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Audit of VMAT delivery techniques in the Baltic States

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Purpose:

To evaluate VMAT planning and dosimetric delivery accuracy in the Baltic States through on site visits with the PTW Octavius 4D 1500 system.

Methods:

The data (CT images with contours in DICOM RT format) for three patients (prostate, pelvic nodes, head & neck) was sent to participants to be planned on local Treatment Planning System (TPS). The target dose objectives and critical organ dose constraints were specified in the planning instructions. The verification plans for 3 cases were created for PTW Octavius 4D phantom. During on site visit the prepared treatment plans were reviewed and measured with PTW Octavius 4D 1500 system which was brought in to each site and results were analyzed using PTW Verisoft 6.1 software using 3D gamma method with 3% (local and global dose) and 3 mm criteria. 6MV beam from Varian linacs was used in all centers and Varian Eclipse TPS was used in 3 centers and Elekta Monaco TPS was used in one center.

Results:

The audit was carried out in 4 hospitals that performed VMAT during 2015. The audit measurements took approximately 4-5 hours in each hospital and were performed after clinical work. The gamma pass-rates are shown at Figure 1.

Conclusion:

The audit showed acceptable dose distribution results for the implementation of VMAT delivery in the visited centers. It has also showed the feasibility of using commercial 2D array with the phantom for on-site visit types of audit.

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Estonia

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