



MIR 2014: Tracking Radiation Dose



Tracking radiation dose and contrast will improve the quality of radiology services, said Prof. Davide Caramella, speaking at the Management in Radiology (MIR) meeting in Bologna last week. Radiation dose historically has taken second place to diagnostic priority - diagnose no matter what the dose. While the knowledge about radiation dose has grown exponentially, professional acceptance is not keeping pace, noted Caramella. However, interest in a patient-centric approach is increasing, especially in the context of the total quality paradigm and personalised medicine. The European Society of Radiology (ESR)'s 2013 [statement on radiation protection](#) outlined the so-called GPS approach (globalisation, personalised medicine and safety).

The paradox is that the move to personalisation of medicine means variability. However, quantitative imaging requires standardisation, reproducibility, consistency and quality.

The solution is accepting the variations of patient age, sex (imaging is no longer gender neutral) and size, clinical context and the available technology. Tracking is needed. Variation in contrast media usage and radiation dose should be rejected if it is not clinically justified. Tracking should be systematic, comprehensive, shared and acted upon. Caramella noted the Quantative Imaging Biomarkers Alliance (QIBA) that aims to reduce variability across devices, patients and time. A study by [Caramella's team](#) in Pisa, for example, found that variation in dose depended on the technician involved and the radiologist. Radiologists therefore need to extract the relevant non-image biomarkers. Tracking will allow extraction of trends, benchmarking and sustainability - the latter is not just an economic concept.

Training is extremely important, as is the legal environment. The [European Council Directive 2013/59/EURATOM](#) lays down the basic safety standards for protection against the dangers arising from exposure to ionising radiation. Article 60 decrees that "any equipment used for interventional radiology and computed tomography and any new equipment used for planning, guiding and verification purposes has a device or a feature informing the practitioner, at the end of the procedure, of relevant parameters for assessing the patient dose." In addition, the equipment should have the capability of transferring this information in the record of the examination. Article 58 of the directive states that information relevant to the patient exposure forms part of the report of the medical radiological procedure. The main changes in this directive compared to previous ones is the provision regarding information relating to patient exposure and the transfer of dose information. The directive requires member states to adapt their laws and regulations by February 2018. The European Society of Radiology has an important role to play in supporting its implementation through professional channels. The [EuroSafe](#) campaign was launched last year.

However, said Caramella, radiology services need to analyse what they do. In Italy, a questionnaire distributed to over 500 radiographers found a lack of education. A worrying 56.4% seldom and 31.7% never attended

training on radiation safety. Only 12% had participated in such training. In addition, few of the respondents had correct knowledge about radiation safety.

Concluded Caramella, "Don't relax, assuming everything is ok." Tracking is needed, and the information is already in PACS and transparent.

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