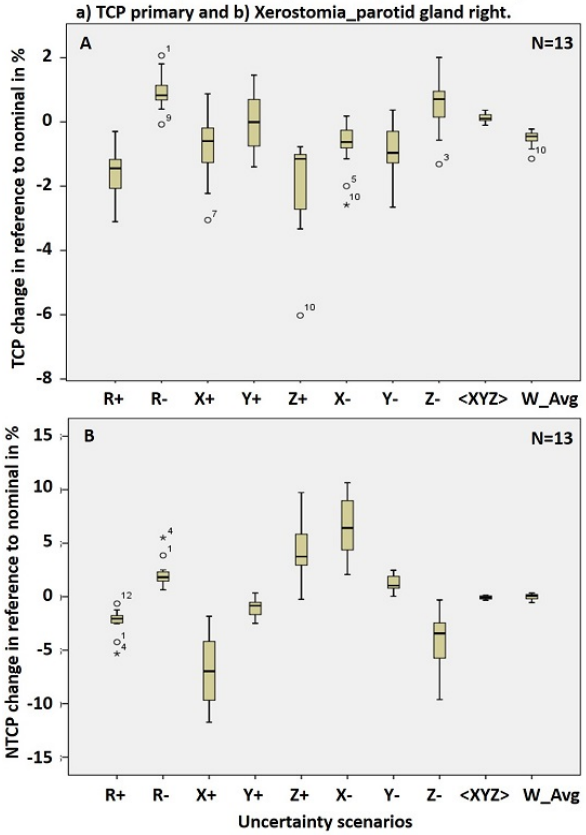
Figure 1. Boxplot summary of 13 PTV plans for the endpoints a) TCP primary and b) Xerostomia_parotid gland right.



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

E. Butler[1], R. Pino[1], M.C. Mireles[1], N. Jacobs[2], R. Mills[2], S. Maric[3], O. Arsovski[3], G. Marosevic[3], E. Skrocki[4], D. Stricic[3], I. Wlodarska-Polinska[5], A. Wiczynski-Zajac[6], G. Wozniak[3]

[1]*Houston Methodist Hospital, Radiation Oncology, Houston, USA*

[2]*Houston Methodist Hospital, Global Services, Houston, USA*

[3]*Euromedic Cancer Centers, Radiation Oncology, Banja Luka, Bosnia and Herzegovina*

[4]*Euromedic Cancer Centers, Radiation Oncology, Otwock, Poland*

[5]*Euromedic Cancer Centers, Radiation Oncology, Walbrzych, Poland*

[6]*Euromedic Cancer Centers, Radiation Oncology, Warsaw, Poland*

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

S. Goldsworthy[1], B. Roe[1], S. McGrail[1], J.M. Latour[2], K. Morgan[1]

[1]*Musgrove Park Hospital, Radiotherapy The Beacon Centre, Taunton Somerset, United Kingdom*

[2]*Musgrove Park Hospital, Clinical School, Taunton Somerset, United Kingdom*

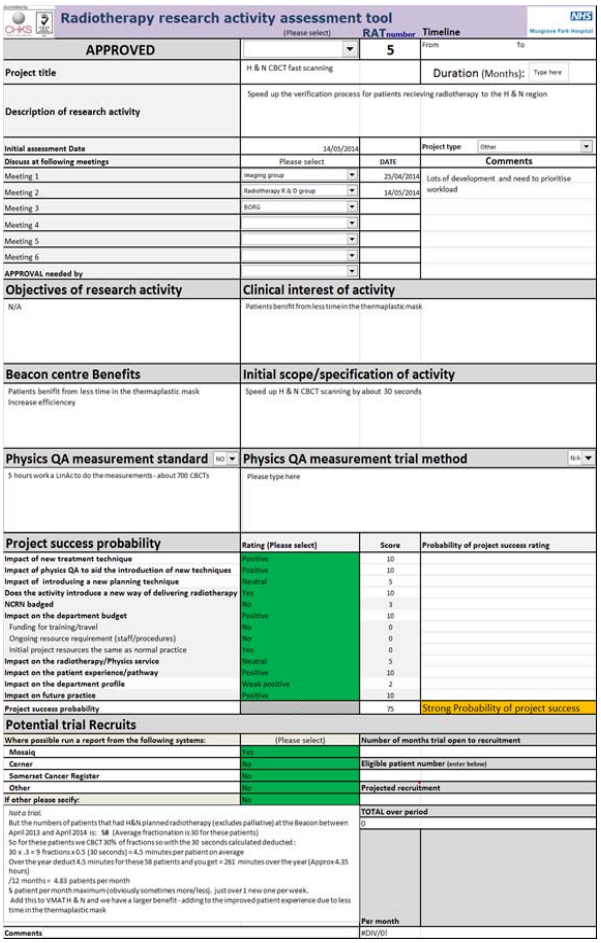
Purpose/Objective: Cancer research in the National Health Service (NHS) has increased by 10.5% in three years since the formation of the National Cancer Research (NCRN) networks in 2000. Additionally there is a positive cultural change

driving research locally at NHS institutions. Clinical studies afflict changes to practice, impacting clinical service. The initial enthusiasm from clinical staffs to embark on a project has to be balanced against the implications of resources, costs and other developments. There is no standardised method to assess the impact of research projects on clinical practice. Therefore, the aim of this project was to develop and implement a Radiotherapy Research Activity Assessment Tool (RAAT) to assess the feasibility of newly proposed research projects within clinical settings.

Materials and Methods: A multi-step development method was used. The steps involved the principals of Quality Function Deployment (QFD). The consecutive steps involved developing a user friendly and replicable tool and would fit on one A4 page. The process involved multi-professionals and patients throughout the design process. The tool was preliminary tested on usability among 8 stakeholders on a 10-point scale (1=poor; 10=very good). Agreement was correlated to the initial probability scoring of the 8 stakeholders.

Results: The RAAT was developed in an e-form available in Microsoft Excel. The tool included details such as project title, date ranges and approval tab. It also needed to include meeting columns of where the project should be presented, along with details such as scope, and benefits to the clinical setting. A probability rating was included giving an indication of project success or failure. Finally a column to project the recruitment level of trials and comment boxes for additional information were added.

The tool scored an average of 7/10 for usability and so alterations were made. Agreement between stakeholders resulted in a significant correlation of p=0.01 (Pearson = 899).



Radiotherapy research activity assessment tool

(Please select)	RAT number	Timeline	
APPROVED		5	From / To
Project title	H & N CBCT fast scanning		Duration (Months): Type here
Description of research activity	Speed up the verification process for patients recieving radiotherapy to the H & N region		
Initial assessment Date	14/05/2014		Project type: Other
Discuss at following meetings	Please select	DATE	Comments
Meeting 1	Imaging group	25/04/2014	Lots of development and need to prioritise workload
Meeting 2	Radiotherapy R & D group	14/05/2014	
Meeting 3	BORG		
Meeting 4			
Meeting 5			
Meeting 6			
APPROVAL needed by			

Objectives of research activity	Clinical interest of activity
N/A	Patients benifit from less time in the thermaplastic mask
Beacon centre Benefits	**Initial scope/specification of activity**
Patients benifit from less time in the thermaplastic mask Increase efficiency	Speed up H & N CBCT scanning by about 30 seconds
Physics QA measurement standard NO	**Physics QA measurement trial method** N/A
5 hours work a LinAc to do the measurements - about 700 CBCTs	Please type here

Project success probability	Rating (Please select)	Score	Probability of project success rating
Impact of new treatment technique	Positive	10	
Impact of physics QA to aid the introduction of new techniques	Positive	10	
Impact of introducing a new planning technique	Neutral	5	
Does the activity introduce a new way of delivering radiotherapy	Yes	10	
NCRN badged	No	3	
Impact on the department budget	Positive	10	
Funding for training/travel	No	0	
Ongoing resource requirement (staff/procedures)	No	0	
Initial project resources the same as normal practice	Yes	0	
Impact on the radiotherapy/Physics service	Neutral	5	
Impact on the patient experience/pathway	Positive	10	
Impact on the department profile	Weak positive	2	
Impact on future practice	Positive	10	
Project success probability		75	Strong Probability of project success

Potential trial Recruits		
Where possible run a report from the following systems:	(Please select)	Number of months trial open to recruitment
Mosaiq	Yes	
Cerner	No	Eligible patient number (enter below)
Somerset Cancer Register	No	
Other	No	Projected recruitment
If other please secify:	No	
Not a trial. But the numbers of patients that had H&N planned radiotherapy (excludes palliative) at the Beacon between April 2013 and April 2014 is: 58 (Average fractionation is 30 for these patients) So for these patients we CBCT 30% of fractions so with the 30 seconds calculated deducted : 30 x .3 x 9 fractions x 0.5 (30 seconds) = 4.5 minutes per patient on average Over the year deduct 4.5 minutes for these 58 patients and you get = 261 minutes over the year (Approx 4.35 hours) /12 months = 4.83 patients per month 5 patient per month maximum (obviously sometimes more/less). just over 1 new one per week. Add this to VMAT H & N and we have a larger benefit - adding to the improved patient experience due to less time in the thermaplastic mask		TOTAL over period 0 Per month
Comments		#DIV/0!

Conclusions: In conclusion the RAAT seems to be feasible in clinical practice, and provide a framework to guide the decision making process of accepting a research project. The tool calls for further testing of usability and long term implications on all stakeholders.

PO-0794

Research focussing on radiation therapists. An 11 year review of published abstracts from ESTRO meetings and forums

K. Linden[1], K. Dennis[1]

[1]*The Ottawa Hospital Cancer Centre, Radiation Medicine, Ottawa, Canada*

Purpose/Objective: Radiation therapists are an integral part of the radiation oncology team and their roles and responsibilities are expanding to advanced levels within clinical, educational and research settings in some countries. However, despite this expansion there is the perception that research with a specific focus on the radiation therapist continues to be underrepresented in the radiation oncology literature. We performed a novel review to identify recent ESTRO conference abstracts with a focus on the radiation therapist in order to quantify, describe and identify possible trends in this important area of study.

Materials and Methods: With the aid of a medical librarian and the ESTRO events Co-ordinator we identified all published abstracts from the proceedings of the ESTRO