DICOM Correction Item

Correction Number	CP-832
Log Summary: Clarify MPPS List of Images	

Type of Modification	Name of Standard
Clarification	PS 3.3, 3.4 2008

Rationale for Correction:
Clarify language relative to images to be included in list of MPPS.

Sections of documents affected
PS 3.3 Section 7.3.1.9
PS 3.4 Section F.7.4

Correction Wording:

Amend PS 3.3 Section 7.3.1.9 as follows:

7.3.1.9   MODALITY PERFORMED PROCEDURE STEP

A Performed Procedure Step is an arbitrarily defined unit of service that has actually been performed (not just scheduled). Logically it corresponds to a Scheduled Procedure Step, but real-world conditions may dictate that what is actually performed does not correspond exactly with what was requested or scheduled.

> Note: For example, two or more Scheduled Procedure Steps, Requested Procedures or Imaging Service Requests may have been generated by different Referring Physicians but may be satisfied be a single Performed Procedure Step at the discretion of a Performing Physician or Operator. Alternatively, a single Scheduled Procedure Step may need to be satisfied by multiple Performed Procedure Steps on different types or instances of equipment, due to clinical need or failure conditions, or over extended periods of time.

It contains information describing the type of procedure actually performed. This information is represented by the Performed Protocol that may be defined by one or more Protocol Codes.

A Requested Procedure results in the creation of zero or more Performed Procedure Steps.

A Scheduled Procedure Step results in the creation of zero or more Performed Procedure Steps.

The Performed Procedure Step contains information about ~~it's~~ **its** state (e.g. in progress, discontinued or completed).

A Modality Performed Procedure Step is a Performed Procedure Step that results from **activity (such as** the acquisition of images from a Patient or other Imaging Subject**)** on a Modality.

It contains information describing the performance of a step of an imaging procedure, including data about the performance of the procedure itself~~, radiation dose values to which the patient has been exposed if ionizing radiation is in use~~, and data for billing and material management.

The Modality Performed Procedure Step contains references to zero or more Series of Images and other Composite SOP Instances that may be created as part of the procedure step. A particular Series is part of only one Modality Performed Procedure Step.

The purpose of the Modality Performed Procedure Step is to report what was performed; it does not imply any storage semantics. While the MPPS represents a unit of service within a workflow, the specification of the workflow itself is beyond the scope of the Standard, and the MPPS does not identify or control any subsequent activities to be performed.

Notes: **1. For example, a modality may create both "for processing" images for automated analysis and "for presentation" images for human review from the same acquisition. The Standard does not specify whether the production of these is a single unit of service, or two. A single Modality Performed Procedure Step instance could list both the "for processing" images and the "for presentation" images, regardless of whether or not both sets of images were stored to the same or different AEs, or indeed were stored at all, since the MPPS is independent of the storage semantics. Alternatively, the modality may treat these two sets of images as two separate units of service, and send two separate MPPS Instances.**

A Radiation Dose SR from the irradiation events of an acquisition could be referenced in the same MPPS Instance as that of the acquired images, again irrespective of where such a Radiation Dose Structured Report might be sent, if at all. Alternatively, the modality may treat the production of the Radiation Dose SR as a separate unit of service, and report it in a distinct MPPS.

Another example is the case of thin and thick slice CT images acquired from the same acquisition (raw) data. When the reconstruction of both sets of images is prospectively defined and automatically initiated by the protocol selection, then both sets might be referenced from a single MPPS Instance. However, if the reconstruction of one or the other set is performed retrospectively by manual intervention some time after the acquisition MPPS had been completed, the subsequent instances will necessarily be referenced in a new MPPS Instance, since the acquisition MPPS cannot be modified once completed.

2. The completion of an MPPS may be a significant event that triggers or enables downstream activity, but it is not the intent to require the modality to be configured to "manage" such activity. The "units of service" that the modality describes in an MPPS, and how the modality relates those Performed Procedure Steps to Scheduled Procedure Steps, are implementation decisions beyond the scope of the Standard. The IHE Radiology Scheduled Workflow Profile provides additional guidance for implementation.

3. An MPPS may describe instances that were acquired but that have not been, nor may ever be, stored. For example, a modality may be capable of storing a CT acquisition as multiple single frame CT Image Storage SOP Instances, as a single multi-frame Enhanced CT Image Storage SOP Instance, or as several Enhanced CT Image Storage SOP Instances that together comprise a Concatenation. An MPPS may describe all three possibilities, even though only one choice may ultimately be stored, perhaps depending on the negotiated capabilities of the storage recipient. Alternatively, separate MPPS instances could be used for different storage SOP Classes.

4. The MPPS is not a substitute for, nor is equivalent to, a Storage Commitment request, nor an Instance Availability Notification.

Amend PS 3.4 Section F.7.4 as follows:

F.7.4   Conformance Requirements

Implementations providing conformance to the Modality Performed Procedure Step SOP Class shall be conformant as described in the following sections and shall include within their Conformance Statement information as described below.

An implementation may conform to this SOP Class as an SCU or as an SCP. The Conformance Statement shall be in the format defined in ~~Annex A of~~ PS 3.2.

F.7.4.1   SCU Conformance

An implementation which is conformant to this SOP Class as an SCU shall meet conformance requirements for the operations ~~which~~ **that** it invokes.

F.7.4.1.1   Operations

Any Attributes for which Attribute Values may be provided (using the N-CREATE Service) by the SCU shall be enumerated in the ~~SCU Operations~~ **Conformance** Statement. ~~The SCU Operations Statement shall be formatted as defined in Annex A of PS 3.2.~~

Any Attributes for which Attribute Values may be provided (using the N-SET Service) by the SCU shall be enumerated in the ~~SCU Operations~~ **Conformance** Statement. ~~The SCU Operations Statement shall be formatted as defined in Annex A of PS 3.2.~~

An implementation ~~which~~ **that** conforms to this SOP Class as an SCU shall specify under which conditions during the performance of the real-world Performed Procedure Step it will create the SOP Class Instance and under which conditions it will set the status value to COMPLETED and DISCONTINUED.

An implementation that conforms to this SOP Class as an SCU shall specify what strategy it applies to group Storage SOP Class Instances referenced in a Performed Procedure Step.

> **Note:** **For example, whether or not Radiation Dose SR instances are sent within the same Performed Procedure Step as the images to which it applies, or a different Performed Procedure Step. See the discussion of the MPPS in the DICOM real-world model in PS3.3.**

F.7.4.2   SCP Conformance

An implementation which is conformant to this SOP Class as an SCP shall meet conformance requirements for the operations which it performs.

F.7.4.2.1   Operations

Any Attributes for which Attribute Values may be provided (using the N-CREATE Service) by the SCU shall be enumerated in the ~~SCP Operations~~ **Conformance** Statement. ~~The SCP Operations Statement shall be formatted as defined in Annex A of PS 3.2.~~

Any Attributes for which Attribute Values may be updated (using the N-SET Service) by the SCU shall be enumerated in the ~~SCP Operations~~ **Conformance** Statement. ~~The SCU Operations Statement shall be formatted as defined in Annex A of PS 3.2~~.

The ~~SCP Operations~~ Conformance Statement shall also provide information on the behavior of the SCP ~~(the Information System)~~ at the following occurrences:

— The creation of a new Instance of the Modality Performed Procedure Step SOP Class with the status "IN PROGRESS". The result of that process on the scheduling information and on the attributes values of the Modality Worklist ~~Management~~ SOP Class shall be specified.

— The update of the Attribute "Performed Procedure Step Status", i.e. the change from the state "IN PROGRESS" to "DISCONTINUED" or to "COMPLETED".

— Which Attributes the SCP may coerce after the state has been set to "IN PROGRESS" or "DISCONTINUED" or to "COMPLETED".

— For how long the Modality Performed Procedure Step SOP Instance will persist on the SCP.