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8	Correction Number CP-1828	
9	Log Summary: Add Barcode Value to Modality Worklist for WSI	
10	Name of Standard	
11	PS3.3, PS3.4	
12	Rationale for Correction:	
13	A use case for Modality Worklist is retrieving WSI demographic/identifying/descriptive information when a slide with a barcode has	
14	been scanned but the content of the barcode is opaque (i.e., the scanner cannot parse it into accession/specimen/container or other	
15	identifiers.	
16	The Barcode Value Attribute is already contained within the Slide Label Module in Whole Slide Image Storage objects at the Image	
17	level, but is not in the Scheduled Procedure Step Module, even though Scheduled Specimen Sequence was added by Sup 122.	
18	Add the Barcode Value Attribute to the Scheduled Procedure Step Module.	
19	The same mechanism is useful for identifying patients as well as slides. Add the Barcode Value Attribute at the Instance level for all	
20	composite storage IODs and the clarify that though it may be used at the patient level, that is not always the case.	
21	Correction Wording:	

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

C.2.2 Patient Identification Module

Table C.2-2. Patient Identification Module Attributes

Attribute Name	Tag	Attribute Description
...		
Patient ID	(0010,0020)	Primary identifier for the Patient. Note In the case of imaging a group of small animals simultaneously, the single value of this identifier corresponds to the identification of the entire group. See also ???.
>Type of Patient ID	(0010,0022)	The type of identifier in this Item. Enumerated Values: TEXT RFID BARCODE Note 1. The identifier is coded as a string regardless of the type, not as a binary value. 2. <u>When this Attribute has a value of BARCODE, Patient ID (0010,0020) may or may not have the same value as Barcode Value (2200,0005) in the Scheduled Procedure Step Module, if present.</u>
...		

C.4.10 Scheduled Procedure Step Module

Table C.4-10. Scheduled Procedure Step Module Attributes

Attribute Name	Tag	Attribute Description
Scheduled Procedure Step Sequence	(0040,0100)	One or more Scheduled Procedure Steps for one Requested Procedure.
...		
Scheduled Specimen Sequence	(0040,0500)	Sequence of Items identifying specimens to be imaged in the identified Scheduled Procedure Step(s), with their characteristics.
>Include Table C.7.6.22-2 "Specimen Macro Attributes"		

Attribute Name	Tag	Attribute Description
<u>Barcode Value</u>	<u>(2200,0005)</u>	<u>Barcode interpreted from a scanned label.</u> Note 1. <u>In the case of a scanned patient label, this may be the same as Patient ID (0010,0020), but it is included in the Scheduled Procedure Step Module rather than the Patient Identification Module since barcodes may also be used to identify lower level entities and/or different forms of patient identifier may be in use.</u> 2. <u>In the case of a scanned slide label, this may be the same as Container Identifier (0040,0512).</u>

C.12.1 SOP Common Module

Table C.12-1. SOP Common Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
<u>Barcode Value</u>	<u>(2200,0005)</u>	<u>3</u>	<u>Barcode interpreted from a scanned label.</u> Note 1. <u>In the case of a scanned patient label, this may be the same as Patient ID (0010,0020), but it is included in an Instance level Module rather than a Patient level Module since barcodes may also be used to identify lower level entities. This might be obtained by scanning the patient's wrist band, request form, or extracting a burned-in label in the image pixel data, for example.</u> 2. <u>In the case of a scanned slide label, this may be the same as Container Identifier (0040,0512) in the Specimen Module.</u>

C.7.1.1 Patient Module

Table C.7-1. Patient Module Attributes

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient's full name.
Patient ID	(0010,0020)	2	Primary identifier for the Patient. Note In the case of imaging a group of small animals simultaneously, the single value of this identifier corresponds to the identification of the entire group. See also ???.
<i>Include Table 10-18 "Issuer of Patient ID Macro Attributes"</i>			

Attribute Name	Tag	Type	Attribute Description
<u>>Type of Patient ID</u>	<u>(0010,0022)</u>	<u>1</u>	<p><u>The type of identifier in this Item.</u></p> <p>Defined Terms:</p> <p>TEXT RFID BARCODE</p> <p>Note</p> <ol style="list-style-type: none"> <u>The identifier is coded as a string regardless of the type, not as a binary value.</u> <u>When this Attribute has a value of BARCODE, Patient ID (0010,0020) may or may not have the same value as Barcode Value (2200,0005) in the SOP Common Module, if present.</u>
...			
Other Patient IDs Sequence	(0010,1002)	3	<p>A Sequence of identification numbers or codes used to identify the Patient, which may or may not be human readable, and may or may not have been obtained from an implanted or attached device such as an RFID or barcode.</p> <p>One or more Items are permitted in this Sequence.</p> <p>Note</p> <p>This Attribute replaces the use of Other Patient IDs (0010,1000), which did not specify an issuer for each other identifier, and which has been retired.</p>
>Patient ID	(0010,0020)	1	<p>An identifier for the Patient.</p> <p>Note</p> <p>In the case of imaging a group of small animals simultaneously, the single value of this identifier corresponds to the identification of the entire group. See also ???.</p>
<i>>Include Table 10-18 "Issuer of Patient ID Macro Attributes"</i>			
>Type of Patient ID	(0010,0022)	1	<p>The type of identifier in this Item.</p> <p>Defined Terms:</p> <p>TEXT RFID BARCODE</p> <p>Note</p> <ol style="list-style-type: none"> The identifier is coded as a string regardless of the type, not as a binary value. <u>When this Attribute has a value of BARCODE, Patient ID (0010,0020) may or may not have the same value as Barcode Value (2200,0005) in the SOP Common Module, if present.</u>

Attribute Name	Tag	Type	Attribute Description
...			

C.7.6.22 Specimen Module

Table C.7.6.22-1 specifies the Attributes that identify one or more Specimens being imaged.

Table C.7.6.22-1. Specimen Module Attributes

Attribute Name	Tag	Type	Attribute Description
<i>Include Table C.7.6.22-2 "Specimen Macro Attributes"</i>			

Table C.7.6.22-2. Specimen Macro Attributes

Attribute Name	Tag	Type	Attribute Description
Container Identifier	(0040,0512)	1	The identifier for the container that contains the specimen(s) being imaged. See Section C.7.6.22.1.1.
Issuer of the Container Identifier Sequence	(0040,0513)	2	Organization that assigned the Container Identifier. Zero or one Item shall be included in this Sequence.
<i>>Include Table 10-17 "HL7v2 Hierarchic Designator Macro Attributes"</i>			
Alternate Container Identifier Sequence	(0040,0515)	3	Sequence of alternate identifiers for the container that contains the specimen(s) being imaged. These may have been assigned, e.g., by the manufacturer, or by another institution that collected the specimen. One or more Items are permitted in this Sequence.
>Container Identifier	(0040,0512)	1	The identifier for the container that contains the specimen(s) being imaged.
>Issuer of the Container Identifier Sequence	(0040,0513)	2	Organization that assigned the Container Identifier. Zero or one Item shall be included in this Sequence.
<i>>>Include Table 10-17 "HL7v2 Hierarchic Designator Macro Attributes"</i>			
Container Type Code Sequence	(0040,0518)	2	Type of container that contains the specimen(s) being imaged. Zero or one Item shall be included in this Sequence.
<i>>Include Table 8.8-1 "Code Sequence Macro Attributes"</i>			
Container Description	(0040,051A)	3	Description of the container.
Container Component Sequence	(0040,0520)	3	Description of one or more components of the container (e.g., description of the slide and of the coverslip). One or more Items are permitted in this Sequence.
...			
Specimen Description Sequence	(0040,0560)	1	Sequence of identifiers and detailed description of the specimen(s) being imaged. One or more Items shall be included in this Sequence. Each specimen imaged in the Pixel Data shall be identified by an Item in this Sequence. Other specimens in/on the container, but not imaged in the Pixel Data, may also be identified by Items in this Sequence.

Attribute Name	Tag	Type	Attribute Description
>Specimen Identifier	(0040,0551)	1	A departmental information system identifier for the Specimen. See Section C.7.6.22.1.1 and Section C.7.6.22.1.2. If a single specimen is present in a container, the value of the Specimen Identifier and the value of the Container Identifier are typically the same.
>Issuer of the Specimen Identifier Sequence	(0040,0562)	2	The name or code for the institution that has assigned the Specimen Identifier. Zero or one Item shall be included in this Sequence.
<i>>>Include Table 10-17 "HL7v2 Hierarchic Designator Macro Attributes"</i>			
>Specimen UID	(0040,0554)	1	Unique Identifier for Specimen. See Section C.7.6.22.1.2.
>Specimen Type Code Sequence	(0040,059A)	3	Specimen Type. Only a single Item is permitted in this Sequence.
<i>>>Include Table 8.8-1 "Code Sequence Macro Attributes"</i>			<i>Baseline CID 8103 "Anatomic Pathology Specimen Types".</i>
>Specimen Short Description	(0040,0600)	3	Short textual specimen description (may include ancestor specimen descriptions).
>Specimen Detailed Description	(0040,0602)	3	Detailed textual specimen description (may include ancestor specimen descriptions).
>Specimen Preparation Sequence	(0040,0610)	2	Sequence of Items identifying the process steps used to prepare the specimen for image acquisition. This includes description of all processing necessary to interpret the image. Zero or more Items shall be included in this Sequence. This Sequence includes description of the specimen sampling step from an ancestor specimen, potentially back to the original part collection. See Section C.7.6.22.1.3.
>>Specimen Preparation Step Content Item Sequence	(0040,0612)	1	Sequence of Content Items identifying the processes used in one preparation step to prepare the specimen for image acquisition. One or more Items shall be included in this Sequence.
<i>>>>Include Table 10-2 "Content Item Macro Attributes Description"</i>			<i>Baseline TID 8001 "Specimen Preparation"</i>
<i>>Include Table 10-8 "Primary Anatomic Structure Macro Attributes"</i>			Original anatomic location in patient of specimen. This location may be identical to that of the parent specimen, may be further refined by modifiers depending on the sampling procedure for this specimen, or may be a distinct concept.
>Specimen Localization Content Item Sequence	(0040,0620)	1C	Sequence of Content Items identifying the location of the specimen in the container and/or in the image. See Section C.7.6.22.1.4. One or more Items shall be included in this Sequence. Required if multiple specimens present in the image. May be present otherwise.
<i>>>Include Table 10-2 "Content Item Macro Attributes Description"</i>			Defined TID is TID 8004 "Specimen Localization".

C.7.6.22.1 Specimen Module Attributes

C.7.6.22.1.1 Container Identifier and Specimen Identifier

"Specimen" is the role played by a discrete physical object (or a collection of objects that are considered as a unit) that is the subject of pathology examination.

A specimen is a physical object (or a collection of objects) when the laboratory considers it a single discrete, uniquely identified unit that is the subject of one or more steps in the laboratory (diagnostic) workflow. This includes objects at all levels of processing, including fresh tissue, dissected organs, tissue embedded in paraffin, sections made from embedded tissue, and liquid preparations.

Specimens are physically managed by being placed in or on a container. The concept of container includes buckets, cassettes, vials, and slides. While there is usually one specimen per container, it is possible, in some laboratory workflows, for multiple specimens to be in/on a container.

Both specimens and specimen containers have logical identifiers for workflow management. The logical identifier of a container is usually conveyed on a label on the container. The specimen itself will typically not be physically labeled with its identifier. For the usual case of a single specimen in/on a container, the logical identifiers may be identical. However, when there are multiple specimens in/on a container, each specimen receives a distinct logical identifier. These identifiers are encoded in the SOP Instance using Attributes Container Identifier (0040,0512) and Specimen Identifier (0040,0551).

Note

1. This definition of "specimen" extends the common definition beyond the part or parts that were submitted for examination (e.g., from surgery) to include any derivative piece that may be separately analyzed or examined, such as a block or slide preparation.
2. Although many Pathology Information Systems use a hierarchical system for identifying parts, blocks and slides, there should be no assumption made that this will be the case and in particular, there should be no attempt to parse a given Specimen Identifier to retrieve an accession number or other higher level identifier.

C.7.6.22.1.2 Specimen Identifier and Specimen UID

Specimen Identifier (0040,0551) must be unique at least within the Study; the actual scope of uniqueness is determined by the departmental information system that assigns the IDs. Each specimen shall also be assigned a globally unique Specimen UID (0040,0554) that allows referencing beyond the scope of a Study. This UID may be used, for instance, if a specimen is delivered to another institution for further analysis.

C.7.6.22.1.3 Specimen Preparation Sequence and Specimen Preparation Step Content Item Sequence

Interpretation of specimen images requires information about the source of the specimen and its preparation (e.g., sampling, fixation, staining). The processing steps used to prepare a specimen are recorded in the Specimen Preparation Sequence (0040,0610). This Sequence may include one Item for each processing step (as defined in the laboratory workflow) in the history of the specimen, and those Items are composed of a set of Content Items in the Specimen Preparation Step Content Item Sequence (0040,0612).

The Specimen Preparation Sequence may include description of the original part collected from the patient, the processing of that part, the sampling of tissue from the part and the preparation of that sample, and the further sub-sampling and processing of the tissue. In other words, the description of a specific specimen may include descriptions of the specimen's ancestors.

The Specimen Preparation Sequence Items shall be in ascending chronological order.

C.7.6.22.1.4 Specimen Localization Content Item Sequence

When there are multiple specimens in/on a container, the Specimen Localization Content Item Sequence (0040,0620) is used to identify the location of the specimen in the container, as there is no physical label with the Specimen Identifier. This Content Item Sequence, in accordance with TID 8004 "Specimen Localization", allows the specimen to be localized by a distance in one to three dimensions from a reference point on the container, by an identified physical description such as a colored ink, or by its location as shown in a referenced image of the container. The referenced image may use an overlay, burned-in annotation, or an associated Presentation State SOP Instance to specify the location of the specimen.

C.8.12.8 Slide Label Module

Table C.8.12.8-1 specifies the Attributes that describe the interpretation of a scanned Slide Label.

Table C.8.12.8-1. Slide Label Module Attributes

Attribute Name	Tag	Type	Attribute Description
Barcode Value	(2200,0005)	2	Barcode interpreted from the scanned slide label. Note This may be the same as Container Identifier (0040,0512).
Label Text	(2200,0002)	2	Label text interpreted from the scanned slide label, e.g., by optical character recognition.

Amend DICOM PS3.4 as follows (changes to existing text are bold and underlined for additions and ~~struckthrough~~ for removals):

K.6.1.2.2 Modality Worklist Attributes

...

Table K.6-1. Attributes for the Modality Worklist Information Model

Description / Module	Tag	Matching Key Type	Return Key Type	Remark / Matching Type
Scheduled Procedure Step				
Scheduled Procedure Step Sequence	(0040,0100)	R	1	The Attributes of the Scheduled Procedure Step shall only be retrieved with Sequence Matching. The Scheduled Procedure Step Sequence shall contain only a single Item.
...				
>Scheduled Procedure Step Status	(0040,0020)	O	3	
>All other Attributes of the Scheduled Procedure Step Sequence		O	3	
Scheduled Specimen Sequence	(0040,0500)	O	3	One or more Items may be returned in this Sequence.
>Container Identifier	(0040,0512)	O	1	
>Container Type Code Sequence	(0040,0518)	-	2	Zero or one Item shall be returned in this Sequence.
>>Code Value	(0008,0100)	-	1	
>>Coding Scheme Designator	(0008,0102)	-	1	
>>Coding Scheme Version	(0008,0103)	-	3	
>>Code Meaning	(0008,0104)	-	1	
>Specimen Description Sequence	(0040,0560)	O	1	One or more Items shall be returned in this Sequence.
>>Specimen Identifier	(0040,0551)	O	1	
>>Specimen UID	(0040,0554)	O	1	

Description / Module	Tag	Matching Key Type	Return Key Type	Remark / Matching Type
>>All other Attributes of the Specimen Description Sequence		O	3	Specimen Preparation Sequence (0040,0610), if present, describes preparation steps already performed, not scheduled procedure steps
>All other Attributes of the Scheduled Specimen Sequence		O	3	
Barcode Value	(2200.0005)	O	3	This may be the same as Container Identifier (0040.0512).
Requested Procedure				
Requested Procedure ID	(0040,1001)	O	1	
...				