AbstractID: 9432 Title: Use of CBCT in SBRT treatments, UTSW experience

Purpose: To present an impact of CBCT on efficiency and accuracy of SBRT treatments in case of lung and prostate tumors.
Methods: Patients interfraction and intrafaction setup errors have been analyzed for prostate SBRT treatments and for lung SBRT treatments.

The CBCT has been utilized for this purpose.

The CBCT measurements of shifts before the end of treatment have been also collected for comparisons.
Results: Average interfractional shift for SBRT prostate treatments in vertical direction was -0.51cm with average deviation from mean of 0.29cm and with maximal shift of 1.3cm, in longitudinal direction these values were respectively -.01, 0.29 and 0.6cm and in lateral direction these values were 0.05, 0.22 and 0.8cm respectively. Average intrafractional shift for SBRT prostate treatments in vertical direction was -0.05cm with average deviation from mean of 0.07cm and with maximal shift of 0.2cm, in longitudinal direction these values were respectively 0.07, 0.12 and 0.5cm and in lateral direction these values were -0.08, 0.1 and 0.2cm respectively.
Average interfractional shift for SBRT Lung treatments in vertical direction was -0.24cm with average deviation from mean of 0.37cm and with maximal shift of 1.1cm, in longitudinal direction these values were respectively -.06, 0.41and 0.8cm and in lateral direction these values were -0.11, 0.34 and 0.9cm respectively. Average intrafractional shift for SBRT Lung treatments in vertical direction was -0.01cm with average deviation from mean of 0.06cm and with maximal shift of 0.2cm, in longitudinal direction these values were respectively 0.01, 0.04 and 0.3cm and in lateral direction these values were 0, 0.05 and 0.3cm respectively
Conclusion. Daily use of CBCT IGRT for patient setups indicates that daily corrections of setup errors at treatment justify reduction of margins in SBRT treatments of lung and prostate.