times from the date of the request to the start of treatment (REQ-ST), from the request to CT Simulation (REQ-CT) and from CT simulation to the start of treatment (CT-ST) were computed. To assess the compliance of our performance with the protocol, we calculated two indicators: mean waiting times and compliance rates. The cut-off of compliance for CT-ST ≤10 WD is defined by our protocol. Using this value, the two other cut-offs were respectively calculated using a linear equation of REQ-ST and REQ-CT as a function of CT-ST, giving a REQ-CT=9 and REQ-ST=26 week days (WKD). To assess the evolution in time of all studied parameters, we divided the study into 4 periods: 1) from Oct 2010 to Dec 2011, 2) from Jan to Dec 2012, 3) from Jan to Dec 2013 and 4) from Jan to Dec 2014. In addition, we analyzed the impact of the indication of IMRT on the waiting-times by comparing the indicators across the tumor localizations. Statistical analysis was performed using SPSS. Mean waiting times were compared using ONEWAY ANOVA and compliance rates were compared using Pearson's Chi-square test.

Results: A total 245 IMRT cases were included. Mean CT-ST was 13.80 ± 5.07 days, without significant difference across the study periods (p=0.254). The compliance rate of CT-ST with the protocol≤10 WD, was 16%, without significant difference across the periods (p=0.257). Regarding REQ-ST, total mean was 30 ± 10 WKD, with a compliance rate at 33%. Regarding REQ-CT, total mean was 11.26 ± 8.33 WKD, with a compliance rate at 49%. There was a significant difference across the periods in both REQ-ST and REQ-CT, with the best performance for period 1, followed by period 4. See Table below.

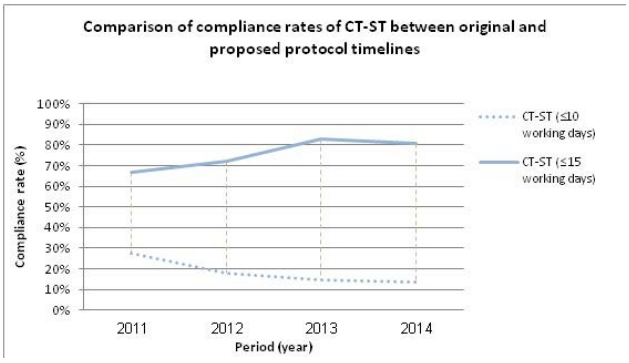
Evolution in time of the number of cases, indications and waiting times of IMRT

(Z. Mulla et.al. "Waiting times for IMRT as a Quality Indicator: A study from a Tertiary Hospital in Saudi Arabia". 2015)

Year (Period)		2011 (1)	2012 (2)	2013 (3)	2014 (4)	2010-2014
Number of cases		18 (7.3%)	50 (20.4%)	104 (42.4%)	73 (29.8%)	245 (100%)
Technique*	IMRT	18 (100)	42 (84.0)	14 (13.5)	0 (0.00)	74 (30.2)
	VMAT	0 (0.00)	8 (16.0)	90 (86.5)	73 (100)	171 (69.8)
Tumor Localization	Head & Neck	15 (83.3%)	36 (72%)	43 (41.3%)	10 (13.7%)	104 (42.4%)
	CNS	0 (0%)	4 (8%)	20 (19.2%)	24(32.9%)	48 (19.6%)
	Pelvis & Abdomen :	1 (5.6%)	1 (2%)	22(21.2%)	17(23.3%)	41 (16.7%)
	GU	0 (0%)	0 (0%)	11(10.6%)	11(15.1%)	22 (9%)
	GIT	1 (5.6%)	1 (2%)	10(9.6%)	5(6.8%)	17 (6.9%)
	Gynecological	0 (0%)	0 (0%)	1(1%)	1 (1.4%)	2 (0.8%)
	Others :	2 (11.1%)	9 (18%)	19 (18.3%)	22 (30.1%)	52 (21.2%)
	Lymphoma	1(5.6%)	3 (6%)	10 (9.6%)	10(13.7%)	24 (9.8%)
	Sarcoma	0 (0%)	5 (10%)	4(3.8%)	3(4.1%)	12 (4.9%)
	Breast	0 (0%)	0 (0%)	3 (2.9%)	5 (6.8%)	8 (3.3%)
	Skin	0 (0%)	1 (2%)	0 (0%)	2 (2.7%)	3 (1.2%)
	Lung	0 (0%)	0 (0%)	1 (1%)	2 (2.7%)	3 (1.2%)
	Ophthalmic	1 (5.6%)	0 (0%)	0 (0%)	0 (0%)	1 (0.4%)
Quality indicators						
Waiting Time (unit)	REQ-CT(week days)	8.61 ± 7.58	14.28 ± 10.64	11.01 ± 7.86	10.21 ± 6.86	11.26 ± 8.33
	CT-ST(working days)	14.27 ± 5.31	15.02 ± 7.10	13.41 ± 4.81	13.41 ± 3.41	13.80 ± 5.07
	REQ-ST(week days)	27.66 ± 10.95	34.28 ± 10.16	29.42 ± 10.63	29.64 ± 9.23	30.35 ± 10.30
Compliance Rate**(1)	REQ-CTs 09 (p=.006*)	66.7%	28.0%	51.9%	54.8%	49.0%
	CT-STs 10 (p=.257)	27.8%	18.0%	14.4%	13.7%	15.9%
	REQ-ST ≤ 26 (p=0.34*)	50.0%	20.0%	39.4%	28.9%	33.1%
Compliance Rate(2)	REQ-CTs 12 (p=.066)	83.3%	56.0%	66.3%	75.3%	68.2%
	CT-STs 15 (p=.476)	66.7%	72.0%	82.8%	80.8%	78.8%
	REQ-ST ≤ 31 (p=.029*)	61.1%	44.0%	69.2%	60.3%	60.8%

* Statistically significant results (p<.001); **Compliance Rate = percentage of observations complying with the timeline; compliance rate 1: timelines according to initial protocol; compliance rate 2: timelines according to newly proposed protocol.

Regarding these unsatisfying results, we proposed to update our protocol with a new set of more feasible timelines: CT-ST ≤ 15 WD; REQ-CT ≤ 12 WKD; REQ -ST ≤ 31 WKD. See compliance rates in graph below.



Furthermore, there was significant variations in the REQ-CT waiting times across tumor sites with worst performance for Head & Neck (compliance rate = 40%), while the Abdomen and pelvis had the best performance (compliance rate = 66%). No statistically significant difference was found between tumor sites for CT-ST and REQ-ST.

Conclusion: There is a definitive need to amend our protocol to ≤15 WD for CT-ST, as an intermediate step to improve our performance.

EP-2105

The helpful rays a children's book about cancer and radiotherapy explained in a non-intimidating way

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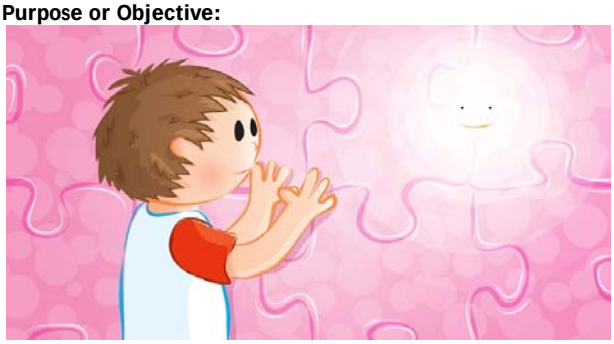
Purpose or Objective:



«Now I'm gonna tell you a story about your body, and some strong and helpful rays, which can help you if you get sick…..." This is how my book for children, about radiotherapy begins. I started as a RTT 10 years ago, and have always felt that our department needed aid to explain cancer and radiotherapy to children in a comprehensible way. I couldn't find any information that caters for children, so I wrote "The Helpful Rays". Small children can sense differences in behavior and atmosphere in the family when someone gets sick. To help children understand, they need explanation.
My purpose with this book is to explain cancer, radiotherapy and side-effects to children in a non-intimidating way. The word cancer can be frightening to children as well as adults. My goal is to provide this book as a tool to talk about cancer with children.

Material and Methods: I wrote this book in cooperation with an illustrator, a publisher and our national cancer society. I have used radiotherapists and doctors as proofreaders. And I used my own children (3,5 and 5 years) to make sure the book was understandable and gripping enough.
It can be difficult to find the right words to describe what a mother, father, or relative is going through. Why do they need radiotherapy? Why do they feel nauseous? Why do they lose their hair? The "answers" are in this book. It can be difficult for young children to grasp the complicated cell biology and radiation physics involved, so, the side-effects are explained with use of imagination. For example when rays are burning the hair cells, the hair cells jump out of the skin, and may never come back. Simple explanations that children can understand, regardless if it's according to reality or not.
I have presented the various health personnel that a cancer patient will meet in a hospital. Ex: Radiographer, bioengineer, doctor, nurse and radiotherapist. Also I have presented the most common examinations the patients have to go through. Ex. Blood samples, MRI, CT and biopsy. In that way, children can be prepared for whom they might meet and why, which examinations they must go through and why.

Results: The book is currently being published in Norway, where hospitals, nurses, radiotherapy departments, doctors, schools and kindergartens are using the book in contact with children who have cancer themselves, or their mom, dad, siblings, grand-parents, classmates or other people they are close to that got diagnosed with cancer. The response has been overwhelming. Since June this year approx. 1500 books have been handed out. And we are soon out-of-stock.

Conclusion: There are few or none books written for children about radiotherapy. In my country the book got welcomed as a much needed book, and I think it can be helpful in cancer departments in other countries as well, when adjustments to

the book are made in order to fit a country's own cancer treatment program.

EP-2106

Structuring a database to evaluate haematological toxcicity in post-prostatectomy IMRT patients

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Purpose or Objective: Haematological toxicity (HT) in post-prostatectomy patients (WPRT) treated with whole pelvis radiotherapy represents a problem due to the irradiation of a large fraction of the bone marrow (BM). HT is under evaluation in our Institute according to an observational prospective study aiming to explore a dose-effect correlation. Therefore, clinical and dosimetric data have to be collected. This study reports (quantify) the complexity and workload of the clinical data collection were to evaluate its feasibility in the routine clinical practice.

Material and Methods: A database for the enrolled WPRT patients (pts) was created, collecting the following data: clinical features (age, surgery, diabetes, hormonal therapy, results from blood samples at several time points); intent (adjuvant, salvage); technique (step and shot IMRT, Rapid Arc, Helical Tomotherapy); dose-volume histogram (DVH) of BM structures; The time required to fill in database was also evaluated.

Results: To date 238 pts were included in the database. The average age is 66 years (range 48 – 84). Conventionally fractionated (1.8 - 2Gy/fraction, 139 pts) and moderately hypofractioned (2.35-2.65 Gy/fraction, 99 pts), step-and-shoot IMRT (SS-IMRT, n=18), Volumetric Arc (RA IMRT, n=111) or helical tomotherapy (HTT, n=99) EBRT. Adjuvant n = 159 pts, salvage n = 79 pts. The workload to fill in the database was 40 min/pt.

Conclusion: The availability of clinical/dosimetric data was crucial for the dose effect analysis, being HT not negligible. In our experience, the implementation of the database in the routine setting is feasible provided a dedicated operator, such as a radiotherapy technologist (RT), after a simple learning curve to lead the RT to reach the proper expertise.

EP-2107

Work satisfaction and motivation of radiation therapists. A qualitative study

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Purpose or Objective: For more than 120 years radiation therapists (RTT) treat oncology patients in radiation oncology facilities. However, influencing factors on motivation, work performance and work satisfaction of RTTs is still not studied. The aim of this trial was to detect factors influencing work satisfaction and motivation of MTRAs in radiation oncology. Leadership solution approaches will be discussed.

Material and Methods: In a qualitative interview study with seven RTTs at a university clinic we investigated determinants influencing motivation, work and work satisfaction based on the individual experiences of our participants. An inductive thematic content analysis framework was applied to the transcripts.

Results: The interviews were conducted with seven RTTs in our radiation oncology unit. The interview lasted between 40- 60 minutes (mean 52 minutes). All participants were of female sex. Mean age was 46 years (range 30-59 years). Mean work experience in radiation oncology was 19 years (range 3-37 years). All but 2 RTTs were employed fulltime. Three participants have professional experience in diagnostic radiology. All participants declared an interdisciplinary lack of communication between physicians, physicists and RTTs as one of the influencing factors on their work motivation. Furthermore, RTTs receive negative feedback about treatment failures and death of the patients more frequently than results of therapy success. This fact has considerable impact on the motivation of the majority of interviewed RTTs. Additionally, the lack of positive feedback influences the willingness of further education, self-improvement and motivation to recommend the employment as RTTs.

Conclusion: Frequent negative feedback weakens RTTs motivation and work satisfaction. Improved communication about therapy results, especially therapy success, may increase RTTs work motivation. Stabilized motivation may have positive effects on trainee recruitment in radiation oncology.

EP-2108

Gaps in Radiotherapy: What can we do to improve it?

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Purpose or Objective: We want to determine if having a liberated late shift of patients and incorporating hypofractionation protocols in different pathologies makes decreasing the number of lost sessions caused by breakdown and scheduled reviews of treatment units in a 30%, because we can only act on them.

Material and Methods: We compare the data obtained in a management program of treatments (GestRdt) with Excel 2010 software, between the first nine months of 2013 and 2015, because during 2014, hypofractionation new protocols were implemented and a late shift unit treatment was closed. We analyzed the total number of sessions, the total number of patients, the number of sessions per patient, sessions missed by stop-treatment unit and sessions missed by patients in absolute numbers and percentages.

Results: In the year 2013, 1104 sessions (10.11%) were lost and in 2015 were 547 (6.68%). Missed sessions related with the patient and their environment (toxicity, patient-derived and other) was 6.17% in 2013 and 4.79% in 2015, which means a decrease of 22.35%. The percentage of sessions missed by failures and planned outages was 3.94% in 2013 and 1.88% in 2015, representing a decrease of 52.13%. Decreasing of one session per patient in 2015 has generated 768 sessions or free holes in treatment units.

Conclusion: Hypofractionation new techniques and the provision of a free shift of patients have allowed that the reduction of missed sessions related to the treatment units is greater than 50%.

Electronic Poster: RTT track: Position verification

EP-2109

Novel verification technique for craniospinal irradiation with an image plate in the supine position

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Purpose or Objective: It has not yet been possible to confirm the junction of the treated fields for craniospinal irradiation treated in the supine position; the intention of this study was to improve the accuracy of radiation therapy through a technique using an image plate.

Material and Methods: The subjects of this study were 20 medulloblastoma patients who were treated in the supine position in three parts from the brain to the sacrum spinal canal. A half beam was used for the cranial field, and the

To help children understand, they need explanation. Purpose My purpose with this book is to explain cancer, radiotherapy and side-effects to children in a non-intimidating way. The word cancer can be frightening to children as well as adults. My goal is to provide this book as a tool to talk about cancer with children. Methods I wrote this book in cooperation with an illustrator, a publisher and The Norwegian cancer society. I have used radiotherapists and doctors as proofreaders. And I used my own children (3,5 and 5 years) to make sure the book was understandable and gripping enough. More children survive cancer now than ever before . New and better treatments help many children with cancer. Today, more than 80 percent of children and adolescents (under the age of 20) who are diagnosed with cancer survive for at least 5 years after their diagnosis. However, survival rates for some childhood cancers are still low. Much of the improvement in.Â This section explains how cancer is diagnosed in children. It will help you learn what tests are used to diagnose cancer and how staging systems, risk groups, and grades may be used to plan. treatment for your child and to make a prognosis.Â Toddlers like to play, so find safe ways to let your child play. Toddlers also like to start making choices, so let your child choose a sticker or a flavor of medicine when possible. EP-2105: The helpful rays a childrenâ€™s book about cancer and radiotherapy explained in a non-intimidating way. K. Farstad. 2016. View via Publisher. Cite. Save. PO-1083: â€œDe gode strÃ¥leneâ€ â€“ a book for children as next of kin to cancer patients in Norway. K. Farstad, S. K. Bergene, +4 authors Marcel Normann. 2018. View via Publisher. Cite. Save. The Allen Institute for AIProudly built by AI2 with the help of our.