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Inverse planning generally delivers a more conformal dose to the tumor while sparing the surrounding critical organs; more so than one obtained from conventional 3D treatment planing. In order to reduce the dose to the surrounding critical organs even further, it is reasonable to think of using a tighter margin with inverse planning. Prior to applying a tighter margin for our prostate patient we studied 10 sets of CT images (obtained from five consecutive days of two different patients (A, B)). Two inverse plans were generated for each patient. One had a 1cm margin around the prostate except for 0.8 cm at the posterior border (called PTV1). The other one is no margin (called PTV0). Once the plan is done for a specific PTV, we then exported this plan with identical segments and weights to the following CT images of the same patient and centered the isocenter based on external marks each day. Table 1 shows that the rectal dose was reduced as the margin around the prostate was reduced. However with a tight margin, it is very easy to under dose the prostate due to the movement of the prostate. With Siemens Primatom (CT-on –rail coupled with a linear accelerator), we scan the patient and deduce the daily movement of the prostate prior to the treatment deliver. It is possible to use tighter margin without under dose the prostate (shaded area).