

In our institution many prostate cancers are treated with four coplanar conformal fields. Treatment planning is performed with our Helax TMS 3D treatment planning system. The radiation oncologists draw the GTV, CTV and PTV according to ICRU50 specifications. Fields are shaped using MLCs, such that the prescribed isodose surface best fits the PTV. The leaf plans are exported electronically using an RTP Link to our LANTIS R&V System. The goal of this study was to investigate the errors in calculating isodose distributions in fields shaped with the multileaf collimator to *partly* characterize PTV margins needed for the treatment of prostates.

In this study we planned two and four field treatment plans on a 30cmX30cmX30cm phantom using two extreme shapes - a sphere and a cone, to represent the prostate. For each of the four plans, the MLCs were shaped such that the 90% isodose surface just contained the target. The treatments were delivered on our Siemens Mevatron KDs equipped with an MLC. Isodose distributions in coronal and sagittal planes were measured using film. The film dosimetry was performed using our Wellhoffer film densitometry system with H&D corrections.

Our results show that for the spherical target the largest errors between the calculated and measured prescription lines are about 3 to 4mm. For the conical target, the errors were consistently largest near the tip of the cone with errors as large as 5mm. The area within the measured prescription isodose line was less than planned in most cases.