system towards or away from the isocentre position, which is defined by the isocentre of the MRI scanner. The rail system enables the linatron to be placed at 8 different positions from the linatron ranging from a SSD of 190-336cm. To verify alignment of the radiation beam for the different linac rail positions, radiation profiles were acquired in air at different distances from the target. From the profiles the central axis position (CAX) was used to establish the alignment of the radiation beam. To verify MLC alignment to the CAX without the ability to rotate the collimator, a series of half blocked fields were used, with abutting fields and picket fence tests used to verify positional accuracy. Standard scanning water tank systems can not be used within the MRI scanner due to both ferromagnetic components and lack of physical space. To enable a comparison of baseline data once the magnet is installed, water dosimetry measurements were compared with measurements within an adjustable solid water phantom.

Results: CAX measurements were successfully used to establish the alignment of the radiation beam for different linac positions. The reproducibility of the central position of the radiation beam was within 2 mm for all positions and the radiation beam alignment for all positions was within 0.5 degrees, demonstrating that the radiation beam was horizontal and not misaligned within that plane. MLC alignment was within 0.5mm of the CAX beam position at a source to surface distance (SSD) of 100cm and within 6.5mm at a SSD of 277cm. The solid water phantom set-up achieved comparable dosimetry with the water tank set-up, enabling future measurements to be undertaken safely within the confines of the MRI scanner.

Conclusion: We have developed a generalised methodology appropriate for the commissioning a fixed radiation therapy beam line. We have taken baseline (no magnetic field) alignment and dosimetry measurements for the AMP beamline, demonstrating that the rail system and MLC alignment are within tolerance. We have also demonstrated the equivalency of a solid water approach with a conventional water tank enabling future dosimetry measurements within the MRI scanner.

Poster: Physics track: Professional and educational issues

PO-0952

Blended teaching reduces interobserver contouring variability: first results of the FALCON project

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Purpose or Objective: Interobserver contouring variability is one of the most important sources of uncertainty in radiotherapy. Blended learning techniques are formal educational programs in which students learn, at least in part, through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace. In 2009, ESTRO launched the FALCON (Fellowship in Anatomic deLineation and CONtouring) project. This web-based project aims at the improvement of the skills and homogeneity in contouring among professionals and/or trainees in the field of radiation oncology by organizing live and online contouring workshops. This study reports the first results of interactive teaching during live workshops.

Material and Methods: We analyzed the contours of 66 participants to 2 live FALCON workshops and covering 2 clinical situations: the contouring of prostate cancer (35 participants) and the contouring of some Organs At Risks (OARs - brachial plexus, esophagus, trachea and proximal bronchial tree, 31 participants). In all the analysed workshops, delineations were done before and after interactive teaching. Variability of clinical target volumes (CTVs) contoured by participants and the impact of teaching courses was evaluated using the DICE indexes. Moreover, for the prostate case, 3 sub-regions were retrospectively identified and analyzed separately : the prostate base (upper 5 slices, total length: 1 cm), the mid-prostate (following 15 consecutive slices) and the prostate apex (five lower slices, total length: 1 cm).

Results: Table 1 summarizes data of the 2 workshops. Mean CTV DICE indices for the workshops ranged overall from 15% to 84.1% before the teaching lecture, and from 23.4% to 86.1% after teaching, but with large interobserver variations. Usually, a significant improvement in delineation was observed on DICE indices among participants compared to experts' delineations after the teaching lecture (two-tailed t-test P value ranging between 0.04 and <0.001). An improvement was also noted at a more qualitative analysis, with the contours being much more homogeneous amongst participants after teaching.

STRUCTURE	AVERAGE PRE-TEACHING DICE (%)	AVERAGE POST-TEACHING DICE (%)	AVERAGE DIFFERENCE (%)	P-VALUE
WHOLE PROSTATE	84.1	86.1	+2	<0.0001
PROSTATE BASE	57.3	68.9	+11.6	<0.0001
MID-PROSTATE	88.3	89.3	+1%	0.01
PROSTATE APEX	48.5	50.3	+1.8	0.35
TRACHEA AND PROXIMAL BRONCHIAL TREE	73.3	76.4	+2.1	0.33
OESOPHAGUS	65.1	77.1	+12	0.1
BRACHIAL PLEXUS	15	23.4	+8.4	0.03

Conclusion: Evaluation of the immediate impact of teaching contouring is feasible and FALCON teaching methods reduce interobserver variability in CTV delineation at workshops. ESTRO is strongly committed in the further development of the current and of the future live and online FALCON workshops. The long-term impact of the FALCON workshops will be further evaluated in the context of well designed ad hoc research projects.

Poster: Brachytherapy track: Breast

PO-0953

Intraoperative multicatheter implant for APBI or boost in conservative surgery of breast cancer

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