

Quality management processes in diagnostic and interventional radiology require access to patient exposure data. DICOM now provides tools for communicating dosimetric and related data in a comprehensive manner. A first-generation structured report (RDSR), optimized for fluoroscopically guided procedures, was released as part of the 2007 DICOM Standard. The RDSR is a DICOM object that is created and managed separately from the creation and storage of images. Even if images are discarded (e.g. fluoroscopy, rejected radiographs), the RDSR will record all of the radiation used during a procedure. RDSR outputs are already required for interventional fluoroscopic equipment conforming to IEC 60601-2-43 (2nd edition 2010), and are likely to be available on other and older equipment.

All of the data in a RDSR is in public fields, each identified by a DICOM tag or unique concept name. The minimum content of a conforming RDSR is defined by an IEC standard. The RDSR always contains patient and examination data, total dose data for the entire procedure. For interventional procedures, the RDSR also contains technical, geometric, and dosimetric data for each individual irradiation. RDSRs are designed to be distributed on a network and captured by free-standing dose-management ACTORS as well as by RIS and PACS. The IHE REM Profile gives additional guidance and supplies use cases for RDSR handling. In addition RDSRs can also be stored within an imaging system and manually downloaded.

This lecture will focus on the contents of the interventional fluoroscopic version of the RDSR. Limitations of the current standards will be discussed along with potential changes. The defining documents are currently being upgraded; audience inputs will be gratefully accepted.

#### Learning Objectives:

1. Understand the structure and content of the DICOM Radiation Dose Structured Report
2. Understand the interrelationships between DICOM, IEC, and IHE in the evolution of the RDSR
3. Understand the limitations of the present RDSR and potential upgrade pathways.