AbstractID: 14555 Title: Safety in Radiation Therapy

The use of paperless, filmless, and automated computer-controlled processes in treatment planning and delivery of radiation therapy treatments has drastically increased over the past decade. Treatment plans and delivery records are increasingly available in electronic form and in many situations this is the only way to access these records. However, the processes used to 1) evaluate quality and integrity of treatment plans, 2) validate the data transfer between treatment planning systems and treatment machines, and 3) review treatment records have all remained predominantly manual. Often, the current methods are still based on processes which were developed for paper based and manual radiation therapy delivery. Therefore, there is an opportunity to augment these processes with techniques and software tools that can improve the safety and quality of radiation therapy delivery by more thorough, consistent, and standardized evaluation of treatment planning and delivery data. This is especially important as the amount of data that needs to be reviewed and verified is ever-increasing. Software tools for plan review and audits of treatment delivery records can increase the number of parameters that are verified and the audit frequency as well as perform checks that are impossible or simply impractical to perform manually. This symposium will present opportunities for automation of QA and QC processes and describe custom solutions which have been developed at various institutions. While most of these solutions are not commercially available, the goal of the symposium is to demonstrate the potential benefits of these techniques, especially after incorporation into commercial systems which are widely employed.

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Educational Objectives:

1) To discuss the need for systems thinking and automation in radiation therapy quality management
2) To demonstrate automatic QA/QC solutions which have been clinically implemented
3) To discuss potential benefits and pitfalls of automation in radiation therapy processes