

AbstractID: 3111 Title: Independent dosimetric validation of Novalis IMRT and Dynamic Conformal plans using PHILIPS Pinnacle³ Treatment Planning system

Purpose: To study and validate the calculated dose distributions generated from Novalis inverse treatment planning system using PHILIPS Pinnacle³ treatment planning system

Method & Materials: A total of 60 clinical Novalis plans comprising of 41 Dynamic Arc and 19 IMRT plans were selected in this study. The CT images for the individual cases were exported to Pinnacle³ treatment planning system via network. A software script was developed to extract beam segments including MLC jaws, gantry, collimator and couch angles and monitor units from the RTP file generated by Novalis inverse planning system. The segmentation of MLC-based IMRT plans from Novalis system was imported into the Pinnacle³ using the above software. The prescription and beam weights were set to reflect the treatment plan computed by the Novalis system. In all the above clinical cases, the dose distributions were computed and analyzed for homogeneous dose calculations.

Results: The dosimetric results of all the above clinical cases have been analyzed. It was found that the agreement between the two systems at the isocenter dose was 1.00 ± 0.028 . In addition, the shapes of isodose lines in the three principal planes(axial, coronal and sagittal) were qualitatively agreed in both the systems

Conclusions: This study helps in validating the Novalis IMRT and Dynamic Conformal plans on Pinnacle³ which is well tested and documented on its convolution algorithm. These results indicate that the approach is robust and valuable for routine clinical IMRT plan validations as it takes account of entire clinical data set for the individual cases.