# AbstractID: 14305 Title: Reproducibility of Vaginal Dilator Placement in the Treatment of Squamous Cell Carcinoma of the Anal Canal

**Purpose:** Intensity modulated radiation therapy is used in the treatment of squamous cell carcinoma of the anal canal in order to minimize the post-treatment risk of dyspareunia. Vaginal dilators offer the potential of further sparing the anterior vaginal wall at the introitus by displacing this area from the region receiving high dose radiotherapy. The daily reproducibility of these dilators was investigated in this study.

**Method and Materials:** Patients were immobilized in a frog-legged position with a vacloc cradle. A silicone vaginal dilator was inserted before simulation and during each treatment fraction. Antero-posterior (AP) and lateral kV images were used for daily set-up on bony anatomy. Bony anatomy positions of ten patients were compared with the digitally reconstructed radiographs (DRRs) generated from the simulation CT. The position of the apex of the dilator as well as a point on the dilator's longitudinal axis at constant depth was also compared with the positions obtained from the DRRs.

**Results:** The average deviation of bony anatomy from the DRR was $0.3 \pm 0.2$ cm for the AP images, and $0.5 \pm 0.3$ cm for the lateral images. The 3-dimensional position of the dilator axis near the tumor volume showed similar deviation, $0.5 \pm 0.3$ cm. The position of the apex of the dilator showed a larger deviation of $1.3 \pm 0.7$ cm. However, the absolute depth is not as important for sparing of the vaginal wall at the introitus. The variation of the dilator angle was small in the AP images ($1^o \pm 4^o$) and slightly larger in the lateral images ($-1^o \pm 9^o$).

**Conclusion:** The reproducibility of a reference point along the vaginal dilator's longitudinal axis was comparable to that of bony anatomy. This could allow maximal sparing of the female genitalia in patients undergoing IMRT.