

DICOM
Working Group Twenty-Eight
(WG-28)

Physics Strategy



Inaugural Meeting

- February 6, 2012 San Diego, CA
- Discussed Collaboration with Other DICOM Working Groups
- Identification of Potential Issues to be Addressed

DICOM Working Group (WG-28)

- DICOM Standards Committee approved formation of WG-28 December 2011
 - Co-Chairs:
 - Donald Peck, AAPM
 - Annalisa Trianni, EFOMP
 - Secretariat
 - Lynne Fairobent, AAPM, US Secretary
 - Alberto Torresin, EFOMP, European Secretary



Scope

- To develop or consult on Correction Proposals (CP) and Supplements requiring detailed expertise on physics and/or the needs and work of medical physicists.
- To serve as a *liaison* body to facilitate including data relevant to the physics community in DICOM objects.

Short-term Operational Objectives

- Establish and organize the new workgroup
- Establish a working relationship with AAPM Informatics Committee
- Establish a working relationship with EFOMP DICOM WG
- Establish a working relationship with MITA Xray Interventional WG (Physics Mode)
- Monitor the work of AAPM/EFOMP working/task groups and report on new physics initiatives that impact the DICOM Standard



Collaborations

- Collaborate with WG-02 on:
 - CR/DR Dose work
 - Enhancement of the X-Ray Dose SR to address further needs in dose control and tracking, for example
- Collect requests from other WGs
- Collaborate with IEC on the new Work Item Proposal for Radiation Dose Documentation

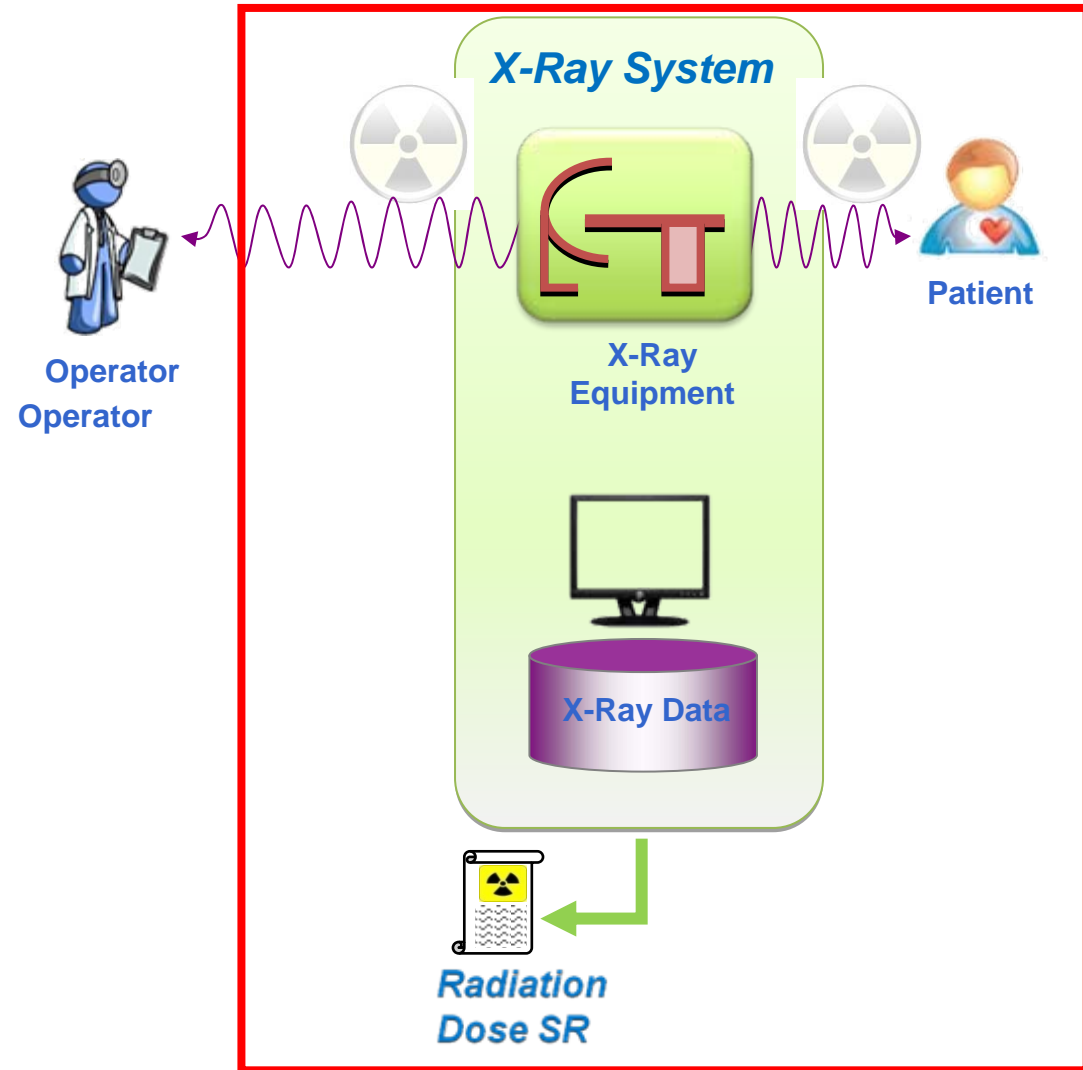
Roadmap

- Define details for recording Organ Dose, including skin dose, in current Dose SR (CP1127) → WHITE PAPER to clarify the use of dose concepts and units:
 - How should dose be modeled/handled for each modality
 - How should dose be "added up" over time (short time like multi-step procedure, long time like over a few years)
 - How should dose be "added up" over modalities
- Explore methods for capturing and recording operator dose (esp. XA)
- Evaluate the accuracy of dosimetric data registered in the RDSR

Roadmap

- Enhance the X-Ray Angiography Dose SR to allow skin dose maps
 - better description of the equipment geometry
 - add per-frame gantry/table movement
 - add an absolute patient coordinate model with respect to the equipment (equivalent to the definition in Supp 121)
 - better description of the patient shape
- Investigate acquisition, storage and application of improved calibration data (e.g., for QIBA/quantitation)
- Review change in definition of calibration factor CP1201 (Physics Mode)

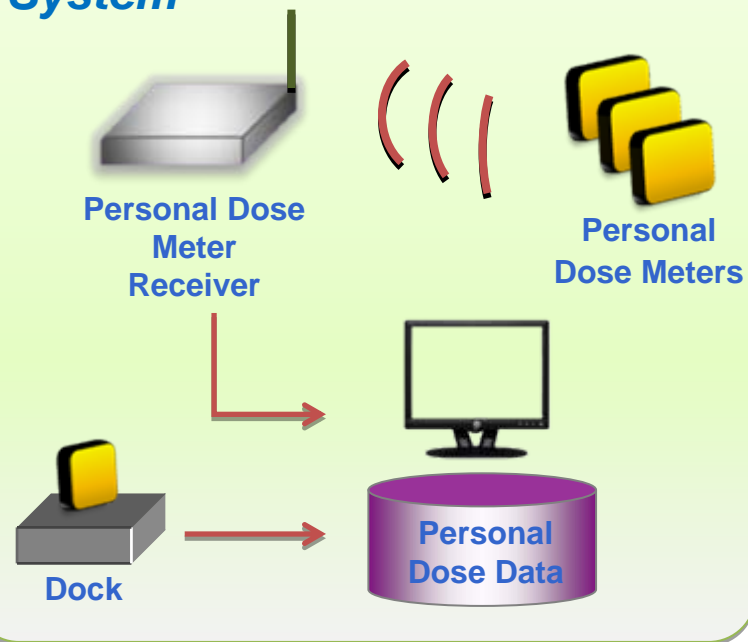
Dose SR



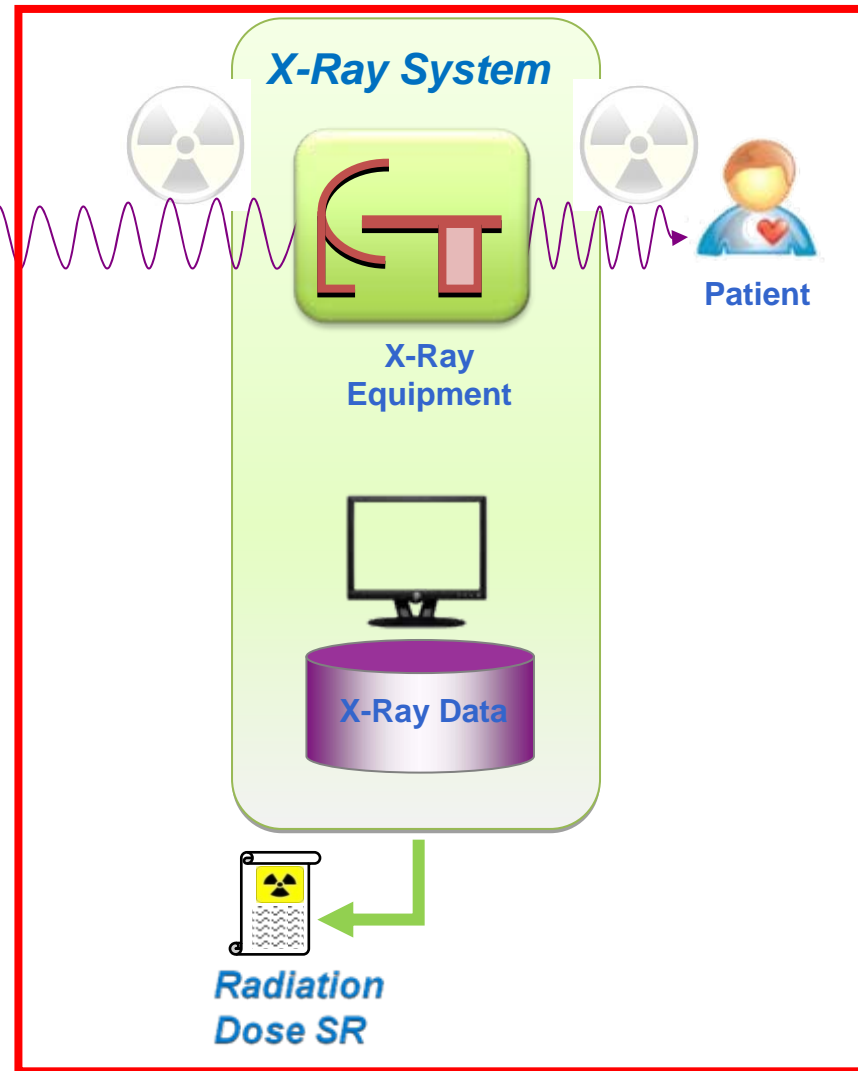
Currently in Standard

Radiation Dose SR

Personal Dose Management System

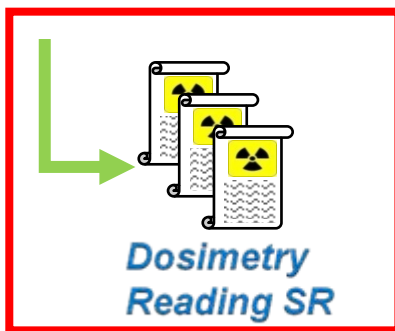


Operator
Operator



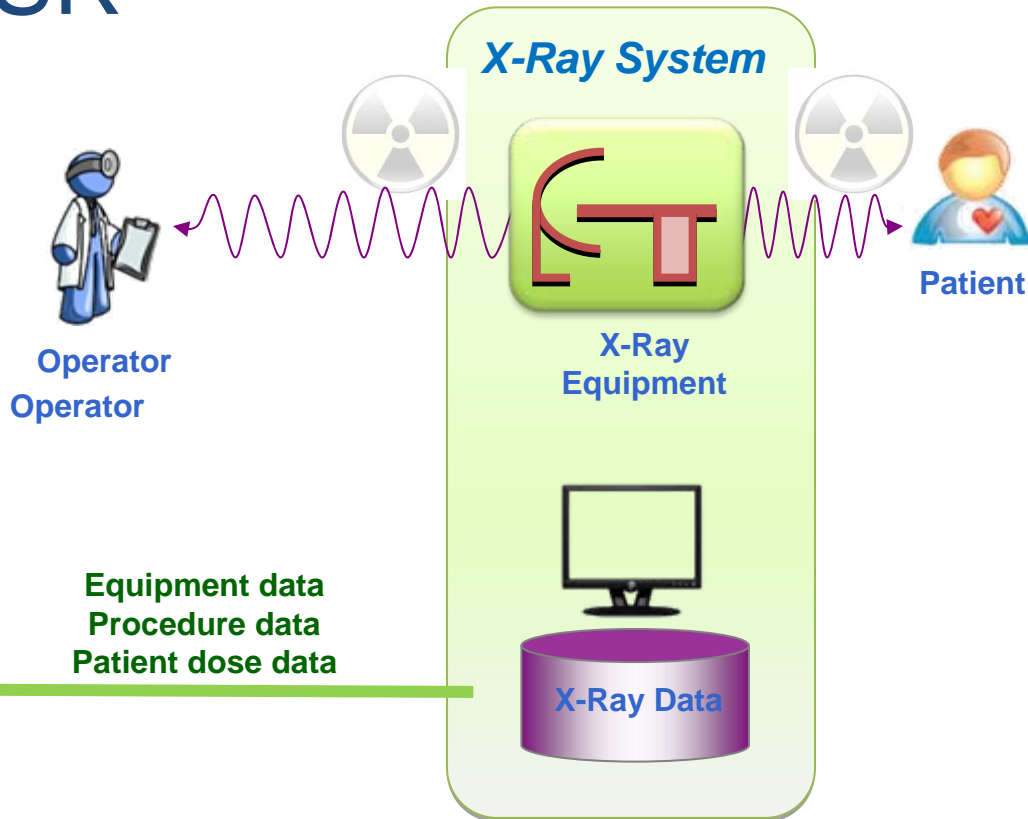
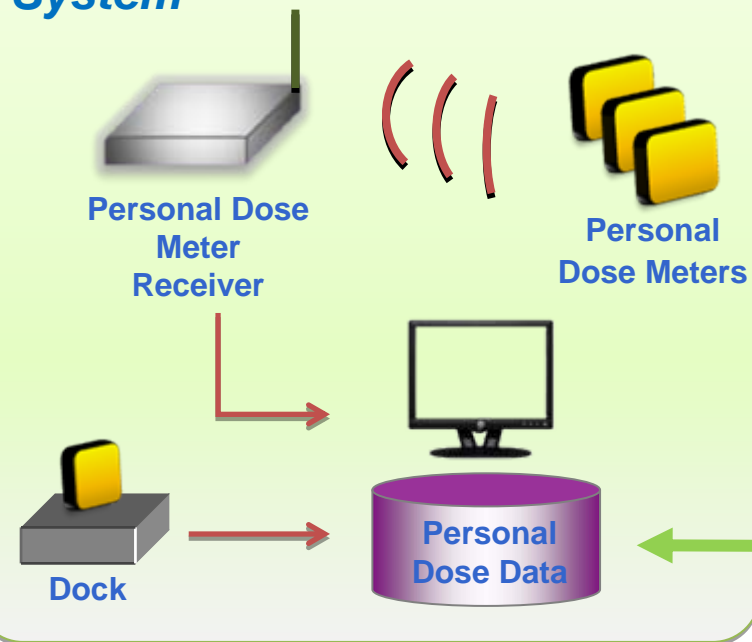
Currently in Standard

Potential Addition
to Standard

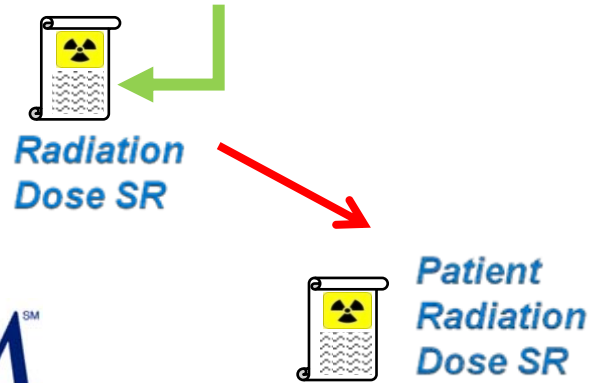
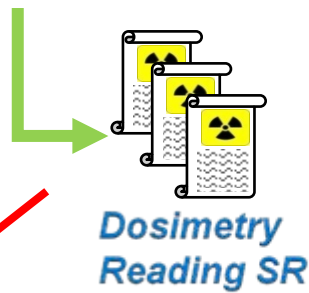


Radiation Dose SR

Personal Dose Management System



Equipment data
Procedure data
Patient dose data



Operator
Radiation
Dose SR

Dosimetry
Reading SR



Digital Imaging and Communications in Medicine

Radiation
Dose SR

Patient
Radiation
Dose SR

Ambient Dose

- Storage of “ambient” dose (90 degree scatter) in Dose SR.
- Questions to ask:
 - What is the use case?
 - Measurement method: are they standardized?
 - Interpretation of measurements: are they standardized?
 - What are potential technical values that may need to be modified for different systems?

Questions?

