



C4 – Recent Advances in Radiation Therapy: Planning, Delivery and Methods of QA

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The goal of this course is to present an overview of recent developments in radiation therapy equipment, associated hardware and software, methods of commissioning and QA.

As a parallel subject, the implementation of new clinical procedures made possible by these new technological developments will be presented. An overview of similar procedures as offered in radiation therapy equipment from different commercial providers will be addressed. New treatment protocols and dose prescription regimens made possible by these technological advances will be addressed.

As an illustration of the constant effort to keep these new treatment methods safe to patients, different methods of treatment delivery verification and its QA: EPID, CBCT, and others, are addressed, illustrating the importance of assuring the safety of these highly sophisticated methods of treatment delivery. Acknowledgment, analysis and evaluation of the dose contribution resultant from these setup verification methods will be addressed.

On other aspects of quality control and assurance, methods of quality control for the verification of the accuracy of treatment plans will be discussed. Safety methods and rigorous quality control procedures established which highly contribute to keeping possible errors to less than one tenth of a percent of all fields treated, are presented. In light of the high visibility recently placed on mistakes occurring in the field of radiation therapy, while we recognize that no mistake should happen during patients' treatments, the very strong or large effort placed on QA for treatment planning prior to and during treatment delivery by most institutions must also be emphasized.

Keywords: New Therapy Treatment delivery methods, Rapid Arc, VMAT, "True Beam", Frameless SRS, SBRT, Radiation Therapy QA.

April 17th -Sunday	
8:00 – 9:00	Registration
9:00 - 9:15 am	Welcome
9:15 - 9:45 am	Stereotactic Body Radiation Therapy - Timothy Solberg (UT Southwestern Medical)
9:45 - 10:15 am	Frameless Stereotactic Radiosurgery - Timothy Solberg (UT Southwestern Medical)
10:15 - 10:45 am	Break
10:45 - 11:45 am	VMAT overview - Volker Steil (University Medical Center, Mannheim)
11:45 - 12:45 am	Rapid Arc overview - Linda Hong (Montefiore Medical Center)
12:45 - 2:00 pm	Lunch
2:00 - 3:00 pm	IMAT overview - Bill Salter (University Utah)
3:00 - 3:30 pm	Hands-on (I) - BrainLab
3:30 – 4:00 pm	Break
4:00 - 4:30 pm	Hands-on (II) - Elekta
4:30 - 5:00 pm	Hands-on (III) - Varian
5:00 - 5:30 pm	Hands-on (IV) - Siemens