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Purpose: Many times a suboptimal dose distribution resulting from I-125 seeds in prostate brachytherapy is salvaged by giving additional radiation dose using 3DCRT/IMRT. In standard treatment planning, the dosimetric perturbations introduced by the existing seeds are usually ignored. Present study aims at studying these perturbations for 6MV and 18MV beams within a phantom setting in region immediately behind the seed. **Methods and Materials:** Three Kodak X-OmatV films were placed on top of 10cm of Solid Water at 100cm SSD. On top of the films a single non-radioactive (preactivated) seed was placed and aligned parallel in the longitudinal direction under 1cm bolus and 4cm Solid Water for a total buildup of 5cm. A 1cm x 1cm field was setup and irradiated with 10MU of 6MV and 18MV photons. A second set of measurements was obtained using three seeds each separated vertically by 0.5cm bolus material allowing the study of the interseed shielding effect. Control fields were irradiated with no seeds. All the films belonged to the same batch and were processed simultaneously. The films were scanned using a Vidar VXR-16 scanner and analyzed using RIT 113 Version 5.1 obtaining profiles in the transverse and longitudinal direction. **Results:** For the single seed measurement, at about 0.5mm from the seed (top film), the maximum change in dose from having no seed was 27.1% (6MV) and 13.4% (18MV). The three seed measurement revealed 24.1% (6MV) and 11.1% (18MV). **Conclusion:** The dose perturbation caused by the I-125 seeds is significant locally around the seed. This can be seen by the fact that the change in the dose profile is independent of the number of seeds spaced intermitted above the seed.