Purpose: This limited study determines the fraction of prostate IMRT patients who do not need setup adjustments, following initial setup, for their first 5 and last 5 fractions. For patients needing setup adjustments during their first or last 5 fractions, the average time to the first adjustment is established for each interrupted fraction.

Methods: The Calypso System (Varian Medical Systems, Palo Alto, CA) tracks the position of three implanted fiducials in the prostate. The treatment is manually interrupted if excursions >3mm occur over a time period >5 seconds. Post treatment reports were examined from 18 patients to determine the number of setup changes needed during their first and last 5 fractions and the time of the first setup change for each interrupted fraction.

Results: Three of the 18 patients in their first 5 fractions and 5 of the 18 patients in their last 5 fractions did not require setup changes. On average, 7.6 (+/- 7.4) setup changes were needed per patient for the first 5 fractions and 5.9 (+/- 8.5) setup changes for the last 5 fractions. Over the 18 patients, there were a total of 137 setup changes in the first 5 fractions and 106 in the last 5 fractions and only 1 patient with no setup changes. For those patients requiring setup changes, the first setup change occurred, on average, after 6.3 (+/- 4.4) minutes for the first 5 fractions and 5.4 (+/- 2.5) minutes for the last 5 fractions.

Conclusions: The majority of prostate patients required adjustments multiple times over the first and last 5 fractions. Using the Calypso System to monitor target motion appears to be beneficial for the majority of prostate patients. Treatment techniques decreasing treatment time, such as VMAT, can be helpful in decreasing the number of interruptions, but still require motion management systems.