

Beginning Phase 1 of a study to validate RDM's peak skin dose module in interventional radiology

Context

As interventional radiology involves radiation-induced effects for the patient – and thus is regarded as a risk-prone procedure – there is a real need to assess the patient's cumulative skin dose after each activity.

RDM's peak skin dose module is being scientifically validated by medical physicists from 4 hospitals of the AP-HP group in a 2-phase study.

The study's experts

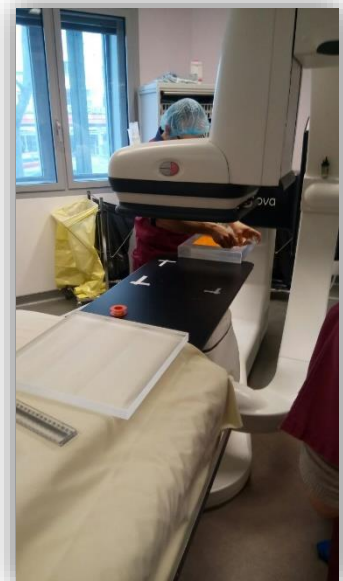
- Jad FARAH, medical physicist, University Hospital of Le Kremlin-Bicêtre
- Bouchra HABIB-GERYES, medical physicist, University Hospital of Necker Enfants-Malades
- Lama HADID-BEURRIER, medical physicist, Hospital of Lariboisière
- Marie-Joséphine WARYN, medical physicist, Hospital Jean-Verdier

Four hospitals of the AP-HP group are currently conducting a study to validate the new feature of skin dose mapping. The RDM solution will hence be compared with experimental measurements using Gafchromic® films – first performed on anthropomorphic phantom, and then on patients in routine clinical conditions. The study is currently in Phase 1, and the first validations will be carried out during 2017.

Beginning of Phase 1 – Friday, 10 March 2017

Currently in Phase 1 of the research project, meetings and work analyses have begun at the Necker Enfants-Malades Hospital. The RDM team, represented by a developer and a product specialist, visited the hospital and participated in the beginning of the study.

“This first meeting marks the beginning of Phase 1 of the study and has initiated many discussions in real-time with the healthcare professionals. Sharing this experience not only allowed us to better understand the course of the study but also to promote synergy between the medical physicists and Medsquare's development team,” said Romain Binot, RDM product specialist.



Here are the steps that the medical physicists have already carried out to validate RDM's peak skin dose module:

- 1- Scanner calibration for reading Gafchromic films: January – February 2017.
- 2- Characterization and quantification of global uncertainties by Gafchromic films: March 2017.

3- Validation of the incidence map with experimental measurements carried out using PMMA phantoms in a vascular GE Innova room at Necker Enfants-Malades Hospital: March 2017.

Bouchra HABIB-GERYES, medical physicist at the Necker Enfants-Malades Hospital, gives us her feedback on the beginning of this study:

“The study aims to validate the incidence map displayed by RDM software in reference and clinical conditions. First, experimental measurements will be carried out using slab and/or anthropomorphic phantoms next in vivo-measurements of patient skin doses during realistic interventional procedures will be acquired; all measurements will be compared to the incidence map calculations performed by RDM. This study will validate a practical and reliable tool for the prevention and management of the risk of radiation-induced effects.”

Phase 1 of the project is estimated to last 3 months. A thorough analysis of the Phase 1 results will be conducted before the transition to Phase 2, which is expected to last approximately 6 months. Phase 2 will validate the algorithm of RDM’s peak skin dose module, first performed on anthropomorphic phantoms, and then on patients in routine clinical conditions. When the study is complete, it will be the subject of a scientific publication.