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A Delphi study on research priorities in radiation therapy: The Norwegian perspective

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ABSTRACT

Introduction: Although radiation therapists (RTs) need to engage more in research to establish an evidence base for their daily practice the majority conduct little research themselves. This project is the second stage of a Delphi process aimed at determining research priorities in radiation therapy in Norway. The aim of this article is to prioritize the research areas radiation therapists in Norway think are most important in their own profession.

Methods: A questionnaire was administered using responses to a previous questionnaire, which identified the research interests of Norwegian RTs. The survey was sent to all Norwegian departments of radiation oncology, and RTs were asked to form interest groups to discuss and prioritize the research areas.

Results: There was a 70% response rate, seven of 10 departments participated. The highest ranked research categories were imaging in radiation therapy and radiation therapist education. Seven of the top ten ranked research areas were in these categories.

Conclusion: Prioritization of research areas and categories provides a useful list of future research for Norwegian RTs, which will enable them to decide whether their research ideas are a high priority, and spend less time deciding on a relevant research topic that needs investigation in their own workplaces.

Introduction

Radiation therapists (RTs) working in Norway are mainly radiographers with one year of postgraduate studies in radiotherapy. The role of Norwegian RTs is to tailor each patient's course of radiation therapy treatment as prescribed by the radiation oncologist. These areas include patient care, imaging technique, treatment management, radiation safety, clinical responsibility, organization, quality assurance, education and training.[1] RT has no separate authorization or accreditation. There are about 300 positions for RTs in ten different radiotherapy departments in Norway.

In recent years, RTs have had the opportunity to gain further education by enrolling in Masters degrees or doctorates. RTs have routinely participated in research projects as participants in clinical trials, but Norwegian RTs are involved in little research related to their own professional practice, which has similarly been reported in other countries. Few RTs have taken lead roles in conducting radiation related research.[2,3] It is necessary that RTs design and lead studies regarding their own professional practice to evaluate new treatment techniques develop evidence-based practice and improve patient care.[4–7] Research is required to further establish radiation therapy as a profession and implement evidence based practice.[8,9] One of the reasons why RTs might not be defined as a profession is that radiographers' knowledge base is built on the scientific knowledge of medical practitioners and scientists.[10]

Harnett et al.[7] argues that despite RTs increasing involvement in research, there are barriers and challenges to developing a scientific culture among RTs. It has been claimed that RT's participation in research is limited due to lack of expertise, support and time.[7,11,12] RTs will have few opportunities to develop research regarding their practice if these factors continue to affect their practice. Novice researchers may have trouble deriving relevant and appropriate research questions for clinical practice.[13] Cox et al.[3] found that although Australian RTs were keen on getting involved in research, they did not know where to start, and had trouble finding the right issues. This indicates that RTs do not know which areas within their field of expertise they can and should explore. A preliminary article by Egestad[14] (stage 1 of the Delphi technique)

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found that RTs showed strong interest in technical and patient related areas, but their greatest interest was in workforce issues, including staff interactions. More research was needed to strengthen these findings and determine current RT research priorities. The aim of this second stage of the study was to prioritize the research areas that RTs thought were most important. This is the first nationwide study using the Delphi technique to determine research priorities in Norwegian radiation therapy. In addition to research areas, other issues have to be solved before research can happen. Funding, mentorship, ability to work in a multidisciplinary team, ethical considerations and proficiency in research methodology are some of the requirements for high quality radiography research.[15] These issues will not be discussed in this paper.

Methods

Study design

The Delphi method has proved to be suitable to identify Australian RTs research priorities[3,16–18] and to evaluate the challenges nurses experience in radiotherapy departments in Sweden.[19] It enables researchers to achieve a consensus on which topics are important, without eliminating less important topics.[20] Delphi method uses a questionnaire to analyse the specialists' opinions about a subject without requiring that all specialists meet.[13] A group of people who are representative of the whole specialist group answers questions.[21]

Participants

In order to obtain the perspectives of a large sample of RTs, each department in Norway was asked to answer the questions as a group rather than seeking individual RTs' perspectives.

The sample included RTs, RT leaders, Chief RTs (head of the department) and RTspecialists (RT with clinical specialization).

Procedure

Two questionnaires were used in this study. Cox et al.[3] and Barrett et al.[20] have asked the same questions in similar studies among RTs and nurses in Australia. The first questionnaire and information letters were sent via e-mail to all Chief RTs at all Norwegian radiotherapy departments in the spring 2012. The e-mail requested that the Chief RT (or RT with research interests) meet with a group of RTs who represented the department to discuss the questions posed. The second questionnaire was distributed in a similar way via email to all Norwegian chief RTs in spring 2013. Respondents were asked to seek the opinions of their colleagues using staff or a specially called interest group meeting. Demographics were collected for the "lead respondent" only. The aim was to achieve consensus at the group or institutional level, but not across all institutions, so that any response patterns across the institutions could be accurately observed and examined. The goal of this group was to work together to draw up three lists with at least five key challenges related to radiation that could be suitable for research. The results of the first questionnaire,[14] identified areas of possible research by asking RTs what problems they experienced in their work with patients and with colleagues, and what areas they felt needed further research.

The second questionnaire was based on the 150 research issues identified in the first questionnaire. The responses were coded and main areas of radiation therapy research were documented as a list to guide the analysis. A process of consensus was then used to derive the final 9 research "Categories".

The Research Areas were then assigned to each Category, this process produced a final list of 51 Research Areas from Study 1. In the second questionnaire, The Research Areas were presented as statements, listed under their respective Categories. Participants were asked three questions regarding each Research Area:

1. How important is this Research Area to patient care?
2. How important is this Research Area to working with colleagues?
3. How important is this Research Area to radiation therapy?

Participants responded on seven-point Likert-style scales with 1 indicating the Research Area had low importance and 7 indicating high importance.

Ethical considerations

Before the study started, the ethics committee in the Health Region 5 (REC) in Norway was contacted to apply for approval of the project. The local ethical committee has approved the Research project. The study is based on voluntary consent of RTs. RTs were given written information about the study and answers were anonymous.

Data analysis

Each radiation therapy department's responses to the three questions were totalled to produce a department total score out of 21 for each of the 51 Research Areas. These totals out of 21 were used to calculate means, standard deviations, and 95% confidence intervals for the Research Areas, which were then ranked in order of importance. The 10 Research Areas with the highest mean importance ratings are listed in Table 1. Means, standard deviations, and 95% confidence intervals for the 12 Categories were derived from the Research Area mean scores. For each responding department, the scores out of 21 for Research Areas, (calculated across the three questionnaire subscales) belonging to a Category were averaged to produce a Category score out of 21. These scores were then

Table 1
Top ten research area ranked overall from most important to least important according to means out of 21.

	Category	Research area	M	(SD)	95% CI for mean
1	Treatment plan and radiation doses	Examine relationships between radiation dose and late side effects	16.57	(3.30)	13.51, 19.63
1	Treatment plan and radiation doses	Explore new treatments techniques in terms of acute and late side effects	16.57	(1.72)	14.98, 18.16
3	Radiation therapist education	Establish the best way to educate RTs in the workplace about new technologies	16.29	(2.63)	13.86, 18.72
4	Radiation therapist education	Examine RT competence in daily work	16.00	(2.52)	13.67, 18.33
5	Accuracy of patient positioning	Evaluate quality assurance procedures	15.86	(2.34)	13.69, 18.02
5	Radiation therapist education	Establish actions to increase RTs competence	15.86	(3.24)	12.86, 18.85
7	Radiation therapist education	Examine RT expertise regarding patients' need for information	15.71	(3.04)	12.90, 18.53
8	Treatment plan and radiation doses	Examine advantages and disadvantages of different treatment techniques	15.57	(1.99)	13.73, 17.41
9	Psychosocial support/communication	Examine patients' satisfaction	15.43	(3.82)	11.89, 18.96
9	Psychosocial support/communication	Examine how radiation therapists' can best care for children	15.43	(4.65)	11.13, 19.73

Likert Scale key: 1, low priority; 21, high priority.