) Linear Measurement	1-n	U		
6			INCLUDE	DTID (1401) Area Measurement	1-n	U		
7			INCLUDE	DTID (1402) Volume Measurement	1-n	U		
8			INCLUDE	DTID (4105) Chest CAD Descriptors	1	U		
9			NUM	DCID (6133) Chest Quantitative Temporal Difference Type	1-n	UC	May be present IFF the value of row 1 is (111153, DCM, "Target content items are related temporally")	
10	>	R-INFERRED FROM	NUM		2	U		The referenced numeric values shall have the same Concept Name. Their UNITS shall be the same as row 9
11			CODE	EV (111049, DCM, "Qualitative Difference")	1-n	UC	May be present only if the value of row 1 is (111153, DCM, "Target content items are related temporally")	DCID (6134) Chest Qualitative Temporal Difference Type
12	>	HAS PROPERTIES	TEXT	EV (111021, DCM, "Description of Change")	1	U		
13	>	R-INFERRED FROM	CODE		2	M		The referenced content items shall have the same Concept Name and their code values shall be from the same context group.

Content Item Descriptions

Certainty of Feature	The certainty of the CAD device that the feature analyzed and classified by the CODE, as specified in the Composite Feature parent template, is in fact that type of feature.
Volume Measurement	If dimensions for a volume are to be stated in terms of length, width, and depth, then one shall use 3 instances of TID (1400) Linear Measurement.

Row 9	Values ≠ 0 are allowed. The two referenced numeric values are target content items of the first generation Composite Feature or Single Image Finding children of this composite feature. Given the equation, A – B, the value representing A shall be referenced first.
Qualitative Difference	The two referenced code values are target content items of the first generation Composite Feature or Single Image Finding children of this composite feature.

TID 4104 Chest CAD Single Image Finding Template

This template describes a single image finding for a lesion or other object. The details of the finding are expressed in this template and/or more specific templates.

TID 4104
CHEST CAD SINGLE IMAGE FINDING

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (111059, DCM, “Single Image Finding”)	1	M		DCID (6101) Chest Finding or Feature
2	>	HAS CONCEPT MOD	CODE	EV (112024, DCM, “Single Image Finding Modifier”)	1	U		DCID (6102) Chest Finding or Feature Modifier
3	>	HAS CONCEPT MOD	TEXT	EV (112050, DCM, “Anatomic Identifier”)	1	U		
4	>	HAS CONCEPT MOD	CODE	EV (112003, DCM, “Associated Chest Component”)	1	MC	Shall be present IFF value of row 1 is (112005, DCM, “Radiographic anatomy”)	DCID (6100) Chest Component Categories
5	>	HAS CONCEPT MOD	CODE	EV (112037, DCM, “Non-lesion Modifier”)	1	UC	May be present IFF value of row 1 is (111102, DCM, ”Non-lesion”)	DCID (6139) Non-lesion Modifiers
6	>	HAS CONCEPT MOD	CODE	EV (111056, DCM, “Rendering Intent”)	1	M		DCID (6034) Intended Use of CAD Output
7	>	HAS OBS CONTEXT	INCLUDE	DTID (4108) Tracking Identifier	1	U		
8	>	HAS OBS CONTEXT	CODE	EV (112016, DCM, “Baseline Category”)	1	U		DCID (6145) Baseline Category
9	>	HAS OBS CONTEXT	INCLUDE	DTID (4022) CAD Observation Context	1	MC	Shall be present IFF this finding is duplicated from a different report than its parent.	
10	>	HAS OBS CONTEXT	INCLUDE	DTID (4019) CAD Algorithm Identification	1	M		
11	>	HAS PROPERTIES	NUM	EV (111012, DCM, “Certainty of Finding”)	1	U		UNITS = EV (%, UCUM, “Percent”) Value = 0 – 100
12	>	HAS PROPERTIES	TEXT	EV (111058, DCM, “Selected Region Description”)	1	MC	Shall be present IFF value of row 1 is (111099, DCM, “Selected region”)	
13	>	HAS PROPERTIES	INCLUDE	DTID (4107) Chest CAD Geometry	1	MC	Shall be present unless value of row 1 is (111101, DCM, “Image quality”)	
14	>	HAS PROPERTIES	INCLUDE	DTID (1400) Linear Measurement	1-n	U		
15	>	HAS PROPERTIES	INCLUDE	DTID (1401) Area Measurement	1-n	U		
16	>	HAS PROPERTIES	INCLUDE	DTID (1402) Volume Measurement	1-n	U		
17	>	HAS PROPERTIES	INCLUDE	DTID (4105) Chest CAD Descriptors	1	U		
18	>	INFERRED FROM	IMAGE		1	MC	Shall be present IFF value of row 1 is (111101, DCM, “Image quality”) and rows 19 and 20 are not present	

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
19	>	R-INFERRED FROM	IMAGE		1	MC	Shall be present IFF value of row 1 is (111101, DCM, “Image quality”) and rows 18 and 20 are not present	Shall reference an IMAGE content item in the (111028, DCM, “Image Library”)
20	>	INFERRED FROM	SCOORD	EV (111030, DCM, “Image Region”)	1-n	MC	Shall be present IFF value of row 1 is (111101, DCM, “Image quality”) and rows 18 and 19 are not present	
21	>>	SELECTED FROM	IMAGE		1	MC	XOR row 22	All the row 20 content items in a single invocation of this template shall reference the same IMAGE
22	>>	R-SELECTED FROM	IMAGE		1	MC	XOR row 21	All the row 20 content items in a single invocation of this template shall reference the same IMAGE content item in the (111028, DCM, “Image Library”)
23	>	HAS PROPERTIES	INCLUDE	DTID (4014) CAD Image Quality	1	MC	Shall be present IFF value of row 1 is (111101, DCM, “Image quality”)	$QualityFinding = DCID (6135) Chest Image Quality Finding $QualityStandard = DCID (6136) Chest Types of Quality Control Standard

Content Item Descriptions

Anatomic Identifier	An identifier of an anatomic feature when a multiplicity of features of that type may be present, such as “Rib 1”, “Rib 2” or thoracic vertibrae “T1” or “T2”.
Rendering Intent	This content item constrains the SCP receiving the Chest CAD SR IOD in its use of the contents of this template and its target content items. Chest CAD devices may opt to use data marked “Not for Presentation” or “Presentation Optional” as input to subsequent chest CAD processing steps. Refer to PS 3.4, Annex O Structured Reporting Storage SOP Classes for SCU and SCP Behavior.
Certainty of Finding	The certainty of the CAD device that the finding detected and classified by the Single Image Finding CODE specified is in fact that type of finding.

TID 4105 Chest CAD Descriptors

This template provides qualitative detail for a Single Image Finding or Composite Feature. It is applied to Chest CAD Composite Feature (TID 4102) and Chest CAD Single Image Finding (TID 4104).

TID 4105
CHEST CAD DESCRIPTORS

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (112025, DCM, “Size Descriptor”)	1	U		DCID (6118) Size Descriptor
2			CODE	EV (112026, DCM, “Width Descriptor”)	1	U		DCID (6107) Width Descriptor
3			CODE	EV (112015, DCM, “Border shape”)	1	U		DCID (6119) Chest Border Shape
4			CODE	EV (112007, DCM, “Border definition”)	1	U		DCID (6120) Chest Border Definition
5			CODE	EV (112014, DCM, “Orientation Descriptor”)	1	U		DCID (6121) Chest Orientation Descriptor
6			CODE	EV (112009, DCM, “Type of Content”)	1-n	U		DCID (6122) Chest Content Descriptor
7			CODE	EV (112027, DCM, “Opacity Descriptor”)	1	U		DCID (6123) Chest Opacity Descriptor
8			CODE	EV (112013, DCM, “Location in Chest”)	1	U		DCID (6124) Location in Chest
9			CODE	EV (G-C171, SRT, “Laterality”)	1	U		DCID (244) Laterality
10			CODE	EV (112006, DCM, “Distribution Descriptor”)	1-n	U		DCID (6128) Chest Distribution Descriptor
11			CODE	EV (112028, DCM, “Abnormal Distribution of Anatomic Structure”)	1	U		DCID (6108) Chest Anatomic Structure Abnormal Distribution
12			CODE	EV (112008, DCM, “Site involvement”)	1-n	U		DCID (6129) Chest Site Involvement
13			CODE	EV (G-C197, SRT, “Severity”)	1	U		DCID (6130) Severity Descriptor
14			CODE	EV (112010, DCM, “Texture Descriptor”)	1	U		DCID (6131) Chest Texture Descriptor
15			CODE	EV (112030, DCM, “Calcification Descriptor”)	1	U		DCID (6132) Chest Calcification Descriptor
16			NUM	DCID (6142) Calculated Value	1-n	U		
17	>	HAS CONCEPT MOD	CODE	EV (121401, DCM, “Derivation”)	1	M		DCID (6140) Calculation Methods
18	>	INFERRED FROM	NUM	EV (112032, DCM, “Threshold Attenuation Coefficient”)	1	U		UNITS = EV ([hnsf'U], UCUM, “Hounsfield unit”)
19	>	INFERRED FROM	TEXT	EV (112034, DCM, “Calculation Description”)	1	U		
20			NUM	DCID (6141) Attenuation Coefficient Measurements	1-n	U		UNITS = EV ([hnsf'U], UCUM, “Hounsfield unit”)

TID 4106 Response Evaluation

This template provides a means to report response evaluation to cancer treatment, based on a method such as RECIST or WHO.

TID 4106
RESPONSE EVALUATION

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (112020, DCM, “Response Evaluation”)	1	M		
2	>	HAS OBS CONTEXT	CODE	EV (112021, DCM, “Response Evaluation Method”)	1	M		DT (112022, DCM “RECIST”) or DT (112029, DCM, “WHO”)
3	>	CONTAINS	CODE	EV (112048, DCM, “Current Response”)	1	U		DCID (6143) Response Criteria
4	>	CONTAINS	CODE	EV (112049, DCM, “Best Overall Response”)	1	U		DCID (6143) Response Criteria
5	>	CONTAINS	NUM	EV (112051, DCM, “Measurement of Response”)	1	U		UNITS not specified

TID 4107 Chest CAD Geometry Template

All geometry template invocations require specification of either the location of the center of the object, the outline, or both. Geometry is a property of single image findings (see TID 4104) and composite features (see TID 4103).

TID 4107
CHEST CAD GEOMETRY

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			SCOORD	EV (111010, DCM, “Center”)	1	MC	At least one of rows 1,4 shall be present.	Graphic Data Type = POINT
2	>	SELECTED FROM	IMAGE		1	MC	XOR row 3	
3	>	R-SELECTED FROM	IMAGE		1	MC	XOR row 2	Shall reference an IMAGE content item in the (111028, DCM, “Image Library”)
4			SCOORD	EV (111041, DCM, “Outline”)	1	MC	At least one of rows 1,4 shall be present.	
5	>	SELECTED FROM	IMAGE		1	MC	XOR row 6	Shall reference the same content item as row 2
6	>	R-SELECTED FROM	IMAGE		1	MC	XOR row 5	Shall reference the same content item as row 3

TID 4108 Tracking Identifier

This template provides a means to identify an object for longitudinal tracking, potentially across multiple Structured Reports, over time.

TID 4108
TRACKING IDENTIFIER

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (112039, DCM, “Tracking Identifier”)	1	MC	At least one of row 1 or 2 shall be present.	A string of characters with case being non-significant. Leading and trailing spaces and control characters are forbidden.
2			UIDREF	EV (112040, DCM, “Tracking Unique Identifier”)	1	MC	At least one of row 1 or 2 shall be present.	

Content Item Descriptions

Tracking Identifier	A human readable identifier for longitudinal tracking, e.g., “Watchlist Nodule 1”.

Modify the following Templates in Part 16 Annex A DCMR Templates (Normative):

TID 4000 Mammography CAD Document Root Template

This template forms the top of a content tree that allows a mammography CAD device to describe the results of detection and analysis of Mammographic evidence. This template, together with its subordinate templates, describes both the results for presentation to radiologists and partial product results for consumption by mammography CAD devices in subsequent mammography CAD reports.

This template defines a Container which contains an Image Library, the mammography CAD results, and summaries of the detection and analysis algorithms performed. The Image Library contains the Image SOP Class and Instance UIDs, and selected attributes for each image referenced in either the algorithm summaries or mammography CAD results.

The Summary of Detections and Summary of Analyses sub-trees gather lists of algorithms attempted, grouped by success/failure status. Algorithms not attempted are not mentioned in these sub-trees. This information forms the basis for understanding why a mammography CAD report may produce no (or fewer than anticipated) results. Mammography CAD results are constructed bottom-up, starting from Single Image Findings (see Template 4006), associated as Composite Features (see Template 4004), and from which Individual and Overall Impressions are formed.

See the figure entitled "Top Levels of Mammography CAD SR Content Tree" in the "Mammography CAD SR Content Tree Structure" Annex of PS 3.3.

TID 4000
MAMMOGRAPHY CAD DOCUMENT ROOT

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	**EV** (111036, DCM, "Mammography CAD Report")	1	M		
2	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) "Language of Content Item and Descendants"	1	M		
3	>	CONTAINS	CONTAINER	**EV** (111028, DCM, "Image Library")	1	M		
4	>>	CONTAINS	INCLUDE	DTID (4020) "~~**Mammography**~~ CAD Image Library Entry"	1-n	M		**$ImageLaterality = DCID (6022) "Side", $ImageView = DCID (4014) "View for Mammography", $ImageViewMod = DCID (4015) "View Modifier for Mammography"**
5	>	CONTAINS	INCLUDE	DTID (4001) "Mammography CAD Overall Impression / Recommendation"	1	M		
6	>	CONTAINS	CODE	**EV** (111064, DCM, "Summary of Detections")	1	M		DCID (6042) "Status of Results"
7	>>	INFERRED FROM	INCLUDE	DTID (4015) "~~**Mammography**~~ CAD Detections Performed"	1	MC	Shall be present unless the value of (111064, DCM, "Summary of Detections") is (111225, DCM, "Not Attempted")	**$DetectionCode = DCID (6014) "Mammography Single Image Finding"**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
8	>	CONTAINS	CODE	**EV** (111065, DCM, "Summary of Analyses")	1	M		DCID (6042) "Status of Results"
9	>>	INFERRED FROM	INCLUDE	DTID (4016) "~~**Mammography**~~ CAD Analyses Performed"	1	MC	Shall be present unless the value of (111065, DCM, "Summary of Analyses") is (111225, DCM, "Not Attempted")	**$AnalysisCode = DCID (6043) "Types of Mammography CAD Analysis"**

Content Item Descriptions

Image Library	The "Image Library" section of the Content Tree (TID 4000, row 3) shall include all Image SOP Instances from the Current Requested Procedure Evidence Sequence (0040,A375) attribute of the SR Document General module. If a portion of another instance of a Mammography CAD SR IOD is duplicated in the "Overall Impression/ Recommendation" section of the Content Tree, the "Image Library" shall also include all Image Library Entries referenced from the duplicated portions of the Mammography CAD SR.
Detections Performed	The "Detections Performed" and "Analyses Performed" sections of the Content Tree (TID 4000, rows 6 and 8) together shall reference all Image SOP Instances included in the Current Requested Procedure Evidence Sequence (0040,A375) attribute of the SR Document General module.
Analyses Performed	

TID 4006 Mammography CAD Single Image Finding Template

This template describes a single image finding for a lesion or other object. The details of the finding are expressed in this template and/or more specific templates. The details from which a single image Calcification Cluster is inferred may be expressed in a number of Single Image Findings (see TID 4006) of type Individual Calcification.

A Single Image Finding of type Breast Composition may be INFERRED FROM by-reference to a Single Image Finding of type Breast Geometry.

TID 4006
MAMMOGRAPHY CAD SINGLE IMAGE FINDING

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	**EV** (111059, DCM, "Single Image Finding")	1	M		DCID (6014) "Mammography Single Image Finding"
2	>	HAS CONCEPT MOD	CODE	**EV** (111056, DCM, "Rendering Intent")	1	M		DCID (6034) "Intended Use of CAD Output"
3	>	HAS PROP**ERTIES**	INCLUDE	DTID (4019) "CAD Algorithm Identification"	1	M		
4	>	HAS PROP**ERTIES**	NUM	**EV** (111012, DCM, "Certainty of Finding")	1	U		UNITS = **EV** (%, UCUM, "Percent") Value = 0 – 100
5	>	HAS PROP**ERTIES**	NUM	**EV** (111047, DCM, "Probability of cancer")	1	UC	May be present unless value of parent is (111006, DCM, "Breast composition"), (111100, DCM, "Breast geometry"), (T-04100, SNM3, "Nipple"), (111099, DCM, "Selected region"), (111101, DCM, "Image quality") or (111102, DCM, "Non-lesion")	UNITS = **EV** (%, UCUM, "Percent") Value = 0 – 100
6	>	HAS PROP**ERTIES**	INCLUDE	DTID (4021) "Mammography CAD Geometry"	1	MC	Shall be present unless value of parent is (111006, DCM, "Breast composition"), (111100, DCM, "Breast geometry") or (111101, DCM, "Image quality")	
7	>	HAS PROP**ERTIES**	INCLUDE	DTID (4007) "Mammography CAD Breast Composition"	1	MC	Shall be present only if value of parent is (111006, DCM, "Breast composition")	
8	>	R-INFERRED FROM	CODE		1-n	UC	May be present only if value of parent is (111006, DCM, "Breast composition")	Shall reference a (111059, DCM, "Single Image Finding") of value: EV (111100, DCM, "Breast geometry")
9	>	HAS PROP**ERTIES**	INCLUDE	DTID (4008) "Mammography CAD Breast Geometry"	1	MC	Shall be present only if value of parent is (111100, DCM, "Breast geometry")	
10	>	HAS PROP**ERTIES**	INCLUDE	DTID (4009) "Mammography CAD Individual Calcification"	1	UC	May be present only if value of parent is (111104, DCM, "Individual Calcification")	
11	>	HAS PROP**ERTIES**	INCLUDE	DTID (4010) "Mammography CAD Calcification Cluster"	1	UC	May be present only if value of parent is (111105, DCM, "Calcification Cluster")	
12	>	HAS PROP**ERTIES**	INCLUDE	DTID (4011) "Mammography CAD Density"	1	UC	May be present only if value of parent is (111103, DCM, "Density")	

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
13	>	HAS PROP**ERTIES**	CODE	**EV** (111297,DCM, "Nipple Characteristic")	1	UC	May be present only if value of parent is (T-04100, SNM3, "Nipple")	DCID (6039) "Nipple Characteristic"
14	>	HAS PROP**ERTIES**	INCLUDE	DTID (4012) "Mammography CAD Non-Lesion"	1	MC	Shall be present only if value of parent is (111102, DCM, "Non-lesion")	
15	>	HAS PROP**ERTIES**	INCLUDE	DTID (4013) "Mammography CAD Selected Region"	1	MC	Shall be present only if value of parent is (111099, DCM, "Selected Region")	
16	>	R-~~**HAS PROP**~~**INFERRED FROM**	IMAGE		1	MC	Shall be present only if value of parent is (111101, DCM, "Image quality") and row 17 is not present	Shall reference an IMAGE content item in the (111028, DCM, "Image Library")
17	>	~~**R-**~~HAS PROP**ERTIES**	SCOORD	**EV** (111030, DCM, "Image Region")	1-n	MC	Shall be present only if value of parent is (111101, DCM, "Image quality") and row 16 is not present	
18	>>	R-SELECTED FROM	IMAGE		1	M		All the (111030, DCM, "Image Region") content items in a single invocation of this template shall reference the same IMAGE content item in the (111028, DCM, "Image Library")
19	>	HAS PROP**ERTIES**	INCLUDE	DTID (4014) "~~**Mammography**~~ CAD Image Quality"	1-n	MC	Shall be present only if value of parent is (111101, DCM, "Image quality")	**$QualityFinding = DCID (6041) "Mammography Image Quality Finding",** **$QualityStandard = DCID (6045) "Mammography Types of Quality Control Standard"**
20	>	INFERRED FROM	INCLUDE	DTID (4006) "Mammography CAD Single Image Finding"	1-n	UC	May be present only if value of parent is (111105, DCM, "Calcification Cluster")	EV (111104, DCM, "Individual Calcification")
21	>	HAS OBS CONTEXT	INCLUDE	DTID (4022) "CAD Observation Context"	1	MC	Shall be present only if this finding is incorporated from a different report than its parent.	

Content Item Descriptions

Rendering Intent	This content item constrains the SCP receiving the Mammography CAD SR IOD in its use of the contents of this template and its target content items. Mammography CAD devices may opt to use data marked "Not for Presentation" or "Presentation Optional" as input to subsequent mammography CAD processing steps. Refer to PS 3.4, Annex O Structured Reporting Storage SOP Classes for SCU and SCP Behavior.
Single Image Finding	A Single Image Finding (whose parent is a Single Image Finding of type Calcification Cluster) allows one level of nesting for the definition of individual calcifications within the cluster. To use this template recursively, this Single Image Finding code value shall be "Individual Calcification".
Certainty of Finding	The likelihood that the finding detected, and classified by the CODE specified in the Single Image Finding parent template, is in fact that type of finding.

TID 4014 ~~Mammography~~ CAD Image Quality Template

This template provides the detail specific to image quality. It allows the encoding of descriptors of image quality (**e.g.,** CID 6041) for a given image or region of an image. For instance, images with partial motion blur can be identified with the region noted.

Parameter Name	Parameter Usage
$QualityFinding	Coded term or Context Group for Quality Finding
$QualityStandard	Coded term or Context Group for Quality Control Standard

TID 4014
~~MAMMOGRAPHY~~ CAD IMAGE QUALITY

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	**EV** (111052, DCM, "Quality Finding")	1	M		~~DCID (6041) "Mammography Image Quality Finding"~~ $QualityFinding
2	>	HAS PROP**ERTIES**	CODE	**EV** (111050, DCM, "Quality Assessment")	1	U		DCID (6044) "Types of Image Quality Assessment"
3	>	HAS PROP**ERTIES**	CODE	**EV** (111051, DCM, "Quality Control Standard")	1	UC	Shall be present if row 2 is present.	~~DCID (6045) "Mammography Types of Quality Control Standard"~~ $QualityStandard
4	>	HAS PROP**ERTIES**	NUM	**EV** (111029, DCM, "Image Quality Rating")	1	U		UNITS = **EV** ("{0-:100}", UCUM, "~~Ordinal scale~~Range 0 ~~to~~ :100") Value = 0 – 100

Content Item Descriptions

Image Quality Rating	A numeric value in the range 0 to 100, inclusive, where 0 is worst quality and 100 is best quality.

TID 4015 ~~Mammography~~ CAD Detections Performed Template

This template gathers two lists of detection algorithms attempted, grouped by success/failure status. Algorithms not attempted are not mentioned in this sub-tree of the Document Root (**e.g.,** TID 4000). This information forms the basis for understanding why a ~~**mammography**~~ CAD report may produce no (or fewer than anticipated) detection results.

The sub-tree formed by this template is illustrated in Figure x.x.x.2 of Part 3, Annex X (Mammography CAD SR Content Tree Structure).

Parameter Name	Parameter Usage
$DetectionCode	Coded term or Context Group for Detection Performed

TID 4015
~~MAMMOGRAPHY~~ CAD DETECTIONS PERFORMED

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	**EV** (111063, DCM, "Successful Detections")	1	MC	Shall be present only if value of parent is (111222, DCM, "Succeeded") or (111223, DCM, "Partially Succeeded")	
2	>	CONTAINS	INCLUDE	DTID (4017) "**~~Mammography~~** CAD Detection Performed"	1-n	M		**$DetectionCode = $DetectionCode**
3			CONTAINER	**EV** (111025, DCM, "Failed Detections")	1	MC	Shall be present only if value of parent is (111224, DCM, "Failed") or (111223, DCM, "Partially Succeeded")	
4	>	CONTAINS	INCLUDE	DTID (4017) "**~~Mammography~~** CAD Detection Performed"	1-n	M		**$DetectionCode = $DetectionCode**

TID 4016 ~~Mammography~~ CAD Analyses Performed Template

This template gathers two lists of analysis algorithms attempted, grouped by success/failure status. Algorithms not attempted are not mentioned in this sub-tree of the Document Root (**e.g.,** TID 4000). This information forms the basis for understanding why a ~~**mammography**~~ CAD report may produce no (or fewer than anticipated) analysis results.

The sub-tree formed by this template is illustrated in Figure x.x.x.2 of Part 3, Annex X (Mammography CAD SR Content Tree Structure).

Parameter Name	Parameter Usage
$AnalysisCode	Coded term or Context Group for Analysis Performed

TID 4016
~~MAMMOGRAPHY~~ CAD ANALYSES PERFORMED

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	**EV** (111062, DCM, "Successful Analyses")	1	MC	Shall be present only if value of parent is (111222, DCM, "Succeeded") or (111223, DCM, "Partially Succeeded")	
2	>	CONTAINS	INCLUDE	DTID (4018) "**~~Mammograpy~~** CAD Analysis Performed"	1-n	M		**$AnalysisCode = $AnalysisCode**
3			CONTAINER	**EV** (111024, DCM, "Failed Analyses")	1	MC	Shall be present only if value of parent is (111224, DCM, "Failed") or (111223, DCM, "Partially Succeeded")	
4	>	CONTAINS	INCLUDE	DTID (4018) "**~~Mammography~~** CAD Analysis Performed"	1-n	M		**$AnalysisCode = $AnalysisCode**

TID 4017 ~~Mammography~~ CAD Detection Performed Template

This template fully identifies a detection algorithm and the images and/or image regions on which it operated **(see TID 4015)**.

Parameter Name	**Parameter Usage**
$DetectionCode	**Coded term or Context Group for Detection Performed**

TID 4017
~~MAMMOGRAPHY~~ CAD DETECTION PERFORMED

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	**EV** (111022, DCM, "Detection Performed")	1	M		**~~DCID (6014) "Mammography Single Image Finding"~~ $DetectionCode**
2	>	HAS PROP**ERTIES**	INCLUDE	DTID (4019) "CAD Algorithm Identification"	1	M		
3	**>**	**HAS PROPERTIES**	**IMAGE**		**1-n**	**MC**	**At least one of row 3, 4, 5 or 6 shall be present**	
4	>	R-HAS PROP**ERTIES**	IMAGE		1-n	MC	At least one of row 3**, ~~or~~ 4, 5 or 6** shall be present	Shall reference IMAGE content item(s) in the (111028, DCM, "Image Library")
5	**>**	**HAS PROPERTIES**	**UIDREF**	**EV (112002, DCM, "Series Instance UID")**	**1-n**	**MC**	**At least one of row 3, 4, 5 or 6 shall be present**	
6	>	HAS PROP**ERTIES**	SCOORD	**EV** (111030, DCM, "Image Region")	1-n	MC	At least one of row 3**, ~~or~~ 4, 5 or 6** shall be present	
7	**>>**	**SELECTED FROM**	**IMAGE**		**1**	**MC**	**XOR row 8**	
8	>>	R-SELECTED FROM	IMAGE		1	M**C**	**XOR row 7**	Shall reference an IMAGE content item in the (111028, DCM, "Image Library")

Content Item Descriptions

CAD Algorithm Identification	If more than one detection algorithm has the same "Detection Performed" code value (**e.g.,** CID 6014) then the "CAD Algorithm Identification" shall unambiguously distinguish between algorithms.
Rows 3 - 6	**When this template is invoked for the Mammography CAD SR, the Image Library is mandatory, thus only row 4 and/or row 6 shall be present. When this template is invoked for the Chest CAD SR, the Image Library is optional, thus any combination of rows 3, 4, 5 and 6 may be present.**
Rows 7 - 8	**When this template is invoked for the Mammography CAD SR, the Image Library is mandatory, thus only row 8 shall be present. When this template is invoked for the Chest CAD SR, the Image Library is optional, thus row 7 or 8 may be present.**

TID 4018 ~~Mammography~~ CAD Analysis Performed Template

This template fully identifies an analysis algorithm and the images and/or image regions on which it operated **(see TID 4016)**.

Parameter Name	Parameter Usage
$AnalysisCode	Coded term or Context Group for Analysis Performed

TID 4018
~~MAMMOGRAPHY~~ CAD ANALYSIS PERFORMED

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	**EV** (111004, DCM, "Analysis Performed")	1	M		~~DCID (6043) "Types of Mammography CAD Analysis"~~ $AnalysisCode
2	>	HAS PROP**ERTIES**	INCLUDE	DTID (4019) "CAD Algorithm Identification"	1	M		
3	**>**	**HAS PROPERTIES**	**IMAGE**		**1-n**	**MC**	**At least one of row 3, 4, 5 or 6 shall be present**	
4	>	R-HAS PROP**ERTIES**	IMAGE		1-n	MC	~~A total of at least two instances of row 3 or 4 shall be present~~ **At least one of row 3, 4, 5 or 6 shall be present**	Shall reference IMAGE content item(s) in the (111028, DCM, "Image Library")
5	**>**	**HAS PROPERTIES**	**UIDREF**	**EV (112002, DCM, "Series Instance UID")**	**1-n**	**MC**	**At least one of row 3, 4, 5 or 6 shall be present**	
6	>	HAS PROP**ERTIES**	SCOORD	**EV** (111030, DCM, "Image Region")	1-n	MC	~~A total of at least two instances of row 3 or 4 shall be present~~ **At least one of row 3, 4, 5 or 6 shall be present**	
7	**>>**	**SELECTED FROM**	**IMAGE**		**1**	**MC**	**XOR row 8**	
8	>>	R-SELECTED FROM	IMAGE		1	M**C**	**XOR row 7**	Shall reference an IMAGE content item in the (111028, DCM, "Image Library")

Content Item Descriptions

CAD Algorithm Identification	If more than one analysis algorithm has the same "Analysis Performed" code value (**e.g.,** CID 6043) then the "CAD Algorithm Identification" shall unambiguously distinguish between algorithms.

Rows 3 - 6	**When this template is invoked for the Mammography CAD SR, the Image Library is mandatory, and a total of at least two instances of row 4 or row 6 shall be present. When this template is invoked for the Chest CAD SR, the Image Library is optional, thus any combination of rows 3, 4, 5 and 6 may be present.**
Rows 7 - 8	**When this template is invoked for the Mammography CAD SR, the Image Library is mandatory, thus only row 8 shall be present. When this template is invoked for the Chest CAD SR, the Image Library is optional, thus row 7 or 8 may be present.**

TID 4019 CAD Algorithm Identification Template

This template details the algorithm unambiguously. Re-state the software identification from the General Equipment Module of the CAD SR IOD if all algorithms are unambiguously defined by that module.

TID 4019
CAD ALGORITHM IDENTIFICATION

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	**EV** (111001, DCM, "Algorithm Name")	1	M		
2			TEXT	**EV** (111003, DCM, "Algorithm Version")	1	M		
3			TEXT	**EV** (111002, DCM, "Algorithm Parameters")	1-n	U		

TID 4020 ~~Mammography~~ CAD Image Library Entry Template

Each instance of the Image Library Entry template contains the Image SOP Class and Instance UIDs, and selected attributes for an image. If **values for the attributes are not present in** the Image SOP **~~Class~~Instance, ~~is other than Digital Mammography Image Storage~~** then as many of the attributes as possible should be derived.

Parameter Name	Parameter Usage
$ImageLaterality	Coded term or Context Group for Image Laterality
$ImageView	Coded term or Context Group for Image View
$ImageViewMod	Coded term or Context Group for Image View Modifier

TID 4020
~~MAMMOGRAPHY~~ CAD IMAGE LIBRARY ENTRY

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			IMAGE		1	M		
2	>	HAS ACQ CONTEXT	CODE	**EV** (111027, DCM, "Image Laterality")	1	MC	Shall be present if (0020,0062) is in the Image **~~IOD~~Instance**	**~~DCID (6022) "Side"~~$ImageLaterality**
3	>	HAS ACQ CONTEXT	CODE	**EV** (111031, DCM, "Image View")	1	MC	Shall be present if (0054,0220) is in the Image **~~IOD~~Instance**	**~~DCID (4014) "View for Mammography"~~$ImageView**
4	>>	HAS CONCEPT MOD	CODE	**EV** (111032, DCM, "Image View Modifier")	1	MC	Shall be present if (0054,0222) is in the Image **~~IOD~~Instance**	**~~DCID (4015) "View Modifier for Mammography"~~$ImageView Mod**
5	>	HAS ACQ CONTEXT	TEXT	**EV** (111044, DCM, "Patient Orientation Row")	1	MC	Shall be present if (0020,0020) is in the Image **~~IOD~~Instance**	
6	>	HAS ACQ CONTEXT	TEXT	**EV** (111043, DCM, "Patient Orientation Column")	1	MC	Shall be present if (0020,0020) is in the Image **~~IOD~~Instance**	
7	>	HAS ACQ CONTEXT	DATE	**EV** (111060, DCM, "Study Date")	1	MC	Shall be present if (0008,0020) is in the Image **~~IOD~~Instance**	
8	>	HAS ACQ CONTEXT	TIME	**EV** (111061, DCM, "Study Time")	1	MC	Shall be present if (0008,0030) is in the Image **~~IOD~~Instance**	
9	>	HAS ACQ CONTEXT	DATE	**EV** (111018, DCM, "Content Date")	1	MC	Shall be present if (0008,0023) is in the Image **~~IOD~~Instance**	
10	>	HAS ACQ CONTEXT	TIME	**EV** (111019, DCM, "Content Time")	1	MC	Shall be present if (0008,0033) is in the Image **~~IOD~~Instance**	
11	>	HAS ACQ CONTEXT	NUM	**EV** (111026, DCM, "Horizontal Imager Pixel Spacing")	1	MC	Shall be present if (0018,1164) **or (0028,0030)** is in the Image **~~IOD~~Instance**	UNITS = EV (um, UCUM, "micrometer")
12	>	HAS ACQ CONTEXT	NUM	**EV** (111066, DCM, "Vertical Imager Pixel Spacing")	1	MC	Shall be present if (0018,1164) **or (0028,0030)** is in the Image **~~IOD~~Instance**	UNITS = EV (um, UCUM, "micrometer")
13	**>**	**HAS ACQ CONTEXT**	**NUM**	**EV (112011, DCM, "Positioner Primary Angle")**	**1**	**UC**	**May be present if (0018,1510) is in the Image Instance**	

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
14	>	HAS ACQ CONTEXT	NUM	EV (112012, DCM, "Positioner Secondary Angle")	1	UC	May be present if (0018,1511) is in the Image Instance	

Content Item Descriptions

Patient Orientation Row	First (row) and Second (column) components of Patient Orientation (0020,0020) in the Image IOD. See PS 3, C.7.6.1.1.1.
Patient Orientation Column	
Horizontal Imager Pixel Spacing	The row (first) component of Imager Pixel Spacing (0018,1164) in the Image IOD. See PS 3, C.8.11.4. Convert the source spacing to micrometers.
Vertical Imager Pixel Spacing	The column (second) component of Imager Pixel Spacing (0018,1164) in the Image IOD. See PS 3, C.8.11.4. Convert the source spacing to micrometers.

TID 4022 CAD Observation Context Template

This template is invoked when a content item, which may be the "root" of a sub-tree, is paraphrased from a prior SR document.

TID 4022
CAD OBSERVATION CONTEXT

Type: Non-Extensible

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			COMPOSITE	EV (111040, DCM, "Original Source")	1	MC	Shall be present if the original source is a DICOM object.	
2	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) "Language of Content Item and Descendants"	1	M		
3			INCLUDE	DTID (1001) "Observation Context"	1	M		

Add the following Context Groups to Part 16 Annex B DCMR Context Groups (Normative):

CONTEXT ID 6100

Chest Component Categories

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-28000	Lung
DCM		112052	Bronchovascular
SRT		T-29000	Pleural structure
SRT		T-D3300	Mediastinum
SRT		T-32000	Heart
DCM		112053	Osseous
SRT		T-4000E	Systemic vascular structure
SRT		R-420AE	Muscular

CONTEXT ID 6101

Chest Finding or Feature

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112061	Abnormal lines (1D)
DCM		112033	Abnormal opacity
DCM		112062	Abnormal lucency
DCM		112063	Abnormal calcifications
DCM		112064	Abnormal texture
DCM		112005	Radiographic anatomy
DCM		111102	Non-lesion
DCM		111101	Image quality
DCM		111099	Selected region

CONTEXT ID 6102

Chest Finding or Feature Modifier

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
			Include Context ID 6103
			Include Context ID 6104
			Include Context ID 6105
			Include Context ID 6106
			Include Context ID 6109
			Include Context ID 6138

CONTEXT ID 6103

Abnormal Lines Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112065	Reticulonodular pattern
DCM		112104	Air-fluid level
DCM		112105	Corona radiata
DCM		112106	Honeycomb pattern
DCM		112107	Fleischner’s line(s)
DCM		112108	Intralobular lines
DCM		112109	Kerley A line
DCM		112110	Kerley B line
DCM		112111	Kerley C lines
DCM		112112	Parenchymal band
SRT		D2-60302	Plate-like atelectasis
DCM		112113	Reticular pattern
DCM		112114	Septal line(s)
DCM		112115	Subpleural line
DCM		112116	Tramline shadow
DCM		112117	Tubular shadow

CONTEXT ID 6104

Abnormal Opacity Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112066	Beaded septum sign
DCM		112067	Nodular pattern
DCM		112059	Primary complex
DCM		112068	Pseudoplaque
DCM		112065	Reticulonodular pattern
DCM		112069	Signet-ring sign
DCM		112004	Abnormal interstitial pattern
SRT		F-20172	Coin lesion
DCM		112118	Density
DCM		112119	Dependent opacity
DCM		112120	Ground glass opacity
DCM		112121	Infiltrate
SRT		M-03000	Mass
DCM		112122	Micronodule
SRT		M-03010	Nodule
DCM		112001	Opacity
DCM		112123	Phantom tumor (pseudotumor)
DCM		112124	Shadow
DCM		112125	Small irregular opacities
DCM		112126	Small rounded opacities
DCM		112127	Tree-in-bud sign
SRT		D3-40230	Pulmonary embolism

CONTEXT ID 6105

Abnormal Lucency Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112070	Air bronchiologram
DCM		112071	Air bronchogram
DCM		112072	Air crescent
SRT		F-20240	Air-trapping
DCM		112073	Halo sign
SRT		D2-81180	Pneumomediastinum
SRT		D2-80300	Pneumothorax

CONTEXT ID 6106

Abnormal Texture Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112067	Nodular pattern
DCM		112065	Reticulonodular pattern
DCM		112004	Abnormal interstitial pattern
DCM		112128	Granular pattern
DCM		112106	Honeycomb pattern
DCM		112129	Miliary pattern
DCM		112130	Mosaic pattern
DCM		112113	Reticular pattern
DCM		112125	Small irregular opacities

CONTEXT ID 6107

Width Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-40750	Enlarged
SRT		R-41727	Narrow
DCM		112077	Vasoconstriction
DCM		112078	Vasodilation

CONTEXT ID 6108

Chest Anatomic Structure Abnormal Distribution

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-20240	Air-trapping
DCM		112079	Architectural distortion
DCM		112080	Mosaic perfusion
DCM		112060	Oligemia
DCM		112081	Pleonemia

CONTEXT ID 6109

Radiographic Anatomy Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
			Include Context ID 6110
			Include Context ID 6111
			Include Context ID 6112
			Include Context ID 6113
			Include Context ID 6114
			Include Context ID 6116
			Include Context ID 6117
DCM		112082	Interface
DCM		112083	Line
DCM		112084	Lucency

CONTEXT ID 6110

Lung Anatomy Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-28770	Lobe of lung
DCM		112085	Midlung window
DCM		112054	Secondary pulmonary lobule
SRT		T-280D0	Segment of lung

CONTEXT ID 6111

Bronchovascular Anatomy Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-20001	Airway structure
SRT		T-26000	Bronchus
SRT		T-25201	Carina
DCM		112086	Carina angle
DCM		112087	Centrilobular structures
SRT		T-28080	Hilum of lung

CONTEXT ID 6112

Pleura Anatomy Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112088	Anterior junction line
SRT		T-D051D	Fissure of lung
DCM		112089	Posterior junction line

CONTEXT ID 6113

Mediastinum Anatomy Finding or Feature

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112090	Azygoesophageal recess interface
DCM		112091	Paraspinal line
DCM		112092	Posterior tracheal stripe
DCM		112093	Right tracheal stripe
DCM		112094	Stripe
SRT		T-25000	Trachea

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-56000	Esophagus
SRT		T-B6000	Thyroid
SRT		T-26100	Right main bronchus
SRT		T-26500	Left main bronchus
SRT		T-25201	Carina
SRT		T-D3412	Esophageal Hiatus
SRT		T-14171	Trapezius muscle
SRT		T-15420	Acromioclavicular Joint
SRT		T-D0634	Fascial layer
SRT		T-18774	Axillary Fascia
SRT		T-11240	Costal Cartilage
SRT		T-B4000	Carotid Body
SRT		T-42370	Ligamentum arteriosum
SRT		T-C6510	Thoracic Duct
DCM		112095	Hiatus
SRT		T-C8000	Thymus Gland
SRT		T-C4000	Lymph node
SRT		T-32000	Heart
SRT		T-32400	Ventricle
SRT		T-32100	Atrium
SRT		D4-31220	Atrial Septal Defect
SRT		T-35300	Mitral Valve
SRT		T-35400	Aortic Valve
SRT		T-35100	Tricuspid Valve

CONTEXT ID 6114

Osseous Anatomy Finding or Feature

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-11300	Rib
SRT		T-12310	Clavicle
SRT		T-11500	Spine
SRT		T-11210	Sternum
SRT		T-12280	Scapula
SRT		T-12410	Humerus

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-11510	Vertebra

CONTEXT ID 6115

Osseous Anatomy Modifiers

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-11301	Head of rib
SRT		T-11303	Neck of rib
SRT		T-11304	Tubercle of rib
SRT		T-11309	Shaft of rib
SRT		T-11307	Angle of rib
SRT		T-11308	Costal groove
DCM		112096	Rib Scalene Tubercle
SRT		T-11211	Manubrium of sternum
SRT		T-11218	Suprasternal notch
SRT		T-11219	Clavicular notch of sternum
SRT		T-11221	Sternal angle
SRT		T-11220	Body of sternum
SRT		T-11227	Xiphoid process of sternum
SRT		T-11511	Arch of vertebra
SRT		T-11515	Pedicle of vertebra
SRT		T-11513	Transverse process or vertebra
SRT		T-11514	Lamina of vertebra
SRT		T-1153F	Inferior articular process of vertebra
SRT		T-1153E	Superior articular process of vertebra
DCM		112097	Vertebral Intervertebral Notch
SRT		T-11531	Vertebral foramen
SRT		T-1151F	Vertebral canal
SRT		T-11512	Spinous process of vertebra
SRT		T-116EF	Inferior articular facet of axis
SRT		T-116EE	Superior articular facet of axis
SRT		T-12281	Acromion process of scapula
SRT		T-1228A	Glenoid cavity of scapula

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112098	Subscapular Fossa
SRT		T-12287	Dorsal aspect of scapula
DCM		112099	Scapular Spine
DCM		112100	Scapular Supraspinatus Fossa
DCM		112101	Scapular Infraspinatus Fossa
SRT		T-12282	Coracoid process of scapula
SRT		T-D2236	Pectoral girdle

CONTEXT ID 6116

Muscular Anatomy

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-14110	Pectoralis major muscle
SRT		T-14120	Pectoralis minor muscle
SRT		T-D3400	Diaphragm
SRT		T-1416B	External intercostal muscle
SRT		T-14165	Innermost intercostal muscles
SRT		T-14183	Internal intercostal muscle
SRT		T-14150	Levatores costarum muscles
SRT		T-14166	Subcostal muscle
SRT		T-141A5	Transversus thoracis
SRT		T-14171	Trapezius muscle
SRT		T-13650	Subscapularis muscle
SRT		T-13610	Supraspinatus muscle
SRT		T-13620	Infraspinatus muscle
SRT		T-13630	Teres minor muscle
SRT		T-14140	Serratus anterior muscle
SRT		T-13660	Deltoid muscle
SRT		T-14172	Latissimus dorsi muscle
SRT		T-14020	Erector spinae muscle
SRT		T-14030	Iliocostalis muscle
SRT		T-14040	Longissimus muscle

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-14050	Spinalis muscle
SRT		T-13450	Scalenous anterior muscle
SRT		T-13310	Sternocleidomastoid muscle
SRT		T-13640	Teres major muscle
SRT		T-35020	Chordae tendineae cordis
SRT		T-32410	Interventricular septum
SRT		T-32423	Trabeculae carnae

CONTEXT ID 6117

Vascular Anatomy

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
			Include Context ID 3015
SRT		T-46100	Subclavian artery
SRT		T-42100	Ascending aorta
SRT		T-46010	Brachiocephalic trunk
SRT		T-45100	Common carotid artery
SRT		T-46200	Internal thoracic artery
SRT		T-45700	Vertebral artery
SRT		T-46130	Thyrocervical trunk
SRT		T-46180	Costocervical trunk
SRT		T-461A0	Dorsal scapular artery
SRT		T-47100	Axillary Artery
SRT		T-47160	Brachial artery
SRT		T-42300	Aortic arch
SRT		T-48170	Internal jugular vein
SRT		T-48330	Subclavian vein
SRT		T-48620	Brachiocephalic vein
SRT		T-48610	Superior vena cava
SRT		T-A9090	Brachial plexus
SRT		T-D0765	Descending aorta
DCM		112102	Aortic knob
SRT		T-42310	Aortic isthmus
SRT		T-48340	Azygos vein

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-D305A	Intercostal artery
SRT		T-4630D	Esophageal artery
SRT		T-46210	Pericardiophrenic Artery
SRT		T-46350	Superior phrenic artery
SRT		T-46940	Inferior phrenic artery
SRT		T-46310	Bronchial artery
DCM		112103	Arch of the Azygos vein
SRT		T-49110	Axillary vein
SRT		T-48710	Inferior vena cava
SRT		T-44100	Pulmonary trunk
SRT		T-44000	Pulmonary artery
SRT		T-48500	Pulmonary vein

CONTEXT ID 6118

Size Descriptor

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112131	Extremely small
DCM		112132	Very small
SRT		R-404A8	Small
SRT		R-404A9	Medium
SRT		R-404AA	Large
SRT		R-40750	Enlarged
DCM		112133	Too small

CONTEXT ID 6119

Chest Border Shape

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		M-02100	Round shape
DCM		112134	Elliptic
SRT		G-A402	Irregular
DCM		112135	Lobulated
DCM		112136	Spiculated

CONTEXT ID 6120

Chest Border Definition

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-40771	Well defined
DCM		112137	Sharply defined
SRT		R-428E7	Poorly defined
DCM		112138	Distinctly defined
DCM		112139	Well demarcated
DCM		112140	Sharply demarcated
DCM		112141	Poorly demarcated
DCM		112142	Circumscribed

CONTEXT ID 6121

Chest Orientation Descriptor

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-A142	Horizontal
SRT		G-A144	Vertical
SRT		G-A472	Oblique

CONTEXT ID 6122

Chest Content Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112143	Air
SRT		T-D008A	Fat
DCM		112144	Soft tissue
DCM		112145	Calcium
SRT		M-30400	Foreign material (iodized oil, mercury, talc)

CONTEXT ID 6123

Chest Opacity Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112146	Acinar
DCM		112147	Air space
DCM		112148	Fibronodular
DCM		112149	Fluffy
DCM		112150	Linear
DCM		112151	Profusion
DCM		112152	Silhouette sign

CONTEXT ID 6124

Location in Chest

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
			Include CONTEXT ID 6125
			Include CONTEXT ID 6126
			Include CONTEXT ID 6127

CONTEXT ID 6125

General Chest Location

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-A110	Central
SRT		G-A111	Peripheral
SRT		G-A122	Apical
SRT		G-A123	Basal

CONTEXT ID 6126

Location in Lung

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-D3208	Upper zone of lung
SRT		T-D3209	Middle zone of lung
SRT		T-D320A	Lower zone of lung
SRT		T-28820	Upper lobe of lung
SRT		T-28825	Middle lobe of lung
SRT		T-28830	Lower lobe of lung
DCM		112153	Subpleural

CONTEXT ID 6127

Segment Location in Lung

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-28230	Anterior segment of right upper lobe
SRT		T-28630	Anterior segment of left upper lobe
SRT		T-28220	Posterior segment of right upper lobe

CONTEXT ID 6128

Chest Distribution Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112154	Bat's wing distribution
DCM		112155	Butterfly distribution
DCM		112156	Centrilobular
DCM		112157	Coalescent
SRT		G-A321	Diffuse
SRT		M-020FA	Discoid
SRT		G-A324	Disseminated
SRT		G-A351	Focal
SRT		G-A366	Generalized
DCM		112158	Lobar
SRT		G-A443	Multifocal
SRT		G-A137	Segmental
SRT		G-A572	Systemic

CONTEXT ID 6129

Chest Site Involvement

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		T-28000	Lung
SRT		T-D3300	Mediastinum
DCM		112158	Lobar
SRT		T-1A007	Interstitial tissue
SRT		R-40939	Bronchial
SRT		T-28080	Hilum of lung
SRT		T-42000	Aorta
SRT		T-29000	Pleural structure
SRT		T-D3050	Chest wall
SRT		T-D4001	Upper abdomen

CONTEXT ID 6130

Severity Descriptor

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-404FA	Mild
SRT		G-A002	Moderate
SRT		G-A003	Severe
SRT		G-A231	Acute
SRT		G-A270	Chronic
DCM		112159	Hyper-acute
SRT		G-A561	Subacute

CONTEXT ID 6131

Chest Texture Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112160	Homogeneous (uniform opacity)
DCM		112161	Inhomogeneous

CONTEXT ID 6132

Chest Calcification Descriptor

Type: Extensible Version:

Note: Original source of terms is [Fraser and Pare].

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-01763	Eggshell calcification
SRT		F-01761	Coarse (popcorn-like) calcification
DCM		112162	Target
SRT		G-A405	Laminated
DCM		112163	Fibrocalcific
DCM		112164	Flocculent

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-403A7	Nodular
SRT		F-12100	Ossification

CONTEXT ID 6133

Chest Quantitative Temporal Difference Type

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		F-017B1	Difference in size
SRT		F-017B3	Difference in location

CONTEXT ID 6134

Chest Qualitative Temporal Difference Type

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112165	Difference in border shape
DCM		112166	Difference in border definition
DCM		112167	Difference in distribution
DCM		112168	Difference in site involvement
DCM		112169	Difference in Type of Content
DCM		112170	Difference in Texture
SRT		F-01722	Finding partially removed
SRT		F-01723	No significant changes in the finding
SRT		M-02520	Increase in size
SRT		M-02530	Decrease in size
SRT		F-01728	Less defined
SRT		F-01729	More defined

CONTEXT ID 6135

Chest Image Quality Finding

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		111208	Grid artifact(s)
DCM		111209	Positioning
DCM		111210	Motion blur
DCM		111211	Under exposed
DCM		111212	Over exposed
DCM		111213	No image
DCM		111214	Detector artifact(s)
DCM		111215	Artifact(s) other than grid or detector artifact
DCM		111216	Mechanical failure
DCM		111217	Electrical failure
DCM		111218	Software failure
DCM		111219	Inappropriate image processing
DCM		111220	Other failure
DCM		111221	Unknown failure

CONTEXT ID 6136

Chest Types of Quality Control Standard

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112035	Performance of Pediatric and Adult Chest Radiography, ACR
DCM		112036	ACR Position Statement
DCM		111240	Institutionally defined quality control standard
DCM		112184	Performance of Pediatric and Adult Thoracic CT
DCM		112185	Performance of CT for Detection of Pulmonary Embolism in Adults
DCM		112186	Performance of High-Resolution CT of the Lungs in Adults

CONTEXT ID 6137

Types of Chest CAD Analysis

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		P5-B3402	Spatial collocation analysis[1]
SRT		P5-B3404	Spatial proximity analysis[2]
SRT		P5-B3406	Temporal correlation
SRT		P5-B3408	Image quality analysis

[1] Spatial Co-location Analysis is used to identify features that are the same or located in the same place.

[2] Spatial Proximity Analysis is used to identify different features that are related spatially.

Context ID 6138

Chest Non-Lesion Object Type

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		A-32110	Bullet
SRT		A-13600	Staple
SRT		A-13510	Suture material
DCM		111168	Scar tissue
DCM		111171	Pacemaker
SRT		A-040CB	Cardiac pacemaker lead
SRT		A-26800	Catheter
DCM		112172	Portacath
DCM		112173	Chest tube
SRT		A-14611	Vena cava filter
SRT		A-04000	Prosthesis
SRT		A-26430	Feeding tube
SRT		A-26434	Jejunostomy tube
SRT		A-25350	Edotracheal tube
DCM		112174	Central line
SRT		A-12210	Cervical collar
SRT		P1-26100	Tracheotomy
DCM		112175	Kidney stent

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		A-11C08	Ureteric stent
DCM		112176	Pancreatic stent
DCM		112177	Nipple ring
SRT		A-61000	Jewelry
DCM		112178	Coin
SRT		A-12024	Pin
SRT		A-30360	Needle
SRT		A-04110	Heart valve prosthesis
DCM		112171	Fiducial mark
DCM		111176	Unspecified

Context ID 6139

Non-Lesion Modifiers

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		R-40819	Internal
SRT		R-40941	External

Context ID 6140

Calculation Methods

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		121427	Estimated
DCM		112187	Unspecified method of calculation
DCM		112055	Agatston scoring method
DCM		112056	Volume scoring method
DCM		112057	Mass scoring method

Context ID 6141

Attenuation Coefficient Measurements

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112031	Attenuation Coefficient
DCM		112179	Minimum Attenuation Coefficient
DCM		112180	Maximum Attenuation Coefficient
DCM		112181	Mean Attenuation Coefficient
DCM		112182	Median Attenuation Coefficient
DCM		112183	Standard Deviation of Attenuation Coefficient

CONTEXT ID 6142

Calculated Value

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112017	Cavity extent as percent of volume
DCM		112018	Calcification extent as percent of surface
DCM		112019	Calcification extent as percent of volume
DCM		112058	Calcium score

CONTEXT ID 6143

Response Criteria

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
			Include CONTEXT ID 6144

CONTEXT ID 6144

RECIST Response Criteria

Type: Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112041	Target Lesion Complete Response
DCM		112042	Target Lesion Partial Response
DCM		112043	Target Lesion Progressive Disease
DCM		112044	Target Lesion Stable Disease
DCM		112045	Non-Target Lesion Complete Response
DCM		112046	Non-Target Lesion Incomplete Response or Stable Disease
DCM		112047	Non-Target Lesion Progressive Disease

CONTEXT ID 6145

Baseline Category

Type: Extensible Version:

Note: From RECIST

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM		112074	Target Lesion at Baseline
DCM		112075	Non-Target Lesion at Baseline
DCM		112076	Non-Lesion at Baseline

CONTEXT ID 244

Laterality

Type: Non-Extensible Version:

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT		G-A100	Right
SRT		G-A101	Left
SRT		G-A102	Right and left
SRT		G-A103	Unilateral

CONTEXT ID 3015

Coronary Arteries

Type: Non-Extensible Version:

Coding Scheme Designator	Code Value	Code Meaning
		Include CONTEXT ID 3014
SNM3	T-4311A	Left Anterior Descending Coronary Artery
SNM3	T-43203	Right Coronary Artery
SNM3	T-43120	Circumflex Coronary Artery

Add the following definitions to Part 16 Annex D DICOM Controlled Terminology Definitions (Normative):

Annex D DICOM Controlled Terminology Definitions (Normative)

This Annex specifies the meanings of codes defined in DICOM, either explicitly or by reference to another part of DICOM or an external reference document or standard.

DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition
112000	Chest CAD Report	A structured report containing the results of computer-aided detection or diagnosis applied to chest imaging and associated clinical information.
112001	Opacity	The shadow of an absorber that attenuates the X-ray beam more effectively than do surrounding absorbers. In a radiograph, any circumscribed area that appears more nearly white (of lesser photometric density) than its surround [Fraser and Pare].
112002	Series Instance UID	A unique identifier for a series of DICOM SOP instances.
112003	Associated Chest Component	A named anatomic region within the chest cavity.
112004	Abnormal interstitial pattern	A collection of opacities detected within the continuum of loose connective tissue throughout the lung, that is not expected in a diagnostically normal radiograph.
112005	Radiographic anatomy	A type of anatomy that is expected to be detectable on a radiographic (X-ray based) image.
112006	Distribution Descriptor	Characteristic of the extent of spreading of a finding or feature.
112007	Border definition	Characteristic of the clarity of the boundary or edges of a finding or feature.
112008	Site involvement	The part(s) of the anatomy affected or encompassed by a finding or feature.
112009	Type of Content	Characteristic of the matter or substance within a finding or feature.
112010	Texture Descriptor	Characteristic of the surface or consistency of a finding or feature.
112011	Positioner Primary Angle	Position of the X-ray beam about the patient from the RAO to LAO direction where movement from RAO to vertical is positive.
112012	Positioner Secondary Angle	Position of the X-ray beam about the patient from the caudal to cranial direction where movement from caudal to vertical is positive.

Code Value	Code Meaning	Definition
112013	Location in Chest	The zone, lobe or segment within the chest cavity in which a finding or feature is situated.
112014	Orientation Descriptor	Vertical refers to orientation parallel to the superior-inferior (cephalad-caudad) axis of the body, with horizontal being perpendicular to this, and an oblique orientation having projections in both the horizontal and vertical.
112015	Border shape	Characteristic of the shape formed by the boundary or edges of a finding or feature.
112016	Baseline Category	Indicates whether a finding was considered a target lesion, non-target lesion, or non-lesion during evaluation of a baseline series, according to a method such as RECIST.
112017	Cavity extent as percent of volume	The extent of a detected cavity, represented as the percent of the surrounding volume that it occupies.
112018	Calcification extent as percent of surface	The extent of a detected calcification, represented as the percent of the surrounding surface that it occupies.
112019	Calcification extent as percent of volume	The extent of a detected calcification, represented as the percent of the surrounding volume that it occupies.
112020	Response Evaluation	A heading for the reporting of response evaluation for treatment of solid tumors.
112021	Response Evaluation Method	The system applied in the reporting of response evaluation for treatment of solid tumors.
112022	RECIST	Response Evaluation Criteria In Solid Tumors. See Normative References.
112023	Composite Feature Modifier	A term which further specifies the name of an item that is an inferred correlation relating two or more individual findings or features.
112024	Single Image Finding Modifier	A term which further specifies the name of an item that was detected on one image.
112025	Size Descriptor	A qualitative descriptor for the extent of a finding or feature.
112026	Width Descriptor	A qualitative descriptor for the thickness of tubular structures, such as blood vessels.
112027	Opacity Descriptor	A characteristic that further describes the nature of an opacity.
112028	Abnormal Distribution of Anatomic Structure	The type of adverse affect that a finding or feature is having on the surrounding anatomy.
112029	WHO	Response evaluation method as defined in chapter 5, “Reporting of Response” of the WHO Handbook for Reporting Results for Cancer Treatment. See Normative References.

Code Value	Code Meaning	Definition
112030	Calcification Descriptor	Identification of the morphology of detected calcifications.
112031	Attenuation Coefficient	A quantitative numerical statement of the relative attenuation of the X-ray beam at a specified point; for example, expressed in Hounsfield units [referred to as CT Number in Fraser and Pare].
112032	Threshold Attenuation Coefficient	An X-ray attenuation coefficient that is used as a threshold, for example, in calcium scoring.
112033	Abnormal opacity	An opacity that is not expected in a diagnostically normal radiograph.
112034	Calculation Description	A textual description of the mathematical method of calculation which resulted in a calculated value.
112035	Performance of Pediatric and Adult Chest Radiography, ACR	American College of Radiology. ACR Standard for the Performance of Pediatric and Adult Chest Radiography. In: Standards. Reston, Va: 2001:95-98.
112036	ACR Position Statement	American College of Radiology. ACR Position Statement. In: Standards. Reston, Va: 2001:iv.
112037	Non-lesion Modifier	A descriptor for a non-lesion object finding or feature, used to indicate whether the object was detected as being internal or external to the patient's body.
112038	Osseous Modifier	A concept modifier for an Osseous Anatomy, or bone related, finding.
112039	Tracking Identifier	A text label used for tracking a finding or feature, potentially across multiple reporting objects, over time. This label shall be unique within the domain in which it is used.
112040	Tracking Unique Identifier	A unique identifier used for tracking a finding or feature, potentially across multiple reporting objects, over time.
112041	Target Lesion Complete Response	Disappearance of all target lesions.
112042	Target Lesion Partial Response	At least a 30% decrease in the sum of the Longest Diameter of target lesions, taking as reference the baseline sum Longest Diameter.
112043	Target Lesion Progressive Disease	At least a 20% increase in the sum of the Longest Diameter of target lesions, taking as reference the smallest sum Longest Diameter recorded since the treatment started, or the appearance of one or more new lesions.
112044	Target Lesion Stable Disease	Neither sufficient shrinkage to qualify for Partial Response nor sufficient increase to qualify for Progressive Disease, taking as reference the smallest sum Longest Diameter since the treatment started.

Code Value	Code Meaning	Definition
112045	Non-Target Lesion Complete Response	Disappearance of all non-target lesions and normalization of tumor marker level.
112046	Non-Target Lesion Incomplete Response or Stable Disease	Persistence of one or more non-target lesions and/or maintenance of tumor marker level above the normal limits.
112047	Non-Target Lesion Progressive Disease	Appearance of one or more new lesions and/or unequivocal progression of existing non-target lesions.
112048	Current Response	The current response evaluation for treatment of solid tumors, according to a method such as RECIST.
112049	Best Overall Response	Best response recorded from the start of the treatment until disease progression/recurrence, taking as reference for Progressive Disease the smallest measurements recorded since the treatment started, according to a method such as RECIST.
112050	Anatomic Identifier	A text identifier of an anatomic feature when a multiplicity of features of that type may be present, such as “Rib 1”, “Rib 2” or thoracic vertibrae “T1” or “T2”.
112051	Measurement of Response	A measured or calculated evaluation of response. For example, according to a method such as RECIST, the value would be the calculated sum of the lengths of the longest axes of a set of target lesions.
112052	Bronchovascular	Of or relating to a bronchial (lung) specific channel for the conveyance of a body fluid.
112053	Osseous	Of, relating to, or composed of bone.
112054	Secondary pulmonary lobule	The smallest unit of lung surrounded by connective tissue septa; the unit of lung subtended by any bronchiole that gives off three to five terminal bronchioles [Fraser and Pare].
112055	Agatston scoring method	A method of calculating an overall calcium score, reflecting the calcification of coronary arteries, based on the maximum X-ray attenuation coefficient and the area of calcium deposits.
112056	Volume scoring method	A method of calculating an overall calcium score, reflecting the calcification of coronary arteries, based on the volume of each calcification, typically expressed in mm3.
112057	Mass scoring method	A method of calculating an overall calcium score, reflecting the calcification of coronary arteries, based on the total mass of calcification, typically expressed in mg.

Code Value	Code Meaning	Definition
112058	Calcium score	A measure often arrived at through calculation of findings from CT examination, which is a common predictor of significant stenosis of the coronary arteries.
112059	Primary complex	The combination of a focus of pneumonia due to a primary infection with granulomas in the draining hilar or mediastinal lymph nodes [Fraser and Pare].
112060	Oligemia	General or local decrease in the apparent width of visible pulmonary vessels, suggesting less than normal blood flow (reduced blood flow) [Fraser and Pare].
112061	Abnormal lines (1D)	Linear opacity of very fine width, i.e. a nearly one dimensional opacity.
112062	Abnormal lucency	Area of abnormal very low X-ray attenuation, typically lower than aerated lung when occuring in or projecting over lung, or lower than soft tissue when occurring in or projecting over soft tissue.
112063	Abnormal calcifications	A calcific opacity within the lung that may be organized, but does not display the trabecular organization of true bone [Fraser and Pare].
112064	Abnormal texture	Relatively homogeneous, extended, pattern of abnormal opacity in the lung, typically low in contrast.
112065	Reticulonodular pattern	A collection of innumerable small, linear, and nodular opacities that together produce a composite appearance resembling a net with small superimposed nodules. The reticular and nodular elements are dimensionally of similar magnitude [Fraser and Pare].
112066	Beaded septum sign	Irregular septal thickening that suggests the appearance of a row of beads; usually a sign of lymphangitic carcinomatosis, but may also occur rarely in sarcoidosis [Fraser and Pare].
112067	Nodular pattern	A collection of innumerable, small discrete opacities ranging in diameter from 2-10 mm, generally uniform in size and widespread in distribution, and without marginal spiculation [Fraser and Pare].
112068	Pseudoplaque	An irregular band of peripheral pulmonary opacity adjacent to visceral pleura that simulates the appearance of a pleural plaque and is formed by coalescence of small nodules [Fraser and Pare].

Code Value	Code Meaning	Definition
112069	Signet-ring sign	A ring of opacities (usually representing a dilated, thick-walled bronchus) in association with a smaller, round, soft tissue opacity (the adjacent pulmonary artery) suggesting a “signet ring” [Fraser and Pare].
112070	Air bronchiologram	Equivalent of air bronchogram, but in airways assumed to be bronchioles because of peripheral location and diameter [Fraser and Pare].
112071	Air bronchogram	Radiographic shadow of an air-containing bronchus; presumed to represent an air-containing segment of the bronchial tree (identity often inferred) [Fraser and Pare].
112072	Air crescent	Air in a crescentic shape in a nodule or mass, in which the air separates the outer wall of the lesion from an inner sequestrum, which most commonly is a fungus ball of *Aspergillus* species [Fraser and Pare].
112073	Halo sign	Ground-glass opacity surrounding the circumference of a nodule or mass. May be a sign of invasive aspergillosis or hemorrhage of various causes [Fraser and Pare].
112074	Target Lesion at Baseline	Flag denoting that this lesion was identified, at baseline, as a target lesion intended for tracking over time [RECIST].
112075	Non-Target Lesion at Baseline	Flag denoting that this lesion was not identified, at baseline, as a target lesion, and was not intended for tracking over time [RECIST].
112076	Non-Lesion at Baseline	Flag denoting that this finding was identified, at baseline, as a category other than a lesion, and was not intended for tracking over time [RECIST].
112077	Vasoconstriction	Local or general reduction in the caliber of visible pulmonary vessels, presumed to result from decreased flow occasioned by contraction of muscular pulmonary arteries [Fraser and Pare].
112078	Vasodilation	Local or general increase in the width of visible pulmonary vessels resulting from increased pulmonary blood flow [Fraser and Pare].
112079	Architectural distortion	A manifestation of lung disease in which bronchi, pulmonary vessels, a fissure or fissures, or septa of secondary pulmonary lobules are abnormally displaced [Fraser and Pare].
112080	Mosaic perfusion	A patchwork of regions of varied attenuation, interpreted as secondary to regional differences in perfusion [Fraser and Pare].

Code Value	Code Meaning	Definition
112081	Pleonemia	Increased blood flow to the lungs or a portion thereof, manifested by a general or local increase in the width of visible pulmonary vessels [Fraser and Pare].
112082	Interface	The common boundary between the shadows of two juxtaposed structures or tissues of different texture or opacity (edge, border) [Fraser and Pare].
112083	Line	A longitudinal opacity no greater than 2 mm in width [Fraser and Pare].
112084	Lucency	The shadow of an absorber that attenuates the primary X-ray beam less effectively than do surrounding absorbers. In a radiograph, any circumscribed area that appears more nearly black (of greater photometric density) than its surround [Fraser and Pare].
112085	Midlung window	A midlung region, characterized by the absence of large blood vessels and by a paucity of small blood vessels, that corresponds to the minor fissure and adjacent peripheral lung [Fraser and Pare].
112086	Carina angle	The angle formed by the right and left main bronchi at the tracheal bifurcation [Fraser and Pare].
112087	Centrilobular structures	The pulmonary artery and its immediate branches in a secondary lobule; HRCT depicts these vessels in certain cases; a.k.a. core structures or lobular core structures [Fraser and Pare].
112088	Anterior junction line	A vertically oriented linear or curvilinear opacity approximately 1-2 mm wide, commonly projected on the tracheal air shadow [Fraser and Pare].
112089	Posterior junction line	A vertically oriented, linear or curvilinear opacity approximately 2 mm wide, commonly projected on the tracheal air shadow, and usually slightly concave to the right [Fraser and Pare].
112090	Azygoesophageal recess interface	A space in the right side of the mediastinum into which the medial edge of the right lower lobe extends [Fraser and Pare].
112091	Paraspinal line	A vertically oriented interface usually seen in a frontal chest radiograph to the left of the thoracic vertebral column [Fraser and Pare].
112092	Posterior tracheal stripe	A vertically oriented linear opacity ranging in width from 2-5 mm, extending from the thoracic inlet to the bifurcation of the trachea, and visible only on lateral radiographs of the chest [Fraser and Pare].

Code Value	Code Meaning	Definition
112093	Right tracheal stripe	A vertically oriented linear opacity approximately 2-3 mm wide extending from the thoracic inlet to the right tracheobronchial angle [Fraser and Pare].
112094	Stripe	A longitudinal composite opacity measuring 2-5 mm in width; acceptable when limited to anatomic structures within the mediastinum [Fraser and Pare].
112095	Hiatus	A gap or passage through an anatomical part or organ; *especially* **:** a gap through which another part or organ passes.
112096	Rib Scalene Tubercle	A small rounded elevation or eminence on the first rib for the attachment of the scalenus anterior.
112097	Vertebral Intervertebral Notch	A groove that serves for the transmission of the vertebral artery.
112098	Subscapular Fossa	The concave depression of the anterior surface of the scapula.
112099	Scapular Spine	A sloping ridge dividing the dorsal surface of the scapula into the supraspinatous fossa (above), and the infraspinatous fossa (below).
112100	Scapular Supraspinatus Fossa	The portion of the dorsal surface of the scapula above the scapular spine.
112101	Scapular Infraspinatus Fossa	The portion of the dorsal surface of the scapula below the scapular spine.
112102	Aortic knob	The portion of the aortic arch that defines the transition between its ascending and descending limbs.
112103	Arch of the Azygos vein	Section of Azygos vein near the fourth thoracic vertebra, where it arches forward over the root of the right lung, and ends in the superior vena cava, just before that vessel pierces the pericardium.
112104	Air-fluid level	A local collection of gas and liquid that, when traversed by a horizontal X-ray beam, creates a shadow characterized by a sharp horizontal interface between gas density above and liquid density below [Fraser and Pare].
112105	Corona radiata	A circumferential pattern of fine linear spicules, approximately 5 mm long, extending outward from the margin of a solitary pulmonary nodule through a zone of relative lucency [Fraser and Pare].

Code Value	Code Meaning	Definition
112106	Honeycomb pattern	A number of closely approximated ring shadows representing air spaces 5-10 mm in diameter with walls 2-3 mm thick that resemble a true honeycomb; implies “end-stage” lung [Fraser and Pare]
112107	Fleischner’s line(s)	A straight, curved, or irregular linear opacity that is visible in multiple projections; usually situated in the lower half of the lung; vary markedly in length and width [Fraser and Pare].
112108	Intralobular lines	Fine linear opacities present in a lobule when the intralobular interstitium is thickened. When numerous, they may appear as a fine reticular pattern [Fraser and Pare].
112109	Kerley A line	Essentially straight linear opacity 2-6 cm in length and 1-3 mm in width, usually in an upper lung zone [Fraser and Pare].
112110	Kerley B line	A straight linear opacity 1.5-2 cm in length and 1-2 mm in width, usually at the lung base [Fraser and Pare].
112111	Kerley C lines	A group of branching, linear opacities producing the appearing of a fine net, at the lung base [Fraser and Pare].
112112	Parenchymal band	Elongated opacity, usually several millimeters wide and up to about 5 cm long, often extending to the pleura, which may be thickened and retracted at the site of contact [Fraser and Pare].
112113	Reticular pattern	A collection of innumerable small linear opacities that together produce an appearance resembling a net [Fraser and Pare].
112114	Septal line(s)	Usually used in the plural, a generic term for linear opacities of varied distribution produced when the interstitium between pulmonary lobules is thickened [Fraser and Pare].
112115	Subpleural line	A thin curvilinear opacity, a few millimeters or less in thickness, usually less than 1 cm from the pleural surface and paralleling the pleura [Fraser and Pare].
112116	Tramline shadow	Parallel or slightly convergent linear opacities that suggest the planar projection of tubular structures and that correspond in location and orientation to elements of the bronchial tree [Fraser and Pare].
112117	Tubular shadow	Paired, parallel, or slightly convergent linear opacities presumed to represent the walls of a tubular structure seen en face; used if the anatomic nature of a shadow is obscure [Fraser and Pare].

Code Value	Code Meaning	Definition
112118	Density	The opacity of a radiographic shadow to visible light; film blackening; the term should never be used to mean an “opacity” or “radiopacity” [Fraser and Pare].
112119	Dependent opacity	Subpleural increased attenuation in dependent lung. The increased attenuation disappears when the region of lung is nondependent; a.k.a. dependent increased attenuation [Fraser and Pare].
112120	Ground glass opacity	Hazy increased attenuation of lung, but with preservation of bronchial and vascular margins; caused by partial filling of air spaces, interstitial thickening, partial collapse of alveoli, normal expiration, or increased capillary blood volume [Fraser and Pare].
112121	Infiltrate	Any ill-defined opacity in the lung [Fraser and Pare].
112122	Micronodule	Discrete, small, round, focal opacity of at least soft tissue attenuation and with a diameter no greater than 7 mm [Fraser and Pare].
112123	Phantom tumor (pseudotumor)	A shadow produced by a local collection of fluid in one of the interlobar fissures, usually elliptic in one radiographic projection and rounded in the other, resembling a tumor [Fraser and Pare].
112124	Shadow	Any perceptible discontinuity in film blackening attributed to the attenuation of the X-ray beam by a specific anatomic absorber or lesion on or within the body of the patient; to be employed only when more specific identification is not possible [Fraser and Pare].
112125	Small irregular opacities	Term used to define a reticular pattern specific to pneumoconioses [Fraser and Pare].
112126	Small rounded opacities	Term used to define a nodular pattern specific to pneumoconioses [Fraser and Pare].
112127	Tree-in-bud sign	Nodular dilation of centrilobular branching structures that resembles a budding tree and represents exudative bronchiolar dilation [Fraser and Pare].
112128	Granular pattern	Any extended, finely granular pattern of pulmonary opacity within which normal anatomic details are partly obscured [Fraser and Pare].
112129	Miliary pattern	A collection of tiny discrete opacities in the lungs, each measuring 2 mm or less in diameter, generally uniform in size and widespread in distribution [Fraser and Pare].

Code Value	Code Meaning	Definition
112130	Mosaic pattern	Generalized pattern of relatively well defined areas in the lung having different X-ray attenuations due to a longstanding underlying pulmonary disease.
112131	Extremely small	A qualitative descriptor of a size that is dramatically less than typical.
112132	Very small	A qualitative descriptor of a size that is considerably less than typical.
112133	Too small	A qualitative descriptor of a size that is so small as to be abnormal versus expected size.
112134	Elliptic	Shaped like an ellipse (oval).
112135	Lobulated	A border shape that is made up of, provided with, or divided into lobules (small lobes, curved or rounded projections or divisions).
112136	Spiculated	Radially orientated border shape.
112137	Sharply defined	The border of a shadow (opacity) is sharply defined [Fraser and Pare].
112138	Distinctly defined	The border of a shadow (opacity) is distinctly defined [Fraser and Pare].
112139	Well demarcated	The border of a shadow (opacity) is well distinct from adjacent structures [Fraser and Pare].
112140	Sharply demarcated	The border of a shadow (opacity) is sharply distinct from adjacent structures [Fraser and Pare].
112141	Poorly demarcated	The border of a shadow (opacity) is poorly distinct from adjacent structures [Fraser and Pare].
112142	Circumscribed	A shadow (opacity) possessing a complete or nearly complete visible border [Fraser and Pare].
112143	Air	Inspired atmospheric gas. The word is sometimes used to describe gas within the body regardless of its composition or site [Fraser and Pare].
112144	Soft tissue	Material having X-ray attenuation properties similar to muscle.
112145	Calcium	Material having X-ray attenuation properties similar to calcium, a silver-white bivalent metallic element occurring in plants and animals.
112146	Acinar	A pulmonary opacity 4-8 mm in diameter, presumed to represent anatomic acinus, or a collection of opacities in the lung, each measuring 4-8 mm in diameter, and together producing an extended, homogeneous shadow [Fraser and Pare].

Code Value	Code Meaning	Definition
112147	Air space	The gas-containing portion of the lung parenchyma, including the acini and excluding the interstitium [Fraser and Pare].
112148	Fibronodular	Sharply defined, approximately circular opacities occurring singly or in clusters, usually in the upper lobes [Fraser and Pare].
112149	Fluffy	A shadow (opacity) that is ill-defined, lacking clear-cut margins [Fraser and Pare].
112150	Linear	A shadow resembling a line; any elongated opacity of approximately uniform width [Fraser and Pare].
112151	Profusion	The number of small opacities per unit area or zone of lung. In the International Labor Organization (ILO) classification of radiographs of the pneumoconioses, the qualifiers 0 through 3 subdivide the profusion into 4 categories. The profusion categories may be further subdivided by employing a 12-point scale [Fraser and Pare].
112152	Silhouette sign	The effacement of an anatomic soft tissue border by either a normal anatomic structure or a pathologic state such as airlessness of adjacent lung or accumulation of fluid in the contiguous pleural space; useful in detecting and localizing an opacity along the axis of the X-ray beam [Fraser and Pare].
112153	Subpleural	Situated or occurring between the pleura and the body wall.
112154	Bat's wing distribution	Spatial arrangement of opacities that bears vague resemblance to the shape of a bat in flight; bilaterally symmetric [Frasere and Pare].
112155	Butterfly distribution	Spatial arrangement of opacities that bears vague resemblance to the shape of a butterfly in flight; bilaterally symmetric [Frasere and Pare].
112156	Centrilobular	Referring to the region of the bronchioloarteriolar core of a secondary pulmonary lobule [Fraser and Pare].
112157	Coalescent	The joining together of a number of opacities into a single opacity [Fraser and Pare].
112158	Lobar	Of or relating to a lobe (a curved or rounded projection or division). For example, involving an entire lobe of the lung.
112159	Hyper-acute	Extremely or excessively acute, as a qualitative measure of severity.
112160	Homogeneous (uniform opacity)	Of uniform opacity or texture throughout [Fraser and Pare].
112161	Inhomogeneous	Lack of homogeneity in opacity or texture.

Code Value	Code Meaning	Definition
112162	Target	Discrete opacity centrally within a larger opacity, as a calcification descriptor.
112163	Fibrocalcific	Pertaining to sharply defined, linear, and/or nodular opacities containing calcification(s) [Fraser and Pare].
112164	Flocculent	Calcifications made up of loosely aggregated particles, resembling wool.
112165	Difference in border shape	A change in the shape formed by the boundary or edges of a finding or feature.
112166	Difference in border definition	A change in the clarity of the boundary or edges of a finding or feature.
112167	Difference in distribution	A change in the extent of spreading of a finding or feature.
112168	Difference in site involvement	A change in the part(s) of the anatomy affected or encompassed by a finding or feature.
112169	Difference in Type of Content	A change in the matter or substance within a finding or feature.
112170	Difference in Texture	A change in the surface or consistency of a finding or feature.
112171	Fiducial mark	A location in image space, which may or may not correspond to an anatomical reference, which is often used for registering data sets.
112172	Portacath	Connected to an injection chamber placed under the skin in the upper part of the chest. When it is necessary to inject some drug, a specific needle is put in the chamber through the skin and a silicon membrane. The advantage of a portacath is that it may be left in place several months contrarily of "classical" cathethers.
112173	Chest tube	A tube inserted into the chest wall from outside the body, for drainage. Sometimes used for collapsed lung. Usually connected to a receptor placed lower than the insertion site.
112174	Central line	A tube placed into the subclavian vein to deliver medication directly into the venous system.
112175	Kidney stent	A stent is a tube inserted into another tube. Kidney stent is a tube that is inserted into the kidney, ureter, and bladder, to help drain urine. Usually inserted through a scoping device presented through the urethra.
112176	Pancreatic stent	A stent is a tube inserted into another tube. Pancreatic stent is inserted through the common bile duct to the pancreatic duct, to drain bile.

Code Value	Code Meaning	Definition
112177	Nipple ring	A non-lesion object which appears to be a circular band, attached to the body via pierced nipple.
112178	Coin	A non-lesion object which appears to be a flat round piece of metal.
112179	Minimum Attenuation Coefficient	The least quantity assignable, admissible, or possible; the least of a set of X-ray attenuation coefficients.
112180	Maximum Attenuation Coefficient	The greatest quantity or value attainable or attained; the largest of a set of X-ray attenuation coefficients.
112181	Mean Attenuation Coefficient	The value that is computed by dividing the sum of a set of X-ray attenuation coefficients by the number of values.
112182	Median Attenuation Coefficient	The value in an ordered set of X-ray attenuation coefficients, below and above which there is an equal number of values.
112183	Standard Deviation of Attenuation Coefficient	For a set of X-ray attenuation coefficients: 1) a measure of the dispersion of a frequency distribution that is the square root of the arithmetic mean of the squares of the deviation of each of the class frequencies from the arithmetic mean of the frequency distribution; 2) a parameter that indicates the way in which a probability function or a probability density function is centered around its mean and that is equal to the square root of the moment in which the deviation from the mean is squared.
112184	Performance of Pediatric and Adult Thoracic CT	American College of Radiology. ACR Standard for the Performance of Pediatric and Adult Thoracic Computed Tomography (CT). In: Standards. Reston, Va: 2001:103-107.
112185	Performance of CT for Detection of Pulmonary Embolism in Adults	American College of Radiology. ACR Standard for the Performance of Computed Tomography for the Detection of Pulmonary Embolism in Adults. In: Standards. Reston, Va: 2001:109-113.
112186	Performance of High-Resolution CT of the Lungs in Adults	American College of Radiology. ACR Standard for the Performance of High-Resolution Computed Tomography (HRCT) of the Lungs in Adults. In: Standards. Reston, Va: 2001:115-118.
112187	Unspecified method of calculation	The method of calculation of a measurement or other type of numeric value is not specified.

Add the following definitions to Part 16 Annex E French Translations…

Annex E French Translations of Selected Codes used in the DCMR (Normative)

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
DCM		112063	Abnormal calcifications	Calcifications anormales
DCM		112028	Abnormal Distribution of Anatomic Structure	Distribution anormale des structures anatomiques
DCM		112004	Abnormal interstitial pattern	Opacité interstitielle
DCM		112061	Abnormal lines (1D)	Lignes anormales (1D)
DCM		112062	Abnormal lucency	Clarté anormale
DCM		112033	Abnormal opacity	Opacité anormale
DCM		112064	Abnormal texture	Texture anormale Note : If the term refers to a localized lesion the translation is “Texture anormale “ but if the term refers to the entire lung it is more appropriate to use “Trame anormale”.
DCM		112146	Acinar	Acinaire
DCM		112036	ACR Position Statement	Position de l'ACR
SRT		T-15420	Acromioclavicular Joint	Articulation acromioclaviculaire
SRT		T-12281	Acromion process of scapula	Acromion
SRT		G-A231	Acute	Aigu
DCM		112055	Agatston scoring method	Score de calcification cororaire par la méthode d’Agatston
DCM		112143	Air	Air
DCM		112070	Air bronchiologram	Bronchiologramme aérique
DCM		112071	Air bronchogram	Bronchogramme aérique
DCM		112072	Air crescent	Croissant aérique
DCM		112147	Air space	Espace aérique
DCM		112104	Air-fluid level	Niveau hydro-aérique
SRT		F-20240	Air-trapping	Piégeage
SRT		T-20001	Airway structure	Structure des voies aériennes
DCM		112050	Anatomic Identifier	Identificateur anatomique
SRT		T-11307	Angle of rib	Angle de la côte
DCM		112088	Anterior junction line	Ligne médiastinale antérieure
SRT		T-28630	Anterior segment of left upper lobe	Segment antérieur du lobe supérieur gauche
SRT		T-28230	Anterior segment of right upper lobe	Segment antérieur du lobe supérieur droit

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		T-42000	Aorta	Aorte
SRT		T-42300	Aortic arch	Crosse de l'aorte
SRT		T-42310	Aortic isthmus	Isthme aortique
DCM		112102	Aortic knob	Bouton aortique
SRT		T-35400	Aortic Valve	Valve aortique
SRT		G-A122	Apical	Apical
DCM		112103	Arch of the Azygos vein	Crosse de la veine Azygos
SRT		T-11511	Arch of vertebra	Arc vertébral
DCM		112079	Architectural distortion	Modification des rapports anatomiques
SRT		T-42100	Ascending aorta	Aorte thoracique ascendante
DCM		112003	Associated Chest Component	Structure anatomique du thorax
SRT		D4-31220	Atrial Septal Defect	Communication inter atriale
SRT		T-32100	Atrium	Atrium ou Oreillette
DCM		112031	Attenuation Coefficient	Coefficient d'atténuation
SRT		T-47100	Axillary Artery	Artère axillaire
SRT		T-18774	Axillary Fascia	Fascia axillaire
SRT		T-49110	Axillary vein	Veine axillaire
DCM		112090	Azygoesophageal recess interface	Ligne para-azygo-oesophagienne
SRT		T-48340	Azygos vein	Grande veine Azygos
SRT		G-A123	Basal	Basal
DCM		112016	Baseline Category	Catégorie à T0
DCM		112154	Bat's wing distribution	No translation is provided Note: In France, the two concepts as described in Annex D 112154 and 112155 are not distinguished. For this reason both "Bat's wing" and "Butterfly distribution" are translated as "Aspect en aile de papillon".
DCM		112066	Beaded septum sign	Septa perlés
DCM		112049	Best Overall Response	La meilleure réponse
SRT		T-11220	Body of sternum	Corps du sternum
DCM		112007	Border definition	Définition des bords
DCM		112015	Border shape	Forme des bords
SRT		T-47160	Brachial artery	Artère brachiale
SRT		T-A9090	Brachial plexus	Plexus brachial
SRT		T-46010	Brachiocephalic trunk	Tronc artériel brachio-céphalique
SRT		T-48620	Brachiocephalic vein	Tronc veineux brachio-céphalique

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		R-40939	Bronchial	Bronchique
SRT		T-46310	Bronchial artery	Artère bronchique
DCM		112052	Bronchovascular	Broncho-vasculaire
SRT		T-26000	Bronchus	Bronche
DCM		112155	Butterfly distribution	Aspect en ailes de papillon
DCM		112030	Calcification Descriptor	Descripteur des calcifications
DCM		112018	Calcification extent as percent of surface	% de surface calcifiée
DCM		112019	Calcification extent as percent of volume	% de volume calcifié
DCM		112145	Calcium	Calcium
DCM		112058	Calcium score	Score de calcification
DCM		112034	Calculation Description	Description du calcul
SRT		A-040CB	Cardiac pacemaker lead	Electrode de pace-maker cardiaque
SRT		T-25201	Carina	Carène
DCM		112086	Carina angle	Angle carinaire
SRT		T-B4000	Carotid Body	Corpuscule carotidien
DCM		112017	Cavity extent as percent of volume	Taille de la cavité en % du volume
SRT		G-A110	Central	Central
DCM		112174	Central line	Cathéter central
DCM		112156	Centrilobular	Centro-lobulaire
DCM		112087	Centrilobular structures	Structures centro-lobulaires
SRT		A-12210	Cervical collar	Minerve
DCM		112000	Chest CAD Report	Compte-rendu de la DAO du thorax
DCM		112173	Chest tube	Drain thoracique
SRT		T-D3050	Chest wall	Paroi thoracique
SRT		T-35020	Chordae tendineae cordis	Cordage
SRT		G-A270	Chronic	Chronique
DCM		112142	Circumscribed	Circonscrit
SRT		T-12310	Clavicle	Clavicule
SRT		T-11219	Clavicular notch of sternum	Incisure claviculaire du sternum
DCM		112157	Coalescent	Confluent
DCM		112178	Coin	Pièce de monnaie
SRT		F-20172	Coin lesion	Lésion nodulaire
SRT		T-45100	Common carotid artery	Artère carotide commune

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
DCM		112023	Composite Feature Modifier	Modificateur lié à une anomalie à caractéristiques composites
SRT		T-12282	Coracoid process of scapula	Apophyse coracoïde
DCM		112105	Corona radiata	Couronne radiaire
SRT		T-11240	Costal Cartilage	Cartilage costal
SRT		T-11308	Costal groove	Sillon de la côte
SRT		T-46180	Costocervical trunk	Tronc cervico-thoracique
UCUM	1.4	dm3	Cubic decimeter	Décimètre cube
DCM		112048	Current Response	Réponse actuelle
SRT		T-13660	Deltoid muscle	Muscle deltoïde
DCM		112118	Density	Densité Note: Typically used with chest CT
DCM		112119	Dependent opacity	Opacité déclive
DCM		121401	Derivation	Méthode de calcul
SRT		T-D0765	Descending aorta	Aorte thoracique descendante
SRT		T-D3400	Diaphragm	Diaphragme
DCM		112166	Difference in border definition	Modification de la netteté des bords
DCM		112165	Difference in border shape	Modification de la forme des bords
DCM		112167	Difference in distribution	Modification de la distribution
DCM		112168	Difference in site involvement	Modification du siège des lésions
DCM		112170	Difference in Texture	Modification de texture
DCM		112169	Difference in Type of Content	Modification du contenu
SRT		G-A321	Diffuse	Diffus
SRT		M-020FA	Discoid	Discoïde
SRT		G-A324	Disseminated	Disséminé
DCM		112138	Distinctly defined	Distincts les uns des autres
DCM		112006	Distribution Descriptor	Descripteur de la distribution
SRT		T-12287	Dorsal aspect of scapula	Corps de l'omoplate
SRT		T-461A0	Dorsal scapular artery	Artère scapulaire postérieure
DCM		112134	Elliptic	Elliptique
SRT		A-25350	Endotracheal tube	Tube endotrachéal
SRT		R-40750	Enlarged	Augmenté de taille
SRT		T-14020	Erector spinae muscle	Muscles érecteurs du rachis
SRT		T-4630D	Esophageal artery	Artère oesophagienne
SRT		T-D3412	Esophageal Hiatus	Hiatus oesophagien
SRT		T-56000	Esophagus	Oesophage
DCM		121427	Estimated	Estimé

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		R-40941	External	Externe
SRT		T-1416B	External intercostal muscle	Muscle intercostal externe
DCM		112131	Extremely small	Extrêmement petit
SRT		T-D0634	Fascial layer	Fascia
SRT		T-D008A	Fat	Graisse
SRT		A-26430	Feeding tube	Sonde d'alimentation
DCM		112163	Fibrocalcific	Fibrocalcique
DCM		112148	Fibronodular	Fibro-nodulaire
DCM		112171	Fiducial mark	Point de repère
SRT		T-D051D	Fissure of lung	Scissure
DCM		112107	Fleischner's line(s)	Ligne(s) de Fleischner
DCM		112164	Flocculent	Floconneux
DCM		112149	Fluffy	Flou Note: the word-to-word translation of "Fluffy" is "Duveteux", but this term is never used. For tissues, the translation must be "Floconneux" but this term is only used for calcifications (Flocculent = Floconneux) in CID 6132. We retained "Flou" (in English, "Fuzzy") as the most appropriate.
SRT		G-A351	Focal	Localisé
SRT		M-30400	Foreign material (iodized oil, mercury, talc)	Corps étranger (lipiodol, mercure, talc)
SRT		G-A366	Generalized	Généralisé
SRT		T-1228A	Glenoid cavity of scapula	Cavité glénoïde
DCM		112128	Granular pattern	Aspect micronodulaire
DCM		112120	Ground glass opacity	Opacité en verre dépoli
DCM		112073	Halo sign	Signe du halo
SRT		T-11301	Head of rib	Tête de le côte
SRT		T-32000	Heart	Cœur
SRT		A-04110	Heart valve prosthesis	Prothèse valvulaire
DCM		112095	Hiatus	Hiatus
SRT		T-28080	Hilum of lung	Hile pulmonaire
DCM		112160	Homogeneous (uniform opacity)	Homogène (opacité uniforme)
DCM		112106	Honeycomb pattern	Aspect en rayon de miel
SRT		G-A142	Horizontal	Horizontal
SRT		T-12410	Humerus	Humérus
DCM		112159	Hyper-acute	Suraigu

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		T-14030	Iliocostalis muscle	Muscle ilio-costal
SRT		T-116EF	Inferior articular facet of axis	Facette articulaire inférieure de l'axis
SRT		T-1153F	Inferior articular process of vertebra	Massif articulaire inférieur
SRT		T-46940	Inferior phrenic artery	Artère phrénique inférieure
SRT		T-48710	Inferior vena cava	Veine cave inférieure
DCM		112121	Infiltrate	Infiltrat
SRT		T-13620	Infraspinatus muscle	Muscle sous épineux
DCM		112161	Inhomogeneous	Hétérogène
SRT		T-14165	Innermost intercostal muscles	Muscles intercostaux intimes
SRT		T-D305A	Intercostal artery	Artère intercostale
DCM		112082	Interface	Interface
SRT		R-40819	Internal	Interne
SRT		T-14183	Internal intercostal muscle	Muscle intercostal interne
SRT		T-48170	Internal jugular vein	Veine jugulaire interne
SRT		T-46200	Internal thoracic artery	Artère thoracique interne
SRT		T-1A007	Interstitial tissue	Interstitium
SRT		T-32410	Interventricular septum	Septum interventriculaire
DCM		112108	Intralobular lines	Lignes intra-lobulaires
SRT		A-26434	Jejunostomy tube	Tube de jéjunostomie
SRT		A-61000	Jewelry	Bijoux
DCM		112109	Kerley A line	Ligne A de Kerley
DCM		112110	Kerley B line	Ligne B de Kerley
DCM		112111	Kerley C lines	Lignes C de Kerley
DCM		112175	Kidney stent	Stent rénal
SRT		T-11514	Lamina of vertebra	Lame de la vertèbre
SRT		G-A405	Laminated	Lamellaire
SRT		R-404AA	Large	Gros
SRT		G-C171	Laterality	Latéralité
SRT		T-14172	Latissimus dorsi muscle	Muscle grand dorsal
SRT		T-26500	Left main bronchus	Bronche principale gauche
SRT		T-14150	Levatores costarum muscles	Muscles élévateurs des côtes
SRT		T-42370	Ligamentum arteriosum	Ligament artériel
DCM		112083	Line	Ligne
DCM		112150	Linear	Linéaire
DCM		112158	Lobar	Lobaire
SRT		T-28770	Lobe of lung	Lobe pulmonaire

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
DCM		112135	Lobulated	Lobulée
DCM		112013	Location in Chest	Localisation thoracique
SRT		T-14040	Longissimus muscle	Muscle longissimus du thorax
SRT		T-28830	Lower lobe of lung	Lobe pulmonaire inférieur
SRT		T-D320A	Lower zone of lung	Zone inférieure du poumon
DCM		112084	Lucency	Clarté
SRT		T-28000	Lung	Poumon
SRT		T-11211	Manubrium of sternum	Manubrium sternal
SRT		M-03000	Mass	Masse
DCM		112057	Mass scoring method	Appréciation de la charge calcique par la méthode du score de masse
DCM		112180	Maximum Attenuation Coefficient	Coefficient d'atténuation maximum
DCM		112181	Mean Attenuation Coefficient	Coefficient d'atténuation moyen
DCM		112051	Measurement of Response	Quantification de la réponse
DCM		112182	Median Attenuation Coefficient	Médiane des coefficients d'atténuation
SRT		T-D3300	Mediastinum	Médiastin
SRT		R-404A9	Medium	Moyen
DCM		112122	Micronodule	Micronodule
SRT		T-28825	Middle lobe of lung	Lobe moyen du poumon
SRT		T-D3209	Middle zone of lung	Zone moyenne du poumon
DCM		112085	Midlung window	Fenêtre lobaire moyenne
SRT		R-404FA	Mild	faible
DCM		112129	Miliary pattern	Aspect miliaire
DCM		112179	Minimum Attenuation Coefficient	Coefficient d'atténuation minimum
SRT		T-35300	Mitral Valve	Valve atrio-ventriculaire gauche
SRT		G-A002	Moderate	Modéré
DCM		112130	Mosaic pattern	Aspect en mosaïque
DCM		112080	Mosaic perfusion	Perfusion en mosaïque
DCM		111210	Motion blur	Artefact de mouvement
SRT		G-A443	Multifocal	Multifocal
SRT		R-420AE	Muscular	Musculaire
SRT		R-41727	Narrow	Etroit
SRT		T-11303	Neck of rib	Col de la côte
SRT		A-30360	Needle	Aiguille
DCM		112177	Nipple ring	Cerclage mammelonnaire

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		R-403A7	Nodular	Nodulaire
DCM		112067	Nodular pattern	Aspect nodulaire
SRT		M-03010	Nodule	Nodule
DCM		112076	Non-Lesion at Baseline	Anomalie « non lésion » à T0
DCM		112037	Non-lesion Modifier	Modificateur lié à une « non lésion »
DCM		112075	Non-Target Lesion at Baseline	Lésion « non cible » à T0
DCM		112045	Non-Target Lesion Complete Response	Disparition des lésions « non cibles »
DCM		112046	Non-Target Lesion Incomplete Response or Stable Disease	Réponse partielle ou maladie stable sur lésions « non cibles »
DCM		112047	Non-Target Lesion Progressive Disease	Progression sur lésions « non cibles »
SRT		G-A472	Oblique	Oblique
DCM		112060	Oligemia	Oligémie
DCM		112001	Opacity	Opacité Note: Typically used with projection chest X-ray
DCM		112027	Opacity Descriptor	Descripteur de l'opacité
DCM		112014	Orientation Descriptor	Descripteur de l'orientation
DCM		112053	Osseous	Osseux
DCM		112038	Osseous Modifier	Modificateur lié à une structure osseuse
SRT		F-12100	Ossification	Ossification
DCM		112176	Pancreatic stent	Stent pancréatique
DCM		112091	Paraspinal line	Ligne paravertébrale
DCM		112112	Parenchymal band	Bande parenchymateuse
SRT		T-D2236	Pectoral girdle	Ceinture pectorale
SRT		T-14110	Pectoralis major muscle	Muscle grand pectoral
SRT		T-14120	Pectoralis minor muscle	Muscle petit pectoral
SRT		T-11515	Pedicle of vertebra	Pédicule de la vertèbre
DCM		112185	Performance of CT for Detection of Pulmonary Embolism in Adults	Le scanner dans les embolies pulmonaires de l’adulte, ACR
DCM		112186	Performance of High-Resolution CT of the Lungs in Adults	Le scanner thoracique haute résolution de l’adulte, ACR
DCM		112035	Performance of Pediatric and Adult Chest Radiography, ACR	Les radiographies thoraciques de l’enfant et de l’adulte, ACR

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
DCM		112184	Performance of Pediatric and Adult Thoracic CT	Le scanner thoracique de l'enfant et de l'adulte, ACR
SRT		T-46210	Pericardiophrenic Artery	Artère péricardo-phrénique
SRT		G-A111	Peripheral	Périphérique
DCM		112123	Phantom tumor (pseudotumor)	Image pseudo-tumorale
SRT		A-12024	Pin	Epingle
SRT		D2-60302	Plate-like atelectasis	Atélectasie plane
DCM		112081	Pleonemia	Hypervascularisation
SRT		T-29000	Pleural structure	Plèvres
SRT		D2-81180	Pneumomediastinum	Pneumomédiastin
SRT		D2-80300	Pneumothorax	Pneumothorax
SRT		R-428E7	Poorly defined	Mal définies
DCM		112141	Poorly demarcated	Mal délimité
DCM		112172	Portacath	Chambre de perfusion implantable
DCM		112011	Positioner Primary Angle	Angle de positionnement primaire
DCM		112012	Positioner Secondary Angle	Angle de positionnement secondaire
DCM		112089	Posterior junction line	Ligne médiastinale postérieure
SRT		T-28220	Posterior segment of right upper lobe	Segment postérieur du lobe supérieur droit
DCM		112092	Posterior tracheal stripe	Bande trachéale postérieure
DCM		112059	Primary complex	Complexe primaire
DCM		112151	Profusion	Profusion
SRT		A-04000	Prosthesis	Prothèse
DCM		112068	Pseudoplaque	Pseudo-plaque
SRT		T-44000	Pulmonary artery	Artère pulmonaire
SRT		D3-40230	Pulmonary embolism	Embolie pulmonaire
SRT		T-44100	Pulmonary trunk	Tronc artériel pulmonaire
SRT		T-48500	Pulmonary vein	Veine pulmonaire
DCM		112005	Radiographic anatomy	Radio-anatomie
DCM		112022	RECIST	Critères d'évaluation de la réponse tumorale (tumeurs solides)
DCM		112020	Response Evaluation	Evaluation de la réponse
DCM		112021	Response Evaluation Method	Méthode d'évaluation de la réponse
DCM		112113	Reticular pattern	Aspect réticulaire
DCM		112065	Reticulonodular pattern	Aspect réticulo-nodulaire
SRT		T-11300	Rib	Côte

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
DCM		112096	Rib Scalene Tubercle	Tubercule scalénique de la première côte
SRT		T-26100	Right main bronchus	Bronche principale droite
DCM		112093	Right tracheal stripe	Bande paratrachéale droite
SRT		T-13450	Scalenous anterior muscle	Muscle scalène antérieur
SRT		T-12280	Scapula	Scapula
DCM		112101	Scapular Infraspinatus Fossa	Fosse sous épineuse
DCM		112099	Scapular Spine	Epine de l'omoplate
DCM		112100	Scapular Supraspinatus Fossa	Fosse sus épineuse
DCM		112054	Secondary pulmonary lobule	Lobule pulmonaire secondaire
SRT		T-280D0	Segment of lung	Segment du poumon
SRT		G-A137	Segmental	Segmentaire
DCM		112114	Septal line(s)	Ligne(s) septale(s)
DCM		112002	Series Instance UID	Identificateur unique d'instance de série
SRT		T-14140	Serratus anterior muscle	Muscle dentelé antérieur
SRT		G-A003	Severe	Sévère
SRT		G-C197	Severity	Gravité
DCM		112124	Shadow	Image
SRT		T-11309	Shaft of rib	Corps de la côte
DCM		112137	Sharply defined	A limites nettes
DCM		112140	Sharply demarcated	Très nettement délimité
DCM		112069	Signet-ring sign	Signe de la bague à châton
DCM		112152	Silhouette sign	Signe de la silhouette
DCM		112024	Single Image Finding Modifier	Modificateur lié à une anomalie visible sur une seule image
DCM		112008	Site involvement	Site atteint
DCM		112025	Size Descriptor	Descripteur de la taille
SRT		R-404A8	Small	Petit
DCM		112125	Small irregular opacities	Petites opacités irrégulières
DCM		112126	Small rounded opacities	Micro-nodules
DCM		112144	Soft tissue	Tissus mous
DCM		112136	Spiculated	Spiculée
SRT		T-14050	Spinalis muscle	Muscles spinaux
SRT		T-11500	Spine	Rachis
SRT		T-11512	Spinous process of vertebra	Apophyse épineuse de la vertèbre
DCM		112183	Standard Deviation of Attenuation Coefficient	Ecart-type des coefficients d'atténuation

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		T-11221	Sternal angle	Angle sternal
SRT		T-13310	Sternocleidomastoid muscle	Muscle sterno-cleïdo-mastoïdien
SRT		T-11210	Sternum	Sternum
DCM		112094	Stripe	Bande
SRT		G-A561	Subacute	Subaigu
SRT		T-46100	Subclavian artery	Artère subclavière
SRT		T-48330	Subclavian vein	Veine subclavière
SRT		T-14166	Subcostal muscle	Muscle subcostal
DCM		112153	Subpleural	Sous-pleural
DCM		112115	Subpleural line	Ligne sous-pleurale
DCM		112098	Subscapular Fossa	Fosse subscapulaire
SRT		T-13650	Subscapularis muscle	Muscle subscapulaire
SRT		T-116EE	Superior articular facet of axis	Facette articulaire supérieure de l'axis
SRT		T-1153E	Superior articular process of vertebra	Massif articulaire supérieur
SRT		T-46350	Superior phrenic artery	Artère phrénique supérieure
SRT		T-48610	Superior vena cava	Veine cave supérieure
SRT		T-13610	Supraspinatus muscle	Muscle supraépineux
SRT		G-A572	Systemic	Systémique
SRT		T-4000E	Systemic vascular structure	Structure vasculaire systémique
DCM		112162	Target	« cible »
DCM		112074	Target Lesion at Baseline	Lésion « cible » à T0
DCM		112041	Target Lesion Complete Response	Réponse complète sur lésions « cibles »
DCM		112042	Target Lesion Partial Response	Réponse partielle sur lésions « cibles »
DCM		112043	Target Lesion Progressive Disease	Progression de la maladie sur lésions « cibles »
DCM		112044	Target Lesion Stable Disease	Maladie stable sur ésions « cibles»
SRT		T-13640	Teres major muscle	Muscle grand rond
SRT		T-13630	Teres minor muscle	Muscle petit rond
DCM		112010	Texture Descriptor	Descripteur de la texture
SRT		T-C6510	Thoracic Duct	Canal thoracique
DCM		112032	Threshold Attenuation Coefficient	Valeur de coefficient d'atténuation seuil
SRT		T-C8000	Thymus Gland	Thymus
SRT		T-46130	Thyrocervical trunk	Tronc thyro-bicervico-scapulaire

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		T-B6000	Thyroid	Thyroïde
DCM		112133	Too small	Trop petit
SRT		T-32423	Trabeculae carnae	Piliers du ventricule
SRT		T-25000	Trachea	Trachée
SRT		P1-26100	Tracheotomy	Trachéotomie
DCM		112039	Tracking Identifier	Identifiant d'anomalie
DCM		112040	Tracking Unique Identifier	Identifiant unique d'anomalie
DCM		112116	Tramline shadow	Image en rail
SRT		T-11513	Transverse process of vertebra	Apophyse transverse de la vertèbre
SRT		T-141A5	Transversus thoracis	Muscle transverse du thorax
SRT		T-14171	Trapezius muscle	Muscle trapèze
DCM		112127	Tree-in-bud sign	Signe de l'arbre en bourgeons
SRT		T-35100	Tricuspid Valve	Valve atrioventriculaire droite
SRT		T-11304	Tubercle of rib	Tubercule de la côte
DCM		112117	Tubular shadow	Image tubulée
DCM		112009	Type of Content	Type de contenu
SRT		G-A103	Unilateral	Unilatéral
DCM		112187	Unspecified method of calculation	Méthode de calcul non spécifiée
SRT		T-D4001	Upper abdomen	Abdomen supérieur
SRT		T-28820	Upper lobe of lung	Lobe supérieur du poumon
SRT		D-3208	Upper zone of lung	Zone supérieure du poumon
SRT		A-11C08	Ureteric stent	Stent urétral
DCM		112077	Vasoconstriction	Vasoconstriction
DCM		112078	Vasodilation	Vasodilatation
SRT		A-14611	Vena cava filter	Filtre cave
SRT		T-32400	Ventricle	Ventricule
SRT		T-11510	Vertebra	Vertèbre
SRT		T-45700	Vertebral artery	Artère vertébrale
SRT		T-1151F	Vertebral canal	Canal vertébral
SRT		T-11531	Vertebral foramen	Foramen intervertébral
DCM		112097	Vertebral Intervertebral Notch	Trou des apophyses transverses cervicales
SRT		G-A144	Vertical	Vertical
DCM		112132	Very small	Très petit
DCM		112056	Volume scoring method	Score de calcification coronaire basé sur le volume de chaque calcification

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning English Language	Code Meaning French Language
SRT		R-40771	Well defined	Bien définie
DCM		112139	Well demarcated	Bien délimité
DCM		112029	WHO	OMS
DCM		112026	Width Descriptor	Descripteur de la largeur
SRT		T-11227	Xiphoid process of sternum	Appendice xiphoïde