AbstractID: 1149 Title: An in vivo IMRT QA Method Using Films and a 3D Software Program

We evaluate a method using films and optional diode readings taken *in vivo*, and a 3D software program (Dosimetry Check from Mathresolutions) to do patient QA for IMRT and electronic compensator delivery. A 1 mm thick Cu is used as filter. The transmission factor is 0.97 for a 6MV beam. The film and/or diode reading are used to calculate 3D dose distribution with the patient CT data. There are 2D, 3D, DVH and Gamma comparison tools in the program. We have used this method to verify about 30 IMRT plans generated on Varian Eclipse or Phillips Pinnacle treatment planning systems. The results are good for all plans including inverse, forward and electronic compensator type IMRT plans with both sliding window, and step and shot delivery techniques. Following is the advantages of this method: 1) It is *in vivo*, avoid the burden of checking file transfer error if QA and patient DMLC files are not same in the treatment control computer. 2) The calculation is based on patient CT data, inhomogeneity correction can be used. 3) It can potentially avoid the burden of comparison of 2D or 3D dose distribution. One can just evaluate the QA dose distribution over the CT, and DVH of PTV and critical structure just like evaluating an IMRT plan.