

X-ray imaging devices, especially kilovoltage x-ray imaging devices integrated to a radiation treatment unit, are increasingly available for image guided radiation therapy (IGRT). The conventional portal imaging setup fields using megavoltage are still available and being used as well.

This lecture will provide an overview and examples of the additional radiation exposure to radiosensitive organs of patient resulting from image-guided procedures, especially for widely used kV cone beam CT (kV-CBCT) acquisitions.

The lecture presents a perspective view of kV x-ray imaging dose to radiotherapy patients in comparison to conventional techniques using MV portal imaging devices (EPID) for patient positioning.

The talk also discusses pro and cons of image modalities and techniques used in the image guidance concerning the imaging dose to patients.

Learning Objectives:

1. Gaining knowledge on the amount of radiation exposure to radiosensitive organs of a patient resulting from different image guidance procedures
2. Obtaining a perspective view on the magnitude of the imaging dose from different image guidance procedures related to the therapeutic dose.
3. Learning the techniques to reduce the imaging dose in clinical applications including kV x-ray and MV x-ray imaging.