DICOM Correction Item

Correction Number CP 709	
Log Summary: Acquisition Context for Digital X-Ray	
Type of Modification Addition	Name of Standard PS 3.3, 3.6, 3.16 2009
Rationale for Correction The acquisition context information in DICOM has undergone significant editing since its introduction due to the rationalization of choices of codes and coding schemes, to the extent that there is no longer any information remaining about appropriate codes to use for such conditions present during acquisition as flexion and extension. Specific context groups are defined to rectify this, based on the earlier work of Dean Bidgood's SDM and the original (incomplete) acquisition context values described in Supplement 32; note that some of the original suggested SNOMED values were not correct or were never assigned or do not mean what they were thought to mean – hence in some cases different codes than those described in Supplement 32 are specified here.	
Sections of documents affected PS 3.3 A.26 PS 3.6 Annex A PS 3.16 Annexes B, C, D, J	
Correction Wording:	

Amend PS 3.3:

A.26.3 DX Image IOD Module Table

Table A.26-1
DIGITAL X-RAY IMAGE IOD MODULES

IE	Module	Reference	Usage
…	…	…	…
Image	…	…	…
	Image Histogram	C.11.5	U
	Acquisition Context	C.7.6.14	M **– See A.26.5**
	SOP Common	C.12.1	M

Notes: 1. The Overlay Plane requirement is determined by the presence of "graphic annotation". Graphic annotation includes user or machine drawn graphics or text (such as computer assisted diagnosis) to indicate regions of interest or descriptions. It specifically does not include patient or image identification or technique information that is defined in other Attributes of the IOD..

2. The Device and Intervention Modules are User optional, though it is desirable that, if present, they are stored by an SCP. It is recognized that in some cases the digital image acquisition system will not have a user interface or direct connection that allows acquisition of these parameters, even if device or therapy have been used.

3. The Frame of Reference, X-Ray Collimator, DX Positioning and DX Tomo Acquisition Modules are User optional, though it is desirable that, if present, they are stored by an SCP. It is recognized that in some cases the parameters of the mechanical devices used for collimation, positioning and tomography may not be available to a digital image acquisition system that is not integrated with the X-Ray generation and positioning system.

~~**4. The Acquisition Context Module is mandatory, but may include only an empty (zero-length) Acquisition Context Sequence (0040,0555). Thus all Level 1 or 2 Storage SCPs will preserve any information present, and acquisition systems are not required to generate any content in that Sequence**~~

~~**5. Expectations on what an SCP of a SOP Class based on this IOD will store may be determined by evaluating a Conformance Statement of the form defined in PS 3.2 that specifies the level of conformance to the Storage SOP Classes as defined in PS 3.4. For example, Level 2 (Full) conformance indicates that all standard and optional attributes will be stored and may be accessed.**~~

~~**6**~~**4**. The Histogram Module may contain a single or multiple statistical representations of the pixel data used to derive the VOI LUT Module, or intended to be used to derive or replace the VOI LUT Module. The Histogram Module may contain statistics of a subset of the stored image pixel data (such as from a cropped area or region of interest that is not the full field of view) that are useful for deriving a better VOI LUT than might be derived from the statistics obtained from the entire stored pixel data.

~~**7**~~**5**. The Specimen Identification Module was previously included in this IOD but has been retired, and its functionality replaced by the Specimen Module. See PS 3.3-2008.

~~**8**~~**6**. The VOI LUT Module Attributes and behavior are further specialized in the DX Image Module.

~~**9**~~**7**. The Curve Module was previously included in this IOD but has been retired. See PS 3.3 2004.

A.26.4 Overlay Plane Module

If the Overlay Plane Module is present, any Overlays defined in that Module shall store the overlay data in Overlay Data (60xx,3000), and not any unused high bits in Pixel Data (7FE0,0010).

A.26.5 Acquisition Context Module

The Acquisition Context Module may be used to encode information about conditions present during acquisition that are not described by specific attributes in other modules of the IOD.

The Baseline TID shall be 3460 Projection Radiography Acquisition Context.

…

C.7.6.14 Acquisition Context Module

Table C.7.6.14-1 specifies Attributes for description of the conditions present during data acquisition.

This Module shall not contain descriptions of conditions that replace those that are already described in specific Modules or Attributes that are also contained within the IOD that contains this Module.

Notes: 1. Each item of the Acquisition Context Sequence (0040,0555) contains one item of the Concept Name Code Sequence (0040,A043) and one of the mutually-exclusive Observation-value Attributes: Concept Code Sequence (0040,A168), the pair of Numeric Value

(0040,A30A) and Measurement Units Code Sequence (0040,08EA), Date (0040,A121), Time (0040,A122), Person Name (0040,A123) or Text Value (0040,A160).

2. ~~**Acquisition Context includes concepts such as: "pre-contrast", "inspiration", "valgus stress", "post-void", and date and time of contrast administration.**~~

~~**3**~~. If this SOP Instance is a Multi-frame SOP Instance, each item of the Acquisition Context Sequence (0040,0555) may be configured to describe one frame, all frames, or any specifically enumerated subset set of frames of the Multi-frame SOP Instance.

…

Amend PS 3.16:

CID 3271 Hemodynamic Physiological Challenges

Context ID 3271
Hemodynamic Physiological Challenges

Type: Extensible Version: ~~20020904~~20100625

Coding Scheme	Code Value	Code Meaning
SRT	P2-71317	Drug infusion
SRT	P2-71310	Exercise challenge
SRT	P2-71306	Handgrip
SRT	P2-71302	Head up
SRT	P2-71314	Held inspiration
SRT	P2-71316	Held ventilation
SRT	P2-71304	Leg up
SRT	P2-71308	Negative lower body pressure
SRT	P2-35000	Pacing
SRT	P2-71318	Post volume challenge
SRT	P2-71312	Vagal stimulation
SRT	~~**F-F7102**~~ **R-40928**	Valsalva maneuver

CID 3823 Respiratory Status

Context ID 3823

Respiratory Status

Type: Extensible Version: 20051103

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	F-20010	Inspiration
SRT	F-20020	Expiration

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	F-20030	Autonomous breathing
SRT	R-40928	Valsalva maneuver
DCM	122612	Central breathing position
SRT	F-201BD	Shallow breathing

CID 12002 Ultrasound Protocol Stage Types

Context ID 12002
Ultrasound Protocol Stage Types

Type: Extensible Version: 20081027

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
…		
SRT	R-40928	Valsalva **maneuver**
…		

CID 12234 Respiration State

Context ID 12234
Respiration ~~Phase~~ State

Type: Extensible Version: 20030918

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	F-20010	~~**During**~~ Inspiration
SRT	F-20020	~~**During**~~ Expiration

Add the following new Context Groups to PS 3.16:

CID 91 Functional condition present during acquisition

CID 91
Functional condition present during acquisition

Type: Extensible Version: 20100625

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
Include CID 3271 Hemodynamic Physiological Challenges		
SRT	F-F7100	Phonation
SRT	F-12300	Weight bearing
SRT	F-72230	Voiding
DCM	109134	Prior to voiding
DCM	109135	Post voiding

CID 92 Joint position during acquisition

CID 92
Joint position during acquisition

Type: Extensible Version: 20100625

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM	109136	Neutral musculoskeletal position
SRT	F-10110	Flexion
SRT	F-10100	Extension
SRT	F-10120	Abduction
SRT	F-10130	Adduction
SRT	F-10210	Internal rotation
SRT	F-10220	External rotation
SRT	F-10226	Supination
SRT	F-10216	Pronation
SRT	F-10240	Torsion

CID 93 Joint positioning method

CID 93
Joint positioning method

Type: Extensible Version: 20100625

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	F-13060	Passive movement
SRT	P0-05083	Manipulation of joint

CID 94 Physical force applied during acquisition

CID 94
Physical force applied during acquisition

Type: Extensible Version: 20100625

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	P0-02160	Traction - action
SRT	P0-021B2	Compression - action
SRT	P0-021AB	Rotation - action

Add to PS3.16 Annex C

TID 3460 Projection Radiography Acquisition Context

TID 3460
Projection Radiography Acquisition Context

Type: Extensible Order: Non-Significant

	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	CODE	DT (F-047E7, SRT, “Functional observable”)	1-n	U		BCID (91) Functional condition present during acquisition
2	CODE	DT (F-043E6, SRT, "Respiration Observable")	1	U		BCID (3283) Respiratory Status
3	CODE	DT (F-13006, SRT, “Joint position”)	1	U		BCID (92) Joint position during acquisition
4	CODE	DT (109132, DCM, “Joint positioning method”)	1	U		BCID (93) Joint positioning method
5	CODE	DT (109133, DCM, “Physical force”)	1-n	U		BCID (94) Physical force applied during acquisition

Add to PS3.16 Annex D

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

Code Value	Code Meaning	Definition	Notes
109132	Joint position method	The active or passive joint positioning during acquisition	
109133	Physical force	A physical force applied during acquisition	
109134	Prior to voiding	Prior to voiding	
109135	Post voiding	Post voiding	
109136	Neutral musculoskeletal position	Neutral musculoskeletal position	

Modify PS 3.16 Annex J

SNOMED DICOM Microglossary Retired Codes

Retired Code Value	Code Meaning	Replacement Code (SNOMED)	Notes
…			
F-F7102	**Valsalva maneuver**	**R-40928**	

Add the following to PS3.6 Annex A

Table A-3
CONTEXT GROUP UID VALUES

Context UID	Context Identifier	Context Group Name
…		
1.2.840.10008.6.1.891	91	Functional condition present during acquisition
1.2.840.10008.6.1.892	92	Joint position during acquisition
1.2.840.10008.6.1.893	93	Joint positioning method
1.2.840.10008.6.1.894	94	Physical force applied during acquisition