AbstractID: 12164 Title: Digital Dose Reporting

This course will review the availability of digital radiation dose reporting tools An increasing fraction of imaging equipment is capable of measuring its own X-ray output. Dose and related information is present in many DICOM image headers. Depending on the make/model/software data is in some mix of public and private fields. This information usually reports only the dose associated with the images in the file.

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. Similar structures for mammography and computed tomography are in the 2008 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.

All of the data in a RDSR is in public fields, each identified by a DICOM tag or unique concept name. 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 Radiation Exposure Monitoring (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.

Learning Objectives

1. Understand the availability of dose information in DICOM image headers.
2. Understand the functionality of the new DICOM RDSR and associated components.
3. Understand how to use the RDSR and other dose reporting tools as part of an institutional quality program.