

Many radiation oncologists working in centers not equipped with 3-D treatment planning systems have fundamental question of “is it really helpful?” or “would I be paying for just some pretty pictures?”. The aim of this presentation is to answer the above questions by comparing optimal 2D plans generated for prostate with 3D conformal plans, using an in-house developed RTP system. The procedure was to identify the clinical target volume (CTV) on CT slices, transfer and project CTV on sim film to design the irregular fields, use the central slice from CT to generate optimized 2D plan with a dose homogeneity of 5% or better across the planning target volume (PTV). A 3D plan was also generated using the same beam parameters as in the 2D case. Dose-volume Histograms (DVH) were then computed for both plans for targets as well as for the critical structures. In the target volume, the coverage was similar in both plans, but for the bladder and rectum significant differences in dose-volume relationship were observed. In 2D, in average, 30% of the bladder and 35% of the rectum volumes were treated with over 90% of the prescribed dose, compared with only 9% of bladder and 12% of the rectum volumes in the 3D plan. It was concluded that 3D RTP systems are helpful in reducing the dose to critical normal structures and of course will help in conformity of dose to the PTV. The MUs for the irregular plans were compared and no significant differences were found.