Setting up a dose team steering committee to supervise Dose Management Systems

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Background/introduction

The availability of **Dose Management Systems (DMS)** allows radiology departments to track patient cumulative dose, to assess variability across their equipment, to identify dose outliers and to perform meaningful benchmarking (fig. 1).

Starting from 2015 - at the EuroSafe poster exhibition - the University Hospital of Pisa stated its interest in developing a new DMS in cooperation with the regional area PACS vendor.

The project officially started in 2016 at the **SIRM National Congress**, when Prof. Caramella presented the outcome of a study on the value of DMS for achieving the optimization of the dose administered in radiological procedures.
Images for this section:

**Fig. 1:** Screenshots from the DMS

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Description of activity and work performed

The DMS has been progressively deployed in the hospitals covered by the regional PACS (Area Toscana Nord Ovest - A.T.N.O), allowing the systematic collection of dosimetric indices.

The analysis of dose data are of fundamental importance in the evaluation of the dosimetric performance of radiology departments and allows to take prompt actions when dose variations appear to be unjustified.

Furthermore, the DMS allows to create benchmarks to be used to optimize the procedures, to improve and maintaining protocols, and to avoid unnecessarily high radiation doses.

The final aim is to achieve sufficient quality to satisfy the diagnostic needs, whilst using the lowest possible amount of ionizing radiation.

The current installation of our DMS allows data collection from more than 15 hospitals, monitoring a large number of equipment: 41 CT scanners (including 10 CT scanners in hybrid systems), 22 mammography systems, 46 digital X-ray systems and 2 angiographs (fig. 2).

After the technological deployment, the University Hospital of Pisa implemented an organizational improvement, by introducing a dose team steering committee, with the aim of supervising the data collected with the DMS in the two hospital campuses of Santa Chiara and Cisanello.

The dose team steering committee is composed by a radiologist, a medical physicist and a radiology technician.

Their task is to report to the Hospital’s leadership about the data coming from both:

- the DMS developed by our regional PACS vendor
- another DMS which is dedicated to collect dose data from our 7 angiography equipment (fig. 3).

The dose team steering committee has the role to motivate, support and educate radiology staff on the importance of maintaining best practices in order to limit patient radiation exposure as low as diagnostically achievable.

Its activity includes the organization of audits and of focused training to ensure that all procedures are optimized (fig. 4).
The work of the dose team steering committee is supported by the informal multidisciplinary group DoseTeam4you, which is already active since several years within the University Hospital of Pisa.
Fig. 2: DMS installed in the A.T.N.O. (Area Toscana Nord Ovest)

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Fig. 3: Angiographic procedure

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Fig. 4: Audit
Conclusion and recommendations

The newly formed dose team steering committee will officially start its activities in 2019.

As mentioned, its task will be the systematic review of the data extracted by the DMSs, to verify the compliance to national as well as local Diagnostic Reference Levels (DRLs).

We believe that radiation protection of patients can be greatly enhanced by using DMS, provided that there is a committed team empowered by the Hospital leadership

• to oversee dose performances, and
• to suggest possible corrective actions.

Such activity must be **formally recognized** and should be assigned to a dedicated group of highly trained professionals, since it **cannot be performed on a voluntary basis** as part of the busy daily professional work (fig. 5).
Images for this section:

Fig. 5: Radiologists at work

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Personal/organisational information

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