

1	Status	Final Text
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8	Correction Number CP-1744	
9	Log Summary: Make anatomical information encoding in general and visible light images consistent	
10	Name of Standard	
11	PS3.3 2018a	
12	Rationale for Correction:	
13	Older IODs lack a standard mechanism for including anatomic region codes equivalent to the string Body Part Examined, while more	
14	recent IODs consistently use Anatomic Region Sequence and Image Laterality. For enterprise imaging it is desirable that these be	
15	made consistent.	
16	For visible light imaging, such as the VL Photographic IOD, Anatomic Region Sequence is included via the VL Image Module, but	
17	Image Laterality is not, which is inconsistent with the pattern established, for example, by Digital X-Ray IODs. The Image Laterality	
18	attribute is in widespread use, rather than requiring that it be sent as a modifier of Primary Anatomic Structure Sequence, which is	
19	rarely used in practice.	
20	Add the necessary attributes as optional in the General Image Module. These are image-level attributes and cannot be added to the	
21	General Series Module.	
22	The single site optional General Anatomy Macro is added, rather than the multiple site macro, so as not to cause conflict with IODs	
23	that include both the General Image Module and more specific Modules that already include Anatomic Region Sequence (e.g., Digital	
24	X-Ray).	
25	In addition, common anatomy context groups are added for the VL usage, which were not defined at the time of the original VL IOD	
26	inclusion. It is expected that additional application-specific context groups will be added in future (e.g., see dermatology-related CP	
27	1674).	
28	Correction Wording:	

Amend DICOM PS3.3 as follows (changes to existing text are bold and underlined for additions and ~~struckthrough~~ for removals):

10.5 General Anatomy Macros

... describe the attributes for identifying the general region of the patient anatomy examined using coded terminology, as well as the principal structure(s) within that region that is the target of the current SOP Instance. The only differences between the macros are the Type and Number of Items of the Anatomic Region Sequence (0008,2218) attribute. Table 10-8 describe the attributes for the coding of the principal structure only.

The invocation of these macros may specify Baseline or Defined CIDs for the Anatomic Region Sequence (0008,2218), the Anatomic Region Modifier Sequence (0008,2220), and/or the Primary Anatomic Structure Sequence (0008,2228).

The general region of the body (e.g., the anatomic region, organ, or body cavity being examined) is identified by the Anatomic Region Sequence (0008,2218). Characteristics of the anatomic region being examined, such as sub-region (e.g., medial, lateral, superior, inferior, lobe, quadrant) and laterality (e.g., right, left, both), may be refined by the Anatomic Region Modifier Sequence (0008,2220).

Note

These Attributes allow the specification of the information encoded by the Body Part Examined (0018,0015) in the General Series Module in a more robust, consistent way.

The specific anatomic structures of interest within the image (e.g., a particular artery within the anatomic region) is identified by the Primary Anatomic Structure Sequence (0008,2228). Characteristics of the anatomic structure, such as its location (e.g., subcapsular, peripheral, central), configuration (e.g., distended, contracted), and laterality (e.g., right, left, both), and so on, may be refined by the Primary Anatomic Structure Modifier Sequence (0008,2230).

Note

- Laterality is often encoded in a separate Attribute, Image Laterality (0020,0062) or Frame Laterality (0020,9072), rather than in Anatomic Region Modifier Sequence (0008,2220) or Primary Anatomic Structure Modifier Sequence (0008,2230). The correspondence between the values is as follows:

Image Laterality (0020,0062) or Frame Laterality (0020,9072)	Coded Modifier
<u>L</u>	<u>(G-A101, SRT, "Left")</u>
<u>R</u>	<u>(G-A100, SRT, "Right")</u>
<u>U</u>	<u>(G-A103, SRT, "Unilateral")</u>
<u>B</u>	<u>(G-A102, SRT, "Right and left")</u>

The codes illustrated are from CID 244 "Laterality".

- Whether or not various anatomical structures may be paired or unpaired (have laterality) is illustrated in Table L-5 in PS3.17.

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Table 10-7. General Anatomy Optional Macro Attributes

Attribute Name	Tag	Type	Attribute Description
Anatomic Region Sequence	(0008,2218)	3	Sequence that identifies the anatomic region of interest in this Instance (i.e., external anatomy, surface anatomy, or general region of the body). Only a single Item is permitted in this Sequence.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			Context ID may be defined in the macro invocation.

Attribute Name	Tag	Type	Attribute Description
>Anatomic Region Modifier Sequence	(0008,2220)	3	Sequence of Items that modifies the anatomic region of interest of this Instance One or more Items are permitted in this Sequence.
>>Include Table 8.8-1 "Code Sequence Macro Attributes"			Defined CID 2 "Anatomic Modifier", unless otherwise defined in the macro invocation.
Include Table 10-8 "Primary Anatomic Structure Macro Attributes"			Context ID may be defined in the macro invocation.

Table 10-8. Primary Anatomic Structure Macro Attributes

Attribute Name	Tag	Type	Attribute Description
Primary Anatomic Structure Sequence	(0008,2228)	3	Sequence of Items that identifies the primary anatomic structure(s) of interest in this Instance. One or more Items are permitted in this Sequence.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			Context ID may be defined in the macro invocation.
>Primary Anatomic Structure Modifier Sequence	(0008,2230)	3	Sequence of Items that modifies the primary anatomic structure of interest in this Instance. One or more Items are permitted in this Sequence.
>>Include Table 8.8-1 "Code Sequence Macro Attributes"			Defined Defined CID 2 "Anatomic Modifier".

C.7.3.1 General Series Module

Table C.7-5a. General Series Module Attributes

Attribute Name	Tag	Type	Attribute Description
...
Laterality	(0020,0060)	2C	<p>Laterality of (paired) body part examined. Required if the body part examined is a paired structure and Image Laterality (0020,0062) or Frame Laterality (0020,9072) or Measurement Laterality (0024,0113) are not present.</p> <p>Enumerated Values:</p> <p>R right L left</p> <p>Note</p> <ol style="list-style-type: none"> Some IODs support Image Laterality (0020,0062) at the Image level or Frame Laterality (0020,9072) at the Frame level in the Frame Anatomy functional group macro or Measurement Laterality (0024,0113) at the Measurement level, which can provide a more comprehensive mechanism for specifying the laterality of the body part(s) being examined. <u>There is no value for both left and right, for which Image Laterality (0020,0062) at the Image level or Frame Laterality (0020,9072) may be used instead.</u>
...

Attribute Name	Tag	Type	Attribute Description
Body Part Examined	(0018,0015)	3	Text description of the part of the body examined. See PS3.16 Annex L "Correspondence of Anatomic Region Codes and Body Part Examined Defined Terms" for Defined Terms Note Some IODs support the Anatomic Region Sequence (0008,2218), which can provide a more comprehensive mechanism for specifying the body part being examined.

C.7.6.1 General Image Module

Table C.7-9 specifies the Attributes that identify and describe an image within a particular series.

Table C.7-9. General Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...
Image Laterality	(0020,0062)	3	<p><u>Laterality of (possibly paired) body part (as described in Anatomic Region Sequence (0008,2218)) examined.</u></p> <p><u>Enumerated Values:</u></p> <p>R <u>right</u> L <u>left</u> U <u>unpaired</u> B <u>both left and right</u></p> <p><u>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230) and/or Laterality (0020,0060), if present.</u></p> <p>Note</p> <p><u>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent if Image Laterality (0020,0062) has different values for Images in the same Series.</u></p>
<u>Include Table 10-7 "General Anatomy Optional Macro Attributes"</u>			<u>Baseline CID for the Anatomic Region Sequence is CID 4031 "Common Anatomic Regions" for humans and CID 7483 "Common Anatomic Regions for Animals" for animals.</u>

C.7.6.16.2.8 Frame Anatomy Macro

Table C.7.6.16-9. Frame Anatomy Macro Attributes

Attribute Name	Tag	Type	Attribute Description
Frame Anatomy Sequence	(0020,9071)	1	Identifies anatomic characteristics of this frame. Only a single Item shall be included in this Sequence.

Attribute Name	Tag	Type	Attribute Description
>Frame Laterality	(0020,9072)	1	<p>Laterality of (possibly paired) body parts (as described in Anatomic Region Sequence (0008,2218)) examined.</p> <p>Enumerated Values:</p> <p>R right L left U unpaired B both left and right</p> <p>Note</p> <p>This Attribute is mandatory, in order to ensure that frames maybe positioned correctly relative to one another for display.</p> <p>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230), if present.</p>
...			...

C.8.11.2 DX Anatomy Imaged Module

Table C.8-69 contains IOD Attributes that describe the anatomy contained in a DX IOD.

Table C.8-69. DX Anatomy Imaged Module Attributes

Attribute Name	Tag	Type	Attribute Description
Image Laterality	(0020,0062)	1	<p>Laterality of (possibly paired) body part (as described in Anatomic Region Sequence (0008,2218)) examined.</p> <p>Enumerated Values:</p> <p>R right L left U unpaired B both left and right</p> <p>Note</p> <p>This Attribute is mandatory, in order to ensure that images may be positioned correctly relative to one another for display.</p> <p>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230), if present.</p> <p>Note</p> <p>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent <u>if Image Laterality (0020,0062) has different values for Images in the same Series.</u></p>
<i>Include Table 10-6 "General Anatomy Required Macro Attributes"</i>			<p>Defined CID for the Anatomic Region Sequence is CID 4009 "" for humans, and CID 7482 "DX Anatomy Imaged for Animals" for animals. This is the anatomic region that is placed on the table or bucky for examination.</p> <p>Note</p> <p>It is strongly recommended that Anatomic Region Sequence (0008,2218) be present with a value, in order to ensure that images may be positioned correctly relative to one another for display.</p>

C.8.11.2.1 DX Anatomy Imaged Attribute Descriptions

The Attributes in this Module extend the function of Body Part Examined (0018,0015) as used in other IODs, and are intended to be used to facilitate the management of images and series in terms of routing, storage and display, as well as to dictate certain Conditions on Attributes and Modules in the DX IOD.

C.8.11.7 Mammography Image Module

Table C.8-74. Mammography Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...
Image Laterality	(0020,0062)	1	<p>Laterality of the region examined.</p> <p>Enumerated Values:</p> <p>R right L left B both (e.g., cleavage)</p> <p><u>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230) and/or Laterality (0020,0060), if present.</u></p> <p>Note</p> <p><u>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent if Image Laterality (0020,0062) has different values for Images in the same Series.</u></p>
...

C.8.11.9 Intra-Oral Image Module

Table C.8-76. Intra-Oral Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...
Image Laterality	(0020,0062)	1	<p>Laterality of the region examined.</p> <p>Enumerated Values:</p> <p>R right L left B both (i.e., midline)</p> <p><u>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230) and/or Laterality (0020,0060), if present.</u></p> <p>Note</p> <p><u>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent if Image Laterality (0020,0062) has different values for Images in the same Series.</u></p>
...

C.8.12.1 VL Image Module

Table C.8-77 specifies the Attributes that describe a VL Image produced by Endoscopy (ES), General Microscopy (GM), Automated-Stage Microscopy (SM), External-camera Photography (XC), or other VL imaging Modalities.

Table C.8-77. VL Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...
Image Laterality	(0020,0062)	3	<p><u>Laterality of (possibly paired) body part (as described in Anatomic Region Sequence (0008,2218)) examined.</u></p> <p><u>Enumerated Values:</u></p> <p>R <u>right</u> L <u>left</u> U <u>unpaired</u> B <u>both left and right</u></p> <p><u>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230) and/or Laterality (0020,0060), if present.</u></p> <p>Note</p> <p><u>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent if Image Laterality (0020,0062) has different values for Images in the same Series.</u></p>
Anatomic Region Sequence	(0008,2218)	1C	<p>Sequence that identifies the anatomic region of interest in this image (i.e., external anatomy, surface anatomy, or general region of the body).</p> <p>Only a single Item shall be included in this Sequence.</p> <p>Required if Number of Frames (0028,0008) is present and Specimen Description Sequence (0040,0560) is absent. May be present otherwise.</p>
>Include Table 8.8-1 "Code Sequence Macro Attributes"			<p>Defined CID 4040 "Endoscopy Anatomic Regions" is defined for the Video Endoscopic IOD.</p> <p>For other IODs, no Context ID is defined.</p> <p><u>Baseline CID for the Anatomic Region Sequence is CID 4031 "Common Anatomic Regions" for humans and CID 7483 "Common Anatomic Regions for Animals" for animals.</u></p>
>Anatomic Region Modifier Sequence	(0008,2220)	3	<p>Sequence of Items that modifies the anatomic region of interest of this image</p> <p>One or more Items are permitted in this Sequence.</p>
>>Include Table 8.8-1 "Code Sequence Macro Attributes"			<p><i>Baseline CID 2 "Anatomic Modifier".</i></p>
Include Table 10-8 "Primary Anatomic Structure Macro Attributes"			<p>No Context ID is defined. These Type 3 Attributes are not appropriate when Specimen Description Sequence (0040,0560) is present, as it includes the Primary Anatomic Structure Macro for each specimen in the image.</p>
...

C.8.17.5 Ocular Region Imaged Module

Table C.8.17.5-1. Ocular Region Imaged Module Attributes

Attribute Name	Tag	Type	Attribute Description
Image Laterality	(0020,0062)	1	<p>Laterality of object imaged (as described in Anatomic Region Sequence (0008,2218)) examined.</p> <p>Enumerated Values:</p> <p>R right eye L left eye B both left and right eye</p> <p>Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230), if present.</p> <p>Note</p> <p>Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series, hence it must be absent if Image Laterality (0020,0062) has different values for Images in the same Series. Since most Ophthalmic Photographic Image StudiesSeries contain images of both eyes, the Series level Attribute will rarely be present.</p>
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