

AbstractID: 13527 Title: Assessment of the correlation between daily set-up patient positioning correction values of an on-board kV imaging system and the radiation technologist rank

Purpose:

To examine the daily patient set-up positioning error vs. the radiation technologist rank, by deriving it from the XVI image fusion correction values.

Method and Materials:

A set of 5 prostate, 5 head & neck and 4 lung cancer patients had been taken for this comparison. All of the patients were treated in IMRT Step & Shoot technique.

For each patient the following data was extracted: (1) 10 XVI scans randomly picked and three parameters were taken, the table shift in 3 axis: longitudinal, lateral, vertical. (2) The names of the radiation technologists correlating to the date of the XVI scan.

Three intervals of fusion correction were defined: 2-3 [mm], 3-5 [mm], greater than 5 [mm]. Radiation technologists were ranked by compiling a set of categories such as: chronological time at work, overall assessment of the institute senior staff in a scale of 1-5 (1-High Rank; 5-Low Rank).

Results:

There is a definitive match between the value of the correction and the number of corrections in total per patient and the radiation technologist rank.

Radiation technologists that were ranked 4 or 5 constitute most of the fusion corrections above 3 and 5 [mm] in patients positioning.

A combination pair of radiation technologists that were ranked as 4 or 5 increased the correction in two forms: (1) more than one axis was corrected (2) the value of the correction was high.

A combination pair of a *median rank* and *high rank* radiation technologist yielded better results than a pair of a *median rank* and *low rank* radiation technologist.

Conclusion:

This work clearly indicates the on-going strive for the education of the technical staff, as a vital link in patient positioning which leads to administrating the correct dose to a patient, in an accurate treatment modality such as IMRT.