Status	Nov 2026 Voting Packet
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Submission Date	2026/03/17

Correction Number CP-2628
Log Summary: Add KOS concepts related to WSI scan quality
Name of Standard PS3.16

Rationale for Correction:

In a typical workflow, a scan tech or algorithm will check the quality of a WSI (has all tissue been scanned, is there not too much of the tissue area out-of-focus, ...) and either approve or disapprove that slide.

There is a need to document the result of that analysis.

These two scenarios are examples:

1. QC performed and passed (QC OK)

   A positive QC decision should be conveyed explicitly using a Document Title from CID 7010.

   Document Title: (ddd0000, DCM, "No quality issues detected")

   This is distinct from the concept of (113034, DCM, "Complete Acquisition Content"), which may be conveyed in a separate KOS created by the scanner

   No Document Title Modifier is needed.

   The person or device Observer Context will identify who/what performed the assessment.

   The presence of this KOS instance explicitly indicates that QC has been performed and that the WSI is acceptable, allowing it to be distinguished from a slide that has not yet been reviewed.

2. QC performed and failed (QC NOK / Rejected)

   A negative QC decision should be conveyed explicitly using a Document Title from CID 7010.

   Document Title: (113001, DCM, "Rejected for Quality Reasons")

   Document Title Modifiers - similar to the radiology use but WSI-specific and re-using the region segmentation pathology QC set [CP 2435].

The Observer Content (TID 1002) can describe the human or device (or both) that were involved in the QC decision.

Optionally, a more detailed description of the QC findings can be included in the Key Object Description (optional): e.g., "Automated QC detected focus degradation and air bubble artifact".

By using the KOS, the granularity of the finding (whether it applies to a single image of a set of images for an image acquisition, or the entire set, and whether or not the determination was made on a single image (e.g., the OVERVIEW rather than a layer of the pyramid (VOLUME or THUMBNAIL) but applies to the whole set (e.g., a missing tissue fragment in the pyramid that is apparent in the OVERVIEW), is not distinguished, since the intent is to provide actionable information, not the provenance of the determination. Nor does this CP provide a means of spatially locating on the OVERVIEW the missing tissue fragment (which could be encoded in an SR or MBSA or SEG).

The definitions used related to findings that were previously introduced for segmentation/localization purposes are generalized to be applicable for both localization and categorical quality issues.

Correction Wording:

*Amend DICOM PS3.16 as follows (changes to existing text are bold and **underlined** for additions and ~~**struckthrough**~~ for removals):*

CID 7011 Rejected for Quality Reason

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **RejectedForQualityReason**
FHIR Keyword: **dicom-cid-7011-RejectedForQualityReason**
Type: **Extensible**
Version: **~~20020904~~yyyymmdd**
UID: **1.2.840.10008.6.1.491**

Table CID 7011. Rejected for Quality Reason

Coding Scheme Designator	Code Value	Code Meaning
DCM	111207	Image artifact(s)
~~**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**~~	~~**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
~~**DCM**~~	~~**113026**~~	~~**Double exposure**~~
Include CID newCIDnnn1 "Rejected for Quality Reason - Radiology"		
Include CID newCIDnnn2 "Rejected for Quality Reason - Slide Microscopy"		

Add new Context Groups to DICOM PS3.16 as follows :

CID newCIDnnn1 Rejected for Quality Reason - Radiology

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **RejectedForQualityReasonRadiology**
FHIR Keyword: **dicom-cid-newCIDnnn1-RejectedForQualityReasonRadiology**
Type: **Extensible**
Version: **yyyymmdd**
UID: **1.2.840.10008.6.1.newCIDuuu1**

Table CID newCIDnnn1. Rejected for Quality Reason - Radiology

Coding Scheme Designator	Code Value	Code Meaning
DCM	111208	Grid artifact(s)
DCM	111209	Positioning

Coding Scheme Designator	Code Value	Code Meaning
DCM	111210	Motion blur
DCM	111211	Under exposed
DCM	111212	Over exposed
DCM	111214	Detector artifact(s)
DCM	111215	Artifact(s) other than grid or detector artifact
DCM	113026	Double exposure

CID newCIDnnn2 Rejected for Quality Reason - Slide Microscopy

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **RejectedForQualityReasonSlideMicroscopy**
FHIR Keyword: **dicom-cid-newCIDnnn2-RejectedForQualityReasonSlideMicroscopy**
Type: **Extensible**
Version: **yyyymmdd**
UID: **1.2.840.10008.6.1.newCIDuuu2**

Table CID newCIDnnn2. Rejected for Quality Reason - Slide Microscopy

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
DCM	131502	Unusable tissue		
DCM	131504	Out of focus		
DCM	131505	Cover slip defect		
DCM	131506	Folded tissue		
DCM	131508	Inadequately stained		
DCM	131509	Cut off tissue		
DCM	131510	Coverslip edge		
DCM	131511	Slide marking		
DCM	131512	Stitching		
DCM	131513	Stripes		
DCM	131514	Foreign material		
DCM	131515	Scratch		
DCM	131516	Tissue marking		
DCM	131517	Unscanned tissue		
SCT	56117007	Air bubble	A-80232	C0001863

D DICOM Controlled Terminology Definitions (Normative)

Table D-1. DICOM Controlled Terminology Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition	Notes
131501	Usable tissue	~~**A region within a sample that contains t**~~**T**issue that is usable.	
131502	Unusable tissue	~~**A region within a sample that contains t**~~**T**issue that is not usable.	
131503	In focus	~~**A region within a sample that i**~~**I**s in focus.	
131504	Out of focus	~~**A region within a sample that i**~~**I**s not in focus.	

Code Value	Code Meaning	Definition	Notes
131505	Cover slip defect	~~**A region within a sample where t**~~**T**here is a defect in the slide cover slip (such as a crack or chip).	
131506	Folded tissue	~~**A region within a sample that c**~~**C**ontains folded tissue.	
131507	Adequately stained	~~**A region within a sample that i**~~**I**s adequately stained.	
131508	Inadequately stained	~~**A region within a sample that i**~~**I**s not adequately stained.	
131509	Cut off tissue	~~**A region within a sample where t**~~**T**issue is cut off at the edge of the viewable area.	
131510	Coverslip edge	~~**A region within a sample that c**~~**C**ontains the edge of the coverslip.	
131511	Slide marking	~~**A region within a sample that c**~~**C**ontains pen markings applied to the slide.	
131512	Stitching	~~**A region within a sample that c**~~**C**ontains tile stitching discontinuities.	
131513	Stripes	~~**A region within a sample that c**~~**C**ontains a periodic illumination non-uniformity pattern.	
131514	Foreign material	~~**A region within a sample that c**~~**C**ontains foreign material (such as dust, hair, thread, fingerprint).	
131515	Scratch	~~**A region within a sample that c**~~**C**ontains a scratch on the glass slide or coverslip.	
131516	Tissue marking	~~**A region within a sample that is c**~~**C**olo~~u~~red with a marker applied to the tissue (such as surgical ink).	
131517	Unscanned tissue	~~**A region outside a sample that corresponds to t**~~**T**issue not digitized at high resolution.	

For reference DICOM PS3.16:

TID 2010 Key Object Selection

The Key Object Selection Template is intended for flagging one or more significant images, waveforms, or other composite SOP Instances. Key Object Selection contains:

- coded document title stating the reason for significance of the referenced objects in the Key Object Selection,
- optional free form text comment in an explicitly identified language, and
- optional identification of the observer (device or person) that created the Key Object Selection.

Note

1. For instance, when this Template is used to identify images rejected for quality reasons, the device or person performing the quality assessment is identified in observation context items (invoked through ???). The reason for rejection can be included both as a code used as a concept modifier for the document title, and as text description.
2. The order of object references may be significant, e.g., when the title concept is "For Conference".
3. Instances referenced in a Key Object Selection Document may be securely referenced by Digital Signature or MAC mechanisms within the SR Document General Module (see PS3.3).

The Template can only be instantiated at the root node and cannot be included in other Templates. The Template is not extensible; that is, no other Content Items may be added to this Template, or the Templates that are included, recursively.

Type: **Non-Extensible**
Order: **Non-Significant**
Root: **Yes**

Table TID 2010. Key Object Selection

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DCID 7010 “Key Object Selection Document Title”	1	M		Root node
2	>	HAS CONCEPT MOD	CODE	EV (113011, DCM, "Document Title Modifier")	1-n	U		
3	>	HAS CONCEPT MOD	CODE	EV (113011, DCM, "Document Title Modifier")	1	UC	IF Row 1 Concept Name = (113001, DCM, "Rejected for Quality Reasons") or (113010, DCM, "Quality Issue")	DCID 7011 “Rejected for Quality Reason”
4	>	HAS CONCEPT MOD	CODE	EV (113011, DCM, "Document Title Modifier")	1	MC	IF Row 1 Concept Name = (113013, DCM, "Best In Set")	DCID 7012 “Best in Set”
5	>	HAS CONCEPT MOD	INCLUDE	D???	1	U		
6	>	HAS OBS CONTEXT	INCLUDE	D???	1-n	U		
7	>	CONTAINS	TEXT	EV (113012, DCM, "Key Object Description")	1	U		
8	>	CONTAINS	IMAGE		1-n	MC	At least one of Rows 8, 9 and 10 shall be present	
9	>	CONTAINS	WAVEFORM		1-n	MC	At least one of Rows 8, 9 and 10 shall be present	
10	>	CONTAINS	COMPOSITE		1-n	MC	At least one of Rows 8, 9 and 10 shall be present	

Content Item Descriptions

Rows 8, 9, 10	Purpose of reference shall not be present.

CID 7010 Key Object Selection Document Title

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **KeyObjectSelectionDocumentTitle**
FHIR Keyword: **dicom-cid-7010-KeyObjectSelectionDocumentTitle**
Type: **Extensible**
Version: **20251111**
UID: **1.2.840.10008.6.1.490**

Table CID 7010. Key Object Selection Document Title

Coding Scheme Designator	Code Value	Code Meaning
DCM	113000	Of Interest
DCM	113001	Rejected for Quality Reasons
...		
DCM	113010	Quality Issue
...		...

Coding Scheme Designator	Code Value	Code Meaning
DCM	113032	Complete Study Content
DCM	113033	Signed Complete Study Content
DCM	113034	Complete Acquisition Content
DCM	113035	Signed Complete Acquisition Content
...		

CID 7012 Best in Set

D DICOM Controlled Terminology Definitions (Normative)

Table D-1. DICOM Controlled Terminology Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition	Notes
111207	Image artifact(s)	Signals that do not faithfully reproduce actual anatomic structures because of distortion or of addition or deletion of information.	
111208	Grid artifact(s)	Feature(s) arising from the acquisition unit's anti-scatter grid mechanism. For two-dimensional systems, such features include those of mechanically damaged or incorrectly positioned grids. For moving or Bucky grids, artifacts may result from intentional grid motion that is inadequate in duration or velocity uniformity.	
111209	Positioning	Inadequate arrangement of the anatomy of interest with respect to the X-Ray field and image detector sensitive area. Examples: 1) positioning is "cutoff" when the projection of anatomy of interest falls outside the sensitive area of the detector; 2) "cone cut", in which the X-Ray field does not adequately cover the anatomy of interest; 3) detector's sensitive surface is too small to cover the projection of the anatomy of interest; 4) improper angular orientation or "rotation" of anatomy of interest with respect to the X-Ray source, or detector; 5) projection of other anatomy or clothing over the anatomy of interest in the image.	
111210	Motion blur	Unacceptable image blur resulting from motion of the anatomy of interest during exposure or the inadequately compensated motion of X-Ray source with respect to the image detector during exposure.	
111211	Under exposed	Inadequate number of quanta reached the detector during exposure. Reasons for under exposed images include low kVp, low mAs product, excess Source Image Distance. Under exposed images have inadequate signal and higher noise in the areas of interest.	
111212	Over exposed	An excess number of quanta reached the detector during exposure. Reasons for over exposed images include high kVp, high mAs product, short Source Image Distance. Over exposed images have high signal and lower noise in the areas of interest. Over exposed area may demonstrate lack of contrast from over saturation of the detector.	
111213	No image	No evidence of a patient exposure.	
111214	Detector artifact(s)	Superposed features or flaws of the detector.	
111215	Artifact(s) other than grid or detector artifact	Features or discontinuities arising from causes other than the anti-scatter grid and image detector.	
111216	Mechanical failure	Failure of the device to operate according to mechanical design specifications.	
111217	Electrical failure	Failure of a device to operate according to electrical design specifications.	
111218	Software failure	Attributable to software used in generation or handling of image.	

Code Value	Code Meaning	Definition	Notes
111219	Inappropriate image processing	Images processed inappropriately, not following appropriate protocol.	
111220	Other failure	Failure that is not mechanical or electrical or otherwise described.	
111221	Unknown failure	Unidentified or unknown cause of failure.	
111222	Succeeded	The attempted process was completely successful.	
111223	Partially Succeeded	The attempted process succeeded in some ways, but failed in others.	
111224	Failed	The attempted process completely failed.	
111225	Not Attempted	No process was performed.	