AbstractID: 1238 Title: Comparison of Patient Specific QA for H&N and Prostate IMRT

Patient specific QA of IMRT involves absolute dose measurements, relative isodose line comparisons, and distance to agreement (DTA) analysis. H&N IMRT sometimes includes multiple PTVs which are relatively distant to each other in superior-inferior and lateral directions. It usually requires larger treatment fields and monitor units to achieve objectives of targets and organs at risk (OAR). Furthermore, because of the maximum spread limitation of MLC, it may require to split the treatment field into two subfields or eliminate some non-deliverable segments. In this study, we analyze QA data for these types of H&N patients. The results were compared with that of prostate IMRT with single PTV. Patient specific QA plans were generated using IMRT QA phantom (MedTec.) and XIO TPS (Computerized Medical System). Extended dose range (EDR) films (Kodak) were sandwiched between solid water slabs 2.5 cm inferior to the central axis. An A14 0.009 cc micro-chamber was inserted at beam isocenter in the phantom and irradiated according to QA plan. Film dosimetry was performed using Vidar-16 Dosimetry Pro scanner and RIT (Radiological Imaging Technology) software. Absolute dose values and relative isodose lines were compared with data generated from TPS. The agreement between calculated and measured absolute dose values in the high dose, small gradient regions are within 2.8 +/- 0.5 % and 2.1+/- 0.2 % for H&N and prostate cases, respectively. However, the distance to agreement (DTA) is slightly better for prostate cases (~ 2mm) then that of H&N cases (~ 3mm) over 80 % of the area evaluated.