AbstractID: 9871 Title: Data Acquisition for Beam Modeling

The quality assurance (QA) of a Treatment Planning System (TPS) can be broken down into two main categories, verifying the accuracy of the algorithm and system functionality, and verifying proper modeling of beam data locally. The AAPM's Task Group 67 (TG-67) was charged to create benchmark datasets to provide the basis for algorithm validation and identify methods for measuring a series of test cases for validation of photon beam dose calculation algorithms. The dataset will consist of two components. First a series of standard water scans sufficient to provide all data required for measured beam algorithms (characterization set) or to model the beam (verification set) for any commercial TPS. Second a series of test cases that would evaluate the ability of the algorithm to accurately calculate dose in several clinical situations. Because benchmark data would have a widespread distribution and variety of uses, it is incumbent that the data be precise and accurate. The development of conformal therapy necessitate a higher level of accuracy for penumbra and tail regions of the beam. Based on these needs, a detector that has high spatial resolution and negligible dose rate and energy dependence is needed. This work has been completed for 10 major TPSs, and will be reviewed. A brief description of data requirements for Monte Carlo will also be provided.