

AbstractID: 1362 Title: Comparison of IMRT Delivery Time for Two Different Linear Accelerators: Varian 21EX and Siemens Primus

The purpose of this work was to analyze and evaluate delivery time, number of MU, and point dose variance for phantom plan validation with IMRT plans delivered on Varian 21EX and Siemens Primus accelerators. Prostate and Head&Neck phantom plans with similar +/-5% angles and using the same step and shoot technique were chosen for this study. These plans were created with the ADAC v6.2b inverse treatment planning system. For both studies a PTW ion chamber was placed at 10cm depth in a 30x30x20cm solid water phantom for absolute point dose measurements. The phantom was irradiated with the same MU setting as the patient's plan, and the measured point dose was compared with the treatment plan. The MU and time needed to execute these plans was also compared. Nine IMRT phantom plans were evaluated. The measured point dose versus plan dose was within the 5% tolerance. The Varian dose differences varied between 0.3% and 5%, and the Siemens differences varied between 0.8% and 5%. The total number of MU used for the Varian was 379-1387, and the Siemens MU were 420-814. The total treatment time recorded for the Varian was 4-12 minutes and for Siemens it was 10-26 minutes. The Primus took more time to deliver a similar IMRT plan than the 21EX. The 58 Primus leaves moved slower than the 120 Varian leaves. Because of the longer treatment time with Primus, patient selection and patient movement must be considered. However both machines delivered plans within the 5% tolerance.