

AbstractID: 3695 Title: The use of Computed Radiography in Radiotherapy

**Purpose:** To investigate the feasibility of using Computed Radiography as a film replacement in a radiotherapy department

**Method and Materials:** A computed radiography (CR) system designed for radiotherapy has recently been introduced to the market. The CR system has separate imaging plates designed for KV imaging, low dose portal imaging (1-10mu) and high dose portal imaging (10-400mu). An evaluation of the possibility of using CR for all functions that are typically done with film in a radiotherapy department has been done. This included an evaluation of image quality of the CR system for portal imaging. It also included an evaluation of the CR system for various quality assurance issues such as gantry and collimator spoke shots, light to radiation congruence, and HDR source position accuracy.

**Results:** The image quality provided by the CR images was determined by both Oncologists and therapists to be acceptable for use in conventional portal imaging. Images of a contrast resolution phantom were taken with CR, film and an ASi portal imager, and are similar for all three. Quality assurance tests typically done with film can be done with CR imaging techniques. The analysis of spoke shots is possible with the existing tools, but could be streamlined with the development of some analysis software. Similarly it is possible to evaluate the light field vs radiation field congruence with the existing tools in the CR system, but this could also be made easier with some further software development.

**Conclusion:** Computed radiography can be used as a film replacement for imaging and QA in a clinical radiotherapy department.

**Conflict of Interest (only if applicable):** This work has been supported by AGFA HealthCare