



The fast spread of new equipment used at interventional radiology (IR) and cardiology (IC) departments, as well as the increase of their workload has raised many questions regarding the radiation protection programme of the occupationally exposed staff. During interventional radiology procedures, the operators and the assisting personnel can receive relatively high doses while standing close to the primary radiation field.

To optimize the working procedures in the medical field with respect to radiation protection the ORAMED project (coordinated research project) has been launched within the 7<sup>th</sup> EU Framework Program. The objectives of the ORAMED project were:

- To perform a systematic study of measurements and simulations of extremity and eye lens doses of medical staff in selected IR and IC procedures
- To study the parameters that influence the extremity and eye lens doses
- To propose a methodology for reducing the doses (guidelines/recommendations).

After preliminary tests a measurement protocol was established according to which several parameters related to the system, the position of the physician and the protective equipment, the experience of the physician, the field parameters (kV values, filtration, projections, etc.) and finally the KAP values were recorded. TL dosimeters were used for the measurements. They were placed as follows: One dosimeter in the region between the eyes, one near the left or right eye depending on whether the X-ray tube is on the left or right side of the physician, two dosimeters on the wrists, two on the rings and two dosimeters on the legs 5 cm below the lead apron.

The presented video shows the preparation of the physician before entering the room. The importance of the use of the personal and room protective equipment is underlined. However, for education purposes some good and bad practices are shown in the video and stressed by the use of subtitles:

- Use of lead apron, thyroid collar, lead glasses with large lenses (good practice)
- Use of table and ceiling suspended shield (good practice)
- The image intensifier is too high from the patient (bad practice)
- When the operator changes position his feet are not protected during the X ray irradiation (bad practice).

Concluding, it can be said that the radiation protection of the operators performing IC and IR procedures could be improved by applying certain rules. The lessons that were learnt within the measurement campaign showed that some parameters like position of the tube, the suitable use of protective devices and individual practices can significantly reduce the extremity and eye lens doses.