

## **Video as a tool for optimization of radiological protection in image-guided interventions - possibilities and limitations**

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In healthcare, the highest patient and staff doses are received in image-guided intervention. This area includes a large variation of procedures with various prerequisites for performing radiological protection. Traditionally, radiation protection has mainly consisted of monitoring staff dose and providing personal radiation shielding in addition to education and training. New strategies have to be developed to achieve an optimized radiation protection in these changing environments. It could be anticipated that video could be a useful tool for optimization. The aim of this work was to develop video as a tool for optimization of radiological protection in image-guided interventions.

Video recordings of the staff during image-guided abdominal interventions have been performed. Three cameras were used. Camera one was placed to get an overview of the room. The second camera was placed on the monitor facing the staff and camera three was recording the live monitor from the x-ray system. The video recordings were visually analyzed. Technical parameters were additionally collected from the x-ray system. Dose rate data was also collected during the procedures.

So far, three procedures have been analysed in order to develop the optimization tool. The most important camera angle was the one over viewing the room. It was with the chosen angles, however, difficult to see what the staff members were looking at during the procedures.

In developing the tool the following has been identified as important issues to consider; the number and position of cameras, the sound quality, editing of video material and safety issues. Furthermore, it is important to consider the competence of the evaluating team, which need to be multidisciplinary. Above all, ethical aspects of recording patients and staff have to be addressed. The present study combines video recordings of the interventional staff with information of the variation of dose rates during the procedure. This is a novel approach for education and training strategies.