



Assessment of the willingness of Australian radiographers in mammography to accept new responsibilities in role extension: Part two – qualitative analysis

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ABSTRACT

Advanced practice in screening mammography has become widespread in the United Kingdom over the last 20 years, and Australian radiographers working in BreastScreen programs have shown interest in similar developments. Radiographers working in BreastScreen Australia were surveyed in order to capture their thoughts and perceptions on role extension.

Questionnaires were circulated to radiographers working in BreastScreen Australia programs. Thematic analysis was used to analyze the open response questions to explore the advantages and disadvantages identified by the participants with respect to role expansion in screening mammography as well as any changes to their duties over the last decade.

There were 253 responses to the survey and of those responses, 70% of radiographers shared their thoughts on role extension and 49% provided comments on changes in the workplace. The majority (61%) radiographers responding to the role extension question were concerned about potential problems associated with role extension; the biggest issues were that role extension should not be mandatory and that selection criteria for advanced practitioners should be stringent, with adequate time made available for training and study. The major change in the role of the radiographer has been the increased time dedicated to quality assurance tasks and administrative duties as well as more training required due to technological changes from film-screen to digital mammography.

There is high interest in role extension by radiographers working in BreastScreen programs, provided that it is voluntary. The role of the radiographer within breast imaging in Australia is still evolving.

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Introduction

There have been a number of articles published in recent years discussing the possibilities, advantages and pitfalls of advanced practice by Australian radiographers in the field of mammography screening.^{1–4} In the UK, advanced practice is well established; medical image interpretation has occurred for 40 years in medical ultrasound imaging and for over 20 years in other fields, such as mammography screen reading.⁵ The use of advanced practitioners in the UK greatly improved services and reporting turnaround times, to the benefit of both patients and referring doctors.⁶ The use of advanced and consultant radiographers enabled the UK National Health Service (NHS) Breast Screening program to provide double reporting for the majority of screening mammograms by 2006.^{7–9}

BreastScreen Australia (BSA) has undertaken double reporting since its inception in 1991.²⁰

In the last decade, the Australian radiologist workforce has increased by 34%, while the population increased by only 15%¹⁰ with the demand for diagnostic imaging services increasing by 51%.^{10,11} This enormous growth in medical imaging is being replicated in the specialized field of screening mammography, where the number of women in the target age group for breast screening increased by 41% between 1996 and 2005.¹¹ This compounded with the fact that historically it has been difficult to retain radiologists within some BreastScreen programs^{12–17} means that program capacity has been stretched and national standards for timeliness of assessments, among others, are not being met.¹⁸ The fact that the National Accreditation Standards¹⁹ (NAS) allow for non-radiologist readers (page 43) may enable BSA programs to introduce a truly multi-disciplinary approach, by providing training and supervision for suitable, senior radiographers to assess screening mammograms and to undertake selected procedures. This has the potential to facilitate a more timely service to Australian women, relieve

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some of the radiologists' workload and may provide a more cost-effective service.

The radiologist shortage is mirrored by a radiographer shortage. The UK had a similar problem, which was alleviated by the introduction of radiography assistants²⁰; there is the question of how the Australian radiography profession will deal with this problem, though this is outside the scope of the current paper. The shortage of radiographers in BSA is predicted to worsen with the impending retirement of up to 30% of radiographers²¹; the program needs to prepare for this change by offering younger radiographers incentives to take on the highly skilled work of screening mammography, and reducing the tedium associated with repetitious tasks. If BSA was one of the first services to offer an exciting progressive career with formal role extension possibilities to younger radiographers, there may be an influx of new talent to the screening programs. Certainly, the BreastScreen program has the potential to undertake advanced practice in the field of image interpretation probably more easily than many other modalities, because there is a coded system of Routine Rescreen or Recall to Assessment, which means that no written reports are necessary. In addition to this, there are at least two readers for each screening mammography assessment. These attributes and the fact that the NAS allows for non-radiologist readers, suggest that selected radiographers could be trained as readers within a relatively short time, although no specific formal training programs are available at present.

A survey aimed to capture the ideas, opinions and differing perceptions of Australian radiographers toward role extension (with emphasis on image interpretation) was distributed nationally to radiographers who had completed their Certificate of Clinical Proficiency in Mammography (CCPM). A survey was thought to be the most appropriate and timely method of collecting this information from as many radiographers as possible. The geographical locations of radiographers throughout Australia suggested that one-on-one interviews would not be feasible, as this research aimed to collect and analyze information from a large number of radiographers. The questionnaires were distributed by the Australian Institute of Radiographers (AIR) on behalf of the researchers. The design of the questionnaire and results relating to demographics and current duties has previously been discussed in detail.^{3,21} The question of whether radiographers working in BSA want to participate in role extension was affirmed in the results from the quantitative paper (Part 1), where 79% of responding radiographers were keen to extend and diversify their roles, provided that it was a voluntary option and training was provided. This current paper concentrates on the analysis of two open-ended questions "What are your thoughts on role extension in mammography?" and "Have there been any important changes to your role within the last 5–10 years?".

Methods

Ethics approval was provided by both the University of Newcastle and the Hunter New England Area Health (HREC H-352–1206).

Designated (Chief) radiographers were asked to complete the main questionnaire as well as providing information in a separate questionnaire on staffing levels and program logistics. The responses were coded as (R) for a radiographer response and (DR) for a designated radiographer response, with a number relating to their identity. When direct quotes are used, any correction of spelling or grammar has been underlined as follows; "Role extension is defiantly not for everyone..." becomes "Role extension is definitely not for everyone...(R159)".

Role extension and role expansion have been used synonymously, both depicting additional tasks undertaken by radiographers, usually at the request of a radiologist. The term "advanced

practice" implies expert and autonomous duties, independent of a radiologist.

Two open ended questions were asked to better understand individual radiographers' concerns that could not be addressed from the closed response questions that made up the majority of the survey. The researchers used Qualitative Descriptive Analysis (QDA) as the basis of thematic (content) analysis to arrive at a number of themes compiling the responses to the two open ended questions.²² Thematic analysis includes both quantitative and qualitative interpretation and analysis, allowing the researchers to view the data in different but complementary ways. The outcome of a thematic interpretive content analysis is the development of a range of qualitatively distinct descriptive categories of the data being reviewed.²² These themes were derived purely from the responses of the participants and were completely independent of any literature.

To ensure the removal of bias by the primary researcher (a radiographer working in mammography) and to ensure validity of the categories in representing the views and perceptions of the radiographers completing the questionnaire, all responses to the open ended questions were reviewed by the primary researcher and an independent researcher who has no working knowledge of mammography.

In the first coding cycle, each response to a question was examined with the intention of creating a range of themes. On developing these themes, a number of criteria were used; these included (a) ensuring each category was mutually exclusive i.e. a single response could only be coded into one category and (b) all responses could be coded into a category. To ensure that (b) was maintained, an "other" category was created for less frequent responses.

In the second coding cycle, the themes created in the first cycle were reviewed to form patterns and to create sub-themes. Once completed, the themes were reviewed to ensure that the criteria were met. These saw a reduction in the number of major and minor themes, as some of the themes in the first coding cycle were not mutually exclusive, and were therefore combined.

Given the large number of responses, the researchers initially reviewed 50 surveys to assess consistency, without being too concerned about the actual titles of the themes. These themes were then used as a framework and the remaining questionnaires were completed, adding new themes as considered appropriate.

The first question chosen for analysis was "What are your thoughts on role extension in mammography?"; this initially resulted in 13 major themes being identified and after review this was reduced to 5 major themes with 31 sub-themes. The same procedure was followed for the question "Have there been any important changes to your role within the last 5–10 years?" which resulted in 5 major themes with 18 sub-themes. The result of this process was a source codebook containing major and minor themes for each of the open-ended questions in the survey (Table 1 and 2).

Results

There were 253 responses to the survey (78% response rate) and 178 (70%) responses to the open ended question "What are your thoughts on role extension in mammography?". There were 124 responses (49%) to the second open ended question "Have there been any important changes to your role within the last 5–10 years?". For both questions a 98% agreement rate between the two independent reviewers validated the source code books.

"What are your thoughts on role extension in mammography?"

A total of 653 comments from 178 radiographers were grouped into 5 major themes with 31 sub-themes (Table 1). The major

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