

AbstractID: 11211 Title: Physics Quality Assurance in the Evolving Industry

Purpose: To present the changes we made in our department of 8 radiation oncology centers to keep pace with the industry. The changing field has been the topic of task groups, seminars and symposiums with the expectation that groups like ASTRO, AAPM and NCI would help re-write new specifications and guidelines. As with all members of the medical physics community, we await the new guidelines but continuously adopt our own quality assurance (QA) procedures to meet the demands of our changing fields. This paper addresses how we have approached these issues and how we have changed our QA processes.

Method and Materials: The ever evolving industry in Radiation Oncology has forced medical physicists to develop new quality assurance (QA) procedures. Additional QA procedures are required for electronic portal imager devices (EPID), multileaf collimators (MLC), film processors, mega-voltage cone beam CT (MVCB-CT) tests, and QA on functional imaging devices such as PET/CT, SPECT and MRI.

Results: A listing of added quality assurance procedures and specifications is shown. It demonstrates a higher level of testing that goes beyond TG40 to assure safe, accurate and reliable beam delivery. We have identified the need to address the addition of hardware, the growing use of computers, higher levels of imaging, and the move to adaptive treatments.

Conclusion: We added procedures to all of our daily, weekly and monthly QA processes. This included linear accelerators, imaging and planning devices. These procedures have assured that we maintain reasonable and effective QA assessments in line with the changing industry. We expect that these or similar standards will be organized and adapted by medical physics organizations to assure uniform standards throughout all radiation oncology operations.