

AbstractID: 1696 Title: Improved Patient Positioning in Gynecology Patients Receiving Intensity-Modulated Whole-Pelvic Radiotherapy (IM-WPRT)

Intensity-modulated whole-pelvic radiotherapy (IM-WPRT) has been used to decrease the volume of small bowel irradiated in gynecology patients. Due to the large dose gradients present in IM-WPRT, accurate patient positioning is essential in order to achieve the treatment goals. We previously studied the setup uncertainty of 46 patients who were treated at our institution. All patients were immobilized using customized alpha cradles under both the upper and lower body, which were indexed to the treatment table. We found that the largest component of the setup error was in the AP direction. This error was most strongly correlated with the change in small bowel volume irradiated. We have previously shown that the volume of small bowel irradiated to the prescription dose was the most important predictor of small bowel sequelae. In order to determine how to reduce the AP setup error we obtained the recorded treatment table position for 11 of the 46 patients. The table position was compared to setup error for all days on which portal films were taken, between 3 and 6 films per patient. In five of the 11 patients we found that there was a significant correlation ($R^2 > 0.85$) between the table height and the setup error in the AP direction. For individual patients who demonstrate such a correlation, we will study how using a fixed table height in conjunction with the custom immobilization devices can decrease the systematic component of the AP setup error.