

Purpose: To develop a process to track respiratory motion during lung SBRT treatments and evaluate the dosimetric impact of this motion.

Methods: Breathing patterns were recorded at time of 4DCT acquisition both with RADPOS and Bellows. Subsequently, breathing patterns were recorded solely with RADPOS during all fractions of lung SBRT. Differences in breathing pattern, relative to that acquired at time of 4DCT were quantified.

Results: Comparative analyses of the breathing patterns acquired at 4DCT to those acquired during treatment revealed significant differences in both the amplitude and period.

Conclusions: This work describes a method to track breathing motion during lung SBRT, and demonstrates the potential need to adapt the treatment plan when the motion is different from that during 4DCT acquisition. Future work will involve applying the acquired motion parameters to the contoured tumours in order to evaluate the possible dosimetric effects of these differences.