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Qualitative evaluation of the role of RTTs IGRT specialists and their influence on treatment delivery

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ABSTRACT

Purpose: The study aims to investigate qualitatively how Radiation Therapist IGRT specialists (RTT spIGRTs) experience their role and whether they have an impact on the treatment delivery.
Methods: Eleven RTTs, i.e. six RTT spIGRTs and five RTTs not specialised in IGRT (RTTs noIGRT) were interviewed during October and November 2020. RTTs noIGRT having knowledge of the daily practice before and after the creation of this RTT spIGRT role, served as control group capable of weighing its impact on the work environment. A qualitative method using face-to-face semi-structured questionnaires was used. Interviews lasted approximately 10–20 min, and were after coded and analysed for thematic content.
Results: Five themes and twelve sub-themes were drawn from the analysis. RTT spIGRTs experience their role positively, despite the limited role perception and different work experiences. The implemented role increased autonomy and facilitated decision-making and Radiotherapy (RT) treatment delivery.
Interviewees considered the new role useful to very useful. The raised concerns are related to a bigger role involvement and improvement, with focus on visibility, regular meetings and training. Interviewees considered the RTT spIGRT role to have an influence on the treatment delivery when properly carried out.
Conclusion: RTT spIGRTs experience their role positively. Their knowledge confidence seems to rely on the training received. The RTT spIGRT role is perceived to have a positive influence on the treatment delivery. Continuous follow up and training were amongst the suggested solutions to improve the RTT spIGRT's role. This study stresses the urgent need for a legal framework to provide formal RTT training and continuous education in order to increase RT treatment quality.

Introduction

The latest Belgian Radiation Oncology (RO) clinical audits, performed between 2011 and 2015, pointed out a lack of training and professional development of Belgian radiation therapists (RTTs) [1]. This is mostly due to a lack of sufficient and dedicated training programs for staff working in Radiotherapy (RT).

The Belgian regulation pertaining to the roles of the RTT professionals [2] remains unclear. Even though, according to the Royal Decree of 22 December 2017, Medical Imaging Technologists (MIT, degree program) can perform RT procedures [3], the law which defines the requirements for accreditation of RT departments (Royal Decree of September 2005 [4]) still stipulates that only nurses, who have no mandatory RT specific training (except for 60 h of radioprotection training), are the ones responsible for the delivery of RT treatments [1,5]. Additionally, some Belgian MIT educational programs have a very limited number of hours dedicated to RT [6,7]. Some health schools, national societies, and hospitals offer training to tackle this issue. However, the absence of a legal framework to formalise RTT training remains a weak point, potentially affecting patient care [1].

The fast technological development in RT allowed for a personalised treatment. The safety and accuracy of the treatment rely on good image-guided RT (IGRT) [8]. IGRT is developed and refined for varying techniques and is continually advancing, requiring multi-disciplinary expertise. This includes on-set experts; a role best suited to an RTT is the one of RTT IGRT specialist (appendix 1).

The RO department of the Institut Jules Bordet (IJB), notwithstanding the differences in training and education of his RTT staff (e.g.

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nurses, radiation therapists and physiotherapists), has drawn a strategic plan to minimise those differences and to keep all the RTT staff constantly involved and up-to-date in current practices and innovations. Different RTT profiles were developed starting in 2017: RTT Research, RTT head of treatment station and RTT IGRT specialist (RTT spIGRT). These profiles are composed by motivated RTTs, who have followed at least one intensive course related to the role developed.

Notice that before the implementation of these profiles, IGRT related practices were not systematically standardised. Moreover, the implementation of new technologies were hardly developed or conducted by the RTTs. Therefore, in IJB's development plan, the research RTT is first responsible for bringing and promoting development and innovation, followed by RTTs spIGRT who have, among others tasks, the mission to evaluate and ensure adequate follow up of the protocols. These protocols are elaborated by the research RTT in collaboration with a multidisciplinary team composed by physicists and physicians. The RTT head of treatment station mainly organises the clinical practice in continuous communication with the RTT manager.

Previous research has shown considerable advantages of RTT clinical specialisation and/or advanced roles with a positive impact on quantity (capacity of the system), quality, research and innovation [9]. Moreover, the implementation of role development in treatment reviews, education and training, as the RTT IGRT specialist, is essential to ensure the competency of RTTs [10,11]. Now that there is 5 years of experience with this role in IJB's RO department, we have carried out this qualitative study to investigate how RTTs IGRT specialists experience their role and whether they have an influence in the decision-making and treatment delivery. To the best of our knowledge, this is the first qualitative study that assesses this role of RTT spIGRT.

Material and Methods

Sampling

Eleven RTTs, i.e. six RTTs spIGRT (participants (P) 1–6) and five RTTs not specialised in IGRT (RTTs noIGRT) (P 7–11), were included in this study.

All the RTTs spIGRT (Appendix 1) accepted to participate. RTTs noIGRT with less than 5 years of experience in IJB or working with a work schedule equal or inferior to a part time basis were excluded. Therefore, RTTs noIGRT having knowledge of the daily practice before and after the creation of this RTT spIGRT role, served as control group capable of weighing the impact of the role of RTTs spIGRT on the work environment.

Study design

A qualitative method, using face-to-face, self-designed semi-structured questionnaires (Appendix 2: Questionnaire for RTT IGRT specialist and Appendix 3: Questionnaire adapted for RTTs noIGRT), was used. This approach is optimal for exploring social interactions, which are complex and treat potentially sensitive topics. Moreover, qualitative research approaches can potentially provide unique and valuable insights into perceptions, experiences and behaviors of participants [12]. The first part of the questionnaires collected general information on the participants. The second part consisted of open questions specific for both groups, allowing them to share their views and raise other relevant issues not covered by the questionnaires.

The questionnaires were designed by the first author, then reviewed and approved by the RTT manager before the beginning of the study.

Data collection

Interviews were conducted during October and November 2020, after an invitation by email asking for volunteers. Following their confirmation email, a second email asked them to reflect on what the RTTs work was before the implementation of RTTs spIGRT, when the role began, and at the time of the interview. The role description was also sent to all interviewees before the interview, allowing for a reflective period. All participants provided verbal consent for the audio-recorded interviews and verbatim transcription. Interviewees were reminded that there were no wrong answers and that the aim was to learn about their experiences and thoughts.

Interviews lasted approximately 10 to 20 min. The first author conducted, audiotaped and checked the verbatim transcriptions using Sonix (Sonix Inc, San Francisco, CA, USA), an automated transcription software [13].

Data analysis

Interviews were analysed for thematic content. The first two authors extensively read and open-coded the eleven interviews guided by a framework (Appendix 4) consensually agreed upon by the first two researchers [14].

Results

Table 1 summarises the participant's characteristics regarding their age, education and years of experience in RT.

After independent coding, discussions between the researchers lead to a consensus regarding the final themes and sub themes as shown in Table 2. Each theme and sub-theme are further detailed below.

Table 1
Participant's characteristics.

Characteristic	Result
Median age (range) in years	48 (27–61)
Female-male	8–3
Education	
Nurse specialised in Oncology and/or Medical Imaging and Radiotherapy	5
Nurse	1
Radiation therapist	4
Physiotherapist	1
Years of experience in Radiotherapy	
0–5 years	1
6–10 years	6
11–19 years	0
20–25 years	1
> 25 years	3

Table 2
Coding list.

Themes	Sub-themes
The role of Radiation Therapist IGRT specialist	Limited role perceptions
	Heterogeneous work experience
Usefulness	Autonomy
	Work changes
	Considerable advantages
Training	Learning courses
	Knowledge confidence
Difficulties	Lack of time
	Professional interaction and communication
Role improvement	Visibility
	Continuous training
	Regular meetings

The role of Radiation Therapist IGRT specialist

Limited role perceptions

Table 3 summarises the major and minor roles mentioned by the interviewees. Both groups acknowledged similar role descriptions. However, some disparity was found in the role description by both groups (i.e. some role descriptions mentioned by RTT spIGRT group were not repeated by the RTT noIGRT and vice versa).

Heterogeneous work experience

Different factors have contributed to different work experiences amongst RTTs spIGRT. A limited time at the treatment units or the lack of regular feedback after the start of their role may have impacted their role less positively. However, it seems to be evident that RTTs spIGRT are more focused and attentive to important issues linked to the clinical practice.

"For me, it's a bit difficult because I do not work full time. I only work seventy five percent of the time (…), half of that time I'm doing research and only the other half time I'm at the treatment machine."(P1- RTTs spIGRT).
"(…) we don't have the follow-up that we should have either. Normally, to improve ourselves, we should also train ourselves. We don't do that, we should train elsewhere and take the time but unfortunately, we don't have the time to do that." (P2- RTTs spIGRT).
"(…) Yes, the role drew attention to things that were not being done. (P5- RTTs spIGRT).

No RTTs spIGRT do feel this role to affect in a negative way their professional or personal lives.

"I think it doesn't affect it's something good for me, something positive." (P4- RTTs spIGRT)

Usefulness

Autonomy

Both groups stated considerable advantages linked to the role implementation. Increased autonomy was highlighted by the participants.

"It has made the job easier. We [RTTs spIGRT] are more independent. Oh, yes!" (P2- RTTs spIGRT)
"I think that at the beginning of the implementation of the role in the team, it was really indispensable in the sense that we had someone to rely on (…). It affected the work environment in a way that the matching was no longer a collegial process and brought a certain autonomy of the RTTs in relation to the patient's treatment" (P7- RTTs noIGRT)
"I think it opened our minds to the treatment a lot. We have gained in precision, in image reading and in the preparation of the treatment."(P10- RTTs noIGRT)

Work changes

The difference after implementation of the *RTTs spIGRT* role is perceptible amongst both groups. However, the commitment to the role and the visibility have declined over time.

"I have the feeling that the colleagues are now quite well trained except for the new ones. Maybe that's why I wasn't so active lately. But we have been training the younger ones." (P6- RTTs spIGRT)
"It has become diluted over time. At the beginning it [RTT spIGRT role] was really very, very, visible. Because obviously, we were starting from a situation where we had nothing, to a situation where we putted something in place and the fact that the referents [RTTs spIGRT] transmitted the information to the rest of the team drowned it out a bit(…)" (P7- RTTs noIGRT)

Considerable advantages

The majority of the interviewees (10/11) believe that having RTTs with this role to be helpful for decision-making and treatment delivery. However, some of the participants said that having more training and being a specialist does not always mean being able to make a decision because sometimes an interdisciplinary discussion is needed.

"Yes, because we know the limits, we know what we have to treat. We should be able to decide yes, I treat(…). The aim, precisely, it's to decide without the doctor being present and to say yes I treat or not." (P2- RTTs spIGRT)
"There are cases that are really complicated. However, we [RTTs spIGRT] have a better background and are more capable and this allows us to avoid having to call a doctor in many situations. Because I'm sure of what I'm seeing and evaluating, and that's clearly an advantage." (P6- RTTs spIGRT)
"(…) they [RTTs spIGRT] have the expertise and know what the doctors expect." (P10- RTTs noIGRT)

One RTT spIGRT and two RTTs noIGRT quantified this role as very useful, whereas eight of the participants considered the role useful.

Training

Learning courses

Diversified training was given to the RTTs spIGRT. One internal training and learning discussions where made with all the RTTs spIGRT. Three different external courses were followed by the RTTs spIGRT. The two external courses followed by four (4/6) RTTs spIGRT, organised by the ESTRO School, were the ones generating better knowledge and satisfaction.

"I had the training with another RTT colleague responsible for the development of the IGRT protocols. I also did an ESTRO school training (…) (P3- RTTs spIGRT).
"I went to training (…) but it was bad. It was expected to be full of clinical exercises (…) It was not interesting" (P2- RTTs spIGRT)

Table 3
Perceptions of the role of RTT IGRT specialists (RTTs spIGRT) for RTTs not specialised in IGRT (RTTs noIGRT) and for RTTs spIGRT.

	Major roles	Minor roles
RTTs spIGRT	- Check and verify imaging related to treatment delivery (participants (P) 1,2,6) - Help other colleagues (P 4,5,6)	- Follow-up and protocol evaluation (P 1,3) - Search for better ways to immobilise and treat patients (P 5)
RTTs noIGRT	- Reference persons to help with imaging issues (P 7,9,11) - Report of the doctor observations or other (P 7,10,11)	- Check and verify imaging related to treatment delivery (P 8,11) - Ensure the quality of the treatment (P 8,11) - Give training to other RTTs (P 10)

p = participants.

Knowledge confidence

The majority of RTTs spIGRT confirmed the training was sufficient for role development, except for two (2/6) RTTs spIGRT who had followed a different course. They also agreed that continuous training or follow-up of the role is needed.

"It was sufficient, but I think that we must continue to do more training." (P4- RTTs spIGRT)
"No, it was not enough [training received]." (P2- RTTs spIGRT)

However, the majority of the RTTs noIGRT (4/5) are not aware of the training received by RTTs spIGRT.

"I don't know. I just know that they had a training moment, but not the content." (P9- RTTs noIGRT)
"I know that they had to do days of theory and practice, so apart from that I don't know specifically what they have followed in practice." (P10- RTTs noIGRT)

Difficulties

Lack of time

Different difficulties were raised by the RTTs spIGRT, with the lack of time being one of the concerns.

"Lack of time because sometimes, even if you want to go deeper into a problem, you don't have the time, or when you do, you don't have immediately the tools to do it." (P2- RTTs spIGRT)

Professional interaction and communication

However, interviewees stated that the difficulties were mainly driven by interactions with others colleagues or simply because the role seemed not to be visible.

"The fact that I've got a bit lost and that we, the IGRT specialists, seem to have been forgotten(…) then in general, I always find it difficult to tell people how to do certain things" (P1- RTTs spIGRT)
"Sometimes the relationship with doctors is complicated" (P3- RTTs spIGRT)

Role improvement

The majority of the participants (8/11) raised the importance of having good chains of communication between RTTs spIGRT on a regular basis as well as between RTTs spIGRT and RTTs noIGRT.

Visibility, continuous training and regular meetings

"We should sometimes have more time to do things. When you start, for example, new things, maybe you need more time to see how things are going in practice and get feedback from the referents [RTTs spIGRT] as well." (P10- RTTs noIGRT)
"I would say making presentations, small seminars. It would be good to have good communication between us (…). I think they [RTTs spIGRT] have to come to a common agreement. So they can have the same opinion and then to comunicate their information to the others. (P8- RTTs noIGRT)
"Suggestions - A real care from the beginning to the end with trainings. To ensure them [RTTs spIGRT] and make them better capable of the practice and the clinic decisions. Organise some time to discuss, but also to practice." (P2- RTTs spIGRT)

The majority of the participants (9/11) agreed that the proposed RTTs spIGRT role does not need any change and they unanimously recommended or are convinced of its utility if well carried out within a RT department.

"Yes, it seems useful to me, in the sense that we are moving towards a certain autonomy of the RTTs. I believe that the RTTs must keep this function where they are able to take care of the patient from beginning to end. I have experienced a situation where, each time, when the doctor had to be present he was in consultation. So it's very practical, it's very convenient, it allows a certain fluidity. There is a referent who is there and we know what has to be done and we move forward."(P7- RTTs noIGRT)
"Yes, of course. I think it is essential for the quality of care and comfort too. Also for aiming at standardisation of practices."(P8- RTTs noIGRT)

Discussion

RTTs spIGRT experience their role in a positive way, both personally and professionally. Despite the fact that some RTTs spIGRT felt a bit lost within their role, this did not seem to evoke negative feelings. Both RTT groups felt that they became more autonomous and the work changes led to new advantages linked to the role implementation.

Nevertheless, the difficulties presented need to be addressed and seemed to pursue the need of new strategies for role involvement and improvement, with a focus on visibility, regular meetings and training. Otherwise, the function might fall into complete oblivion or lack in functionality. In a large cross-sectional study, Poulsen et al. suggested that co-worker support and supervisor support are positively associated with work engagement. Health care managers need to provide supervisors with the skills to promote good communication and leadership to help all workers and provide an environment that promotes a strong and supportive work culture [15]. Only when a constant dialogue exists between health care professionals and their managers, in which they can discuss their experiences, needs and expectations, technology can be implemented in a safe and effective manner [16].

Interviewees' responses led to the idea that the role might be helpful for decision-making and treatment delivery. However, as demonstrated in our results, knowledge confidence relied on the training received as certain external courses (ESTRO school courses) were confirmed by the RTTs spIGRT to be sufficient for the role development, whereas other courses were not. Because it appeared to be a challenge to offer equal training to all, even within the same department, the need for continuous training and follow-up of the role might be the key issue. Moreover, the RTT profession in Belgium is not officially recognised, and there is no formal education or registration process in place. This further complicates the maintenance and the development of this type of role as well as the capacity to offer a proper continuous training [17,2].

Limitations of this study might be related to a possible selection bias in the control group, as only RTTs with more than 5 years of experience and working in IJB in a full-time schedule were included. Hence, RTTs spIGRT role evaluation might be affected by the lack of other RTTs opinions.

On the other hand, the variability in the training of spIGRT RTTs might represent a discrepancy in the skills across the specialist group. This may have affected their opinion and experience within the role. Moreover, as the first two authors are not independent of this study initiative, they might have influenced interviewee's answers or the analysis; as such, this should be view as a study limitation.

Although, this study findings might inspire other hospitals with different educational backgrounds on the RTT staff to introduce the role of spIGRT RTTs as this will potentially help seeking a culture of research and development in their RO department.

The study also highlights the need for a legal framework to encourage formal RTT training and continuous education. RT is in

continuous development thanks to its strong link to technological innovations, offering a constant challenge by its increasing complexity [18]. Therefore, mandatory RT education and continuous professional development is vital to keep practice safe and to ensure good quality of care [19]. As this is hardly implemented without a proper legal framework, governments should urgently consider to follow the examples of the United Kingdom, Canada, Australia and New Zealand, where advanced practice roles (comparable to the RTT spIGRT role) have already been implemented, tested and formalised [9,20].

Conclusion

RTTs spIGRT experience their role positively. Their knowledge confidence mainly relies on the training received. Therefore a wise choice of a recognised external course is recommended. The RTT spIGRT role is perceived to be helpful for decision-making and treatment delivery.

However, there are some major concerns about the lack of continuous follow up and training. Role improvement strategies should be implemented with a focus on visibility, regular meetings and training. As this is hardly implemented without a proper legal framework, governments should urgently prioritise this.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. Role description of the RTT IGRT specialist

RTT IGRT specialist at Institut Jules Bordet

Radiation therapist (RTT) with motivation to specialise in the field of Image-Guided Radiotherapy (IGRT). An RTT IGRT specialist is therefore a professional who wants to do a real difference in the administration of the treatment by ensuring high quality of the given treatment.

Profile of the RTT IGRT specialist:.

- RTT with a minimum of 2 years' experience in IGRT;
- Responsible for the implementation, evaluation, improvement and monitoring of the IGRT related protocols for all treated locations;
- Reference RTT to assist in the interpretation of CBCTs or for problems related to IGRT on the treatment machines;
- RTT capable of integrating effective interdisciplinary communication;
- Professional strongly linked to IGRT training of RTT staff (responsible for training new RTT staff);
- Participates in IGRT-related meetings (quarterly or semi-annual meetings);
- Professional who is committed to active participation in the implementation of new treatment techniques;
- RTT who presents at least an intensive training in IGRT (if the RTT appointed for this task does not yet present intensive training in IGRT, the latter will have to respect a maximum period of 18 months to follow one);
- Professional who has an obligation of continuous training in the field of IGRT.

The RTT IGRT specialist develops a very important reference role for the team due to its acquired knowledge and experience. It is therefore a necessary element, which has a real impact on the quality of patient's treatments.

Appendix 2. Role description of the RTT IGRT specialist

Introduction

Thank you for agreeing to participate in this interview. We are interviewing you to better understand what RTTs with the role of IGRT specialist experience and if they feel that they have an influence on the quality of a patient's treatment. So, there are no right or wrong answers to any of our questions, we are interested in your own experiences.

Participation in this study is voluntary and your decision to participate, or not participate, will not affect you in any way. The interview should take approximately half an hour depending on how much information you would like to share. With your permission, we would like to audio record the interview because we don't want to miss any of your comments and/or lose time taking notes. All responses will be kept confidential. This means that we will ensure that any information we include in our report does not identify you as the respondent. We want people to be honest otherwise, we are not going to learn anything with this interaction or share of information.

You may decline to answer any question or stop the interview at any time and for any reason. Are there any questions about what I have just explained?

May I turn on the digital recorder?

Establishing rapport

Before we begin, it would be nice if you could tell me a little bit about yourself. For example, "How old are you?" "How many years of experience do you have as an RTT?" "How long have you been working with us? "When have you started the RTT IGRT specialist role?" "Are you happy to work in the Radiation Oncology department?

1. The role of Radiation Therapist IGRT specialist.

1. Could you please tell me about the RTT IGRT specialist role?

Prompts: What this role consists within the team or organisation of the department?

2. How do you experience it?

Prompts: What does that look like for you? Is it easy or sometimes complicated?

3. What were your reasons for accepting and wanting this position?

4. How this role affects your personal and/or professional life?

Prompts: How this role came to affect the work environment? What has changed in the RTT work since the existence of this role? What are the advantages and disadvantages of working with colleagues with this function?

2. **Usefulness**

1. How important do you think that the RTTs IGRT specialists are within an RTT team? Why?

Prompts: Are they important elements in making the clinical decision? Do they guide other colleagues in making decisions when necessary? Do they participate in the improvement of clinical protocols?

2. Do you think that having RTTs with this role might be helpful for decision-making and treatment delivery? Why?

3. How active/participative do you feel into this role?

Prompts: Do you feel you could be even more participative? Do you feel that your participation is sometimes limited/ not useful? If so, in which cases?

4. If you were asked to evaluate the usefulness of this role, how would you evaluate it? Very useful, useful, hardly useful, not useful.

3. **Training**

1. What training have you received?

Prompts: Have other colleagues trained you? Have you followed specific courses?

2. Do you feel that the training received is sufficient to develop this

role? Why?

Prompts: What is missing in your point of view?

3. Do the training and taking on this role changed anything in your practice, the department and/or your colleagues?

4. **Difficulties**

1. Did this role match your initial desires and motivations?

2. What are the difficulties encountered?

Prompts: For example, were there particular difficult moments in the relation with other colleagues? Have you encountered particular difficulties to deal with the responsibility inherent to the role development?

3. What is the most difficult aspect to deal within this role?

Prompts: What have you had struggled the most?

5. **Suggestions**

1. What solutions do you imagine for the difficulties encountered?

2. Would you have changed anything in the RTT IGRT specialist profile developed by your hospital?

Prompts: Could you please give me some examples?

6. **Conclusion**

My last question. Would you recommend this type of RTT role in other radiotherapy departments?

Prompts: Can you explain why you would or would not recommend this RTT role? Is there anything else that you would like to comment on about the RTT IGRT specialist role that we haven't discussed today?

Thank you very much for your time and the information you shared today.

Appendix 3. Semi-Structured interview guide (RTT not specialised in IGRT)

Introduction

Thank you for agreeing to participate in this interview. We are interviewing you to better understand/ study the RTT IGRT specialist role and to evaluate if they have an influence on the quality of patient's treatments. So there are no right or wrong answers to any of our questions, we are interested in your own experiences.

Participation in this study is voluntary and your decision to participate, or not participate, will not affect you in any way. The interview should take approximately half an hour depending on how much information you would like to share. With your permission, we would like to audio record the interview because we don't want to miss any of your comments and/or lose time taking notes. All responses will be kept confidential. This means that we will ensure that any information we include in our report does not identify you as the respondent. We want people to be honest otherwise, we are not going to learn anything with this interaction or share of information.

You may decline to answer any question or stop the interview at any time and for any reason. Are there any questions about what I have just explained?

May I turn on the digital recorder?

Establishing rapport

Before we begin, it would be nice if you could tell me a little bit about yourself. For example, "How old are you?", "How many years of experience do you have as an RTT?", "How long have you been working with us?", "Are you happy to work in the Radiation Oncology department?", "Do you know all the RTTs IGRT specialists in your department?".

1. The role of Radiation Therapist IGRT specialist

1. Could you please tell me about the RTT IGRT specialist role?

Prompts: What this role consists within the team or organisation of the department?

2. How this role came to affect the work environment?

Prompts: What has changed in the RTT work since the existence of this role? What are the advantages and disadvantages of working with colleagues with this function?

2. Usefulness

1. How important do you think that the RTTs IGRT specialists are within an RTT team? Why?

Prompts: Are they important elements in making the clinical decision? Do they guide other colleagues in making decisions when necessary? Do they participate in the improvement of clinical protocols?

2. Do you think that having RTTs with this role might be helpful for decision-making and treatment delivery? Why?

3. How active/participative do you feel that they are?

Prompts: Do you feel that they could be more participative? Do you feel that their participation is sometimes limited/ not useful? If so, in which cases?

4. If we ask you to evaluate how useful/helpful is this role, how would you have evaluate? Very useful, useful, barely useful, not useful.

3. Training

1. What do you know about their training?

Prompts: Have they followed specific courses?

2. Have they trained you?

Prompts: Have they guided you in some particular situations?

4. Suggestions

1. Would you have changed anything in the RTT IGRT specialist profile developed by your hospital?

Prompts: Could you please give me some examples?

5. Conclusion

My last question. Would you recommend this type of RTT role in other radiotherapy departments?

Prompts: Can you explain why you would or would not recommend this RTT role? Is there anything else that you would like to comment on about the RTT IGRT specialist role that we haven't discussed today?

Thank you very much for your time and the information you shared today.

Appendix 4. Topic list

- Topic 1 - The role of Radiation Therapist IGRT specialist
- Topic 2 - Usefulness
- Topic 3 - Training
- Topic 4 - Difficulties
- Topic 5 – Suggestions

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