AbstractID: 7240 Title: Frontiers in DICOM: Structured Reporting

DICOM (Digital Imaging and Communications in Medicine) is the ubiquitous standard for radiology and cardiology applications involving the exchange and management of images and image-related information. DICOM is also applied in other image-related medical fields such as pathology, endoscopy, dentistry, ophthalmology and dermatology. Structured Reporting (SR) is an extension to the DICOM standard that provides powerful features for encoding structured documents such as reports, measurements, procedure logs, computer-assisted detecion/diagnosis (CAD) results and quality control information. It is one standard tool that can be used in the quest for the “holy grail” that is the fully electronic patient medical record.

Earlier efforts at standardization of reports in DICOM have focused on simple, short plain-text documents without any specific ability to reference images. Other standards such as HL7 2.x also include text-orientated reports but do include support for simple atomic observations, but lack the ability to convey structure and references. The DICOM SR facility allows users to link text and other data to particular images and/or waveforms and to store the coordinates of findings so that users can see exactly what is being described in a report. In addition, users can label, index and retrieve clinically relevant information using codes.

The model of information contained within a DICOM SR document is consistent with the same model used by other composite objects such as images and waveforms. Hence, with negligible effort, a conventional DICOM archive or PACS can be used to store and retrieve SR documents in the same manner as images and waveforms, using the same services. DICOM SR documents are thus “persistent objects” with unique identifiers, just like images and waveforms, and may be subsequently referenced and retrieved. This “document-centric” approach contrasts with the “message-centric” approach of other standards like HL7 2.x, where there is no standard mechanism of persistence or identification defined.

The word “report” in the name is really a misnomer, since a DICOM SR can convey any kind of structured content, not just reports. SR documents can be used wherever there is a need for lists or hierarchically structured content, or a need for coded concepts or numeric values, or a need for references to images, waveforms or other composite objects.

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Educational Objectives.

1. To understand the scope and intent of structured document support in DICOM.
2. To understand the capabilities of DICOM Structured Reporting (SR) with respect to the use of coded terminology, numeric measurements, coordinates and references to images and waveforms.
3. To understand the relationship of DICOM SR to other document standards such as XML, HL7 Version 2.x and HL7 Clinical Document Architecture (CDA).
4. To understand the advantages of standardizing structured documents and reports in a PACS architecture.

5. To understand the advantage of a persistent, document-centric rather than message-centric paradigm.