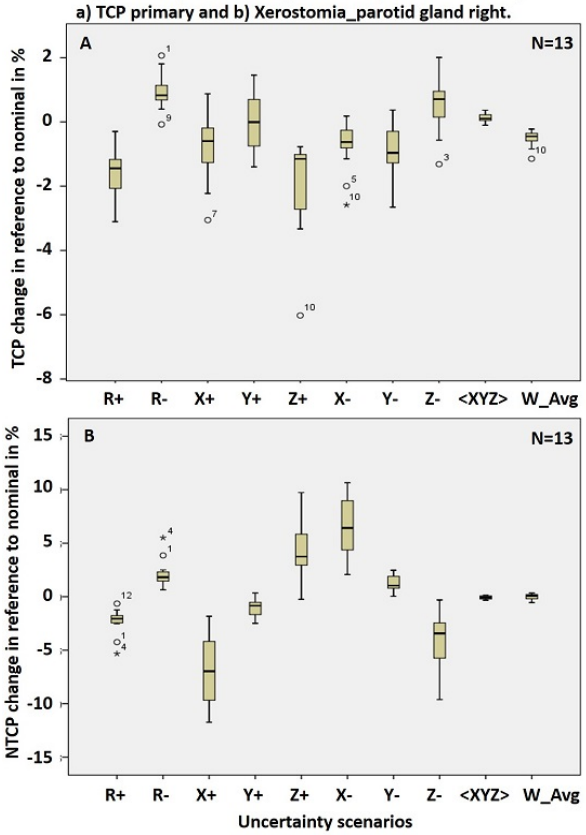
Figure 1. Boxplot summary of 13 PTV plans for the endpoints a) TCP primary and b) Xerostomia_parotid gland right.



Conclusions: Interpretation of uncertainty scenarios with TCP and NTCP models can identify endpoints at risk in the presence of uncertainties. TCP uncertainty is less in PTV plans compared to CTV plans. In contrast, for the risk of NTCP increase, CTV plans are more robust. The endpoints at risk can be used as an input to guide robust optimization, for instance target coverage or the max dose in the brainstem. For this cohort, robust optimization is not needed for random shift errors. Further refinement of endpoint specific thresholds and TCP/NTCP models is required to optimize this method.

PO-0792

Standardization of intensity modulated radiation therapy (IMRT) in multiple cancer centers in Poland

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Purpose/Objective: To create a process of standardization for planning and delivery of IMRT in multiple CTCs (Cancer Treatment Centers) in Poland and develop a Quality Assurance (QA) program and allow data mining at a central hub.

Materials and Methods: The Euromedic Cancer Centers initiated a system to systematically approach the problem of standardization of IMRT in multiple centers in Poland. These centers were geographically located in Otwock, Koszalin, Poznan and Walbrzych. Phase I: The group required standardization in the following areas: 1) contouring, 2) dosimetric parameters for organs at risk and target, 3) the development of a protocol book that would define treatment and contouring of all TNM stages of all cancers, 4) a library of evidence-based medicine for treatment of all diseases, 5) the development of site specific experts within the Euromedic system who would provide review of contouring and treatment plans, 6) biyearly training courses in IMRT, 7) standardization of physics QA, immobilization and simulation techniques, 8) have a similar treatment planning, EMR, and record and verify system at all facilities, 9) peer review of IMRT cases, and 10) define KPIs (Key Performance Indicators)and CPIs (Clinical Performance Indicators) for the system. Phase II: 1) a centralized hub with a relational database that would store all data within the Euromedic system and direct contours and treatment plans to the defined site specific expert, 2) tools within the hub that could be utilized for contouring, fusion, and allow access to references, 3) KPI and CPI measured at the central hub, 4) establish the hub as a training center, and 5) evaluation metrics for physicists and physicians to be extracted from the hub.

Results: In the three year time window since the start of this project phase I has been completed for Gynecological, Gastrointestinal, Head and Neck, Lung and Genitourinary malignancies. Peer review sessions by site specific experts are being performed, protocols are being utilized with evidence based medicine, immobilization, dosimetric constraints, physics and machine QA, KPI's and CPI's are part of each of the CTCs'.

Phase II : The IT infrastructure of the hub has been put in place and the relational database is being constructed. Formal testing of the hub will begin first quarter 2015 with expected completion first quarter 2016.

Conclusions: The Euromedic group was able to build the framework for standardization of IMRT. Phase I has been completed. The implementation of the hub and spoke model with the integration of Bioinformatics will begin first quarter 2016.

PO-0793

Developing and implementing a radiotherapy research activity assessment tool

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Purpose/Objective: Cancer research in the National Health Service (NHS) has increased by 10.5% in three years since the formation of the National Cancer Research (NCRN) networks in 2000. Additionally there is a positive cultural change