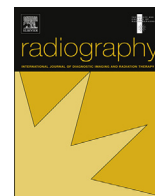




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## Radiographers' opinions on radiography research in Norway – A national survey

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## ABSTRACT

**Objective:** The objective of the Norwegian Radiography Research Group is to establish a strategy for radiography research in Norway. A survey investigating radiographers' opinions on research was conducted to establish a basis for this strategy.

**Methods:** A questionnaire was sent to all members of the Norwegian Society of Radiographers using the society's e-mail list from May 2014 (n = 2273). The respondents, 31% (n = 697), were divided into six groups; general radiographers (n = 392), specialised radiographers (n = 124), managers (n = 74), radiation therapists (n = 59), professors (n = 13), and others (n = 35). The questionnaire included four parts: introduction, participation in research, research performed at the respondent's work place, and opinions on radiography research. The first parts consisted of close-ended questions, while the fourth part also included a Likert scale.

**Results:** Among all respondents, 63% respondents agreed that there is a need for radiography research and 50% agreed that general radiographers/radiation therapists should be the principal investigators of such research. However, only 19% reported participation in a research project during the last five years, and of those, 50% knew how the results of their research had been communicated.

**Conclusion:** The majority of radiographers agreed that there was a need for radiography research and that radiographers/radiation therapists should take a leading role in such work. The results indicate that radiographers/radiation therapists would benefit from training in informal and formal research skills.

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## Introduction

Historically, radiographers in Europe have limited research experience.<sup>1</sup> However, an increasing number of radiographers are involved in research and a great number of scientific publications related to radiography have emerged during the last decade.<sup>1–7</sup> The issue of continuing professional development is now commonly discussed among radiographers, both in clinical settings and at scientific conferences.<sup>8–11</sup> Continuing professional development is defined as “a range of learning activities through which health professionals maintain and develop throughout their career to ensure that they retain their capacity to practice safely, effectively and legally within their evolving scope of practice”.<sup>12</sup> Such activities

form the determinants of evidence-based practice, which is defined as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.<sup>13</sup> The practice of evidence-based medicine combines clinical expertise with the best available evidence from research.<sup>13,14</sup> It requires radiographers to obtain accurate information or evidence to support their practice. Further, they have to understand, be trained in, and be involved in using and determining what is best practice.<sup>13</sup> Such actions ensure high quality service from the profession.

In the United Kingdom (UK), national strategies for evidence-based practice were implemented in the 1990s.<sup>6,8,15</sup> These strategies aim at developing radiographers' clinical and research skills. Capacity and capability are described, and funding is considered an important strategic driver.<sup>16</sup> We have not been able to identify similar strategies for radiographers in other countries, despite several studies calling for research competence among radiographers.<sup>4,17–20</sup>

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Medical imaging is typically organised within dedicated hospital departments or private clinics. In Norway it is a part of a specialised health care system, which is administered according to national health care regulations.<sup>21,22</sup> These regulations require strategic planning for research within institutions providing specialised health care. Professionals working in specialised healthcare fields are bound by these regulations and responsible for performing research related to their speciality.<sup>23</sup> These regulations are also applied to radiographers, as they are a part of a specialised health care service. The Norwegian authorities require all public hospitals to develop a strategy for research across all organizational levels.<sup>24</sup>

Due to the increased attention on research, a group of radiographers established the Norwegian Radiography Research Group (NRRG) in 2006. The group's primary goal is to be the preferred national resource for supporting and conducting research in radiography with an international impact. The first step to reach that goal is to establish a strategy for radiography research in Norway.

In order to develop a national research strategy, the status of research activities and opinions among Norwegian radiographers needs to be defined. Motivated by this, the NRRG performed a web-based survey aimed at describing radiographers' opinions on radiography research in Norway.

## Materials and methods

Institutional approval was confirmed by the Norwegian Social Science Data Services. Responding to the questionnaire was deemed implied consent, which allowed the data to be used for research purposes.

The questionnaire consisted of four parts; 1) introduction (eight questions); 2) participation in research projects (one or seven questions, depending on the response to the first question); 3) projects performed at the respondent's work place (one or two questions); and 4) opinions on research and radiography research in particular (ten questions). Parts 1–3 consisted of closed-ended questions. Part 4 consisted of five closed-ended questions and five statements that included a Likert scale. To analyse the results of the Likert scale, we collapsed the five levels (strongly disagree and disagree, neutral, agree, and strongly agree) into three: disagree, neutral and agree.

A pilot study including ten radiographers was conducted. Based on the feedback from the pilot, improvements were made to the questionnaire before the final version was launched. Information about the aim of the survey and a link to the questionnaire were sent by e-mail in May of 2014. The target population consisted of all the members of the Norwegian Society of Radiographers ( $n = 2859$ ), except for students, those who were unemployed and those without a registered e-mail address (20%,  $n = 586$ ), for a total of 2273 radiographers. We used Questback as a tool for distribution of the survey and data collection. E-mail addresses of the target population were sent from the Norwegian Society of Radiographers to Questback. The principal investigator of this study received an anonymous Excel file with survey responses from Questback.

An introductory note was provided to participants in order to define useful terms and phrases prior to commencement of the web-based questionnaire. The term "research" was used as a general reference to all research conducted at the respondent's work-place while "radiographic research" was used to make reference to research targeting radiographic issues in particular.

## Statistical analyses

The respondents were divided into six groups according to their field of work; general radiographers did unspecialised radiography

tasks, while specialised radiographers had particular academic and/or practical responsibilities for a specific imaging modality, IT support, or other tasks. Managers had administrative responsibilities, while radiation therapists were defined as radiographers with at least one additional year of education in radiotherapy. Professors were defined as assistant professors and lecturers, holding a minimum of a master's degree, employed at universities or university colleges (universities). Others included radiographers working in industry and associated professional agencies, e.g. Radiography Union representatives.

Results from descriptive analyses are presented for all participants, and stratified by groups based on the field of work. The distributions are presented as numbers and percentages. The number of respondents included in the different groups constituted the denominator in the distributions.

STATA (version 14) was used to perform statistical analyses, while Excel (Office Professional Plus 2013) was employed to produce graphics.

## Results

The first survey request resulted in a response from 368 (16%) radiographers. Two reminders were sent, two and four weeks after the first e-mail. The reminders were sent to the entire target group and increased the response rate to 31% (697/2273), which constituted the study sample. Among survey participants, 25% were male. Additionally, 56% (392/697) were classified as general radiographers, 18% (124/697) as specialised radiographers, 11% (74/697) as managers, 8% (59/697) as radiation therapists, 2% (13/697) as professors, and 5% (35/697) as other (Table 1). Overall, 86% (587/697) reported a bachelor's degree and 7% (48/697) reported a master's degree as their highest level of educational achievement. As a subgroup, the professors reported the highest educational achievements with one person holding a PhD and seven holding a master's degree.

Among all respondents, 19% (133/697) reported that they had participated in research projects within the past five years (Table 2). The highest percentage of participation was among professors (62%, 8/13), followed by others (40%, 14/35) and specialised radiographers (27%, 34/124). Overall, data collection was the main type of involvement for the majority of those who reported participation in research (90%, 120/133). Writing project applications, research papers, and data analyses were reported among 42% (56/133), 36% (48/133) and 39% (52/133) of the respondents, respectively (Table 2).

Poster or oral presentations at national (23%, 30/133) or international (36%, 48/133) congresses was the most common way of communicating the results of research projects among study participants. However, 50% (25/50) of the general radiographers who participated in research projects did not know how the results of their research studies had been communicated.

Among those who responded to the question regarding their opinions on academic requirements to engage in research projects, 25% ( $n = 172/687$ ) were of the opinion that no minimum requirement was needed, while 67% (458/687) identified a bachelor's degree and 7% (46/687) a master's degree or equivalent as the minimum requirement to engage in research (Fig. 1). As a group, professors reported the highest percentage of respondents requiring a master's degree as the minimum requirement to engage in research (54%, 7/13).

A total of 63% (431/687) of respondents agreed that there is a need for radiography related research in Norway (Table 3). Half (50%, 337/679) of respondents agreed that general radiographers or radiation therapists should be the principal investigators of radiography research, and a minority (9%, 60/682) were of the opinion

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