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Barriers and incentives for choosing to specialise in mammography— A survey of Australian undergraduate diagnostic radiography students

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ABSTRACT

Introduction: There is a projected shortage of radiographers working in breast screening in Australia. This study aimed to examine the perceived barriers and potential incentives among current undergraduate diagnostic radiography students to train, specialise and work in mammography.

Methods: A survey was undertaken to assess students' experience of six modalities during both University study and clinical practice. Students were asked to rank their priority of which they would want to specialise and if training and working in mammography was an option.

Results: From 248 students invited to participate, 101 students replied to the survey. Students indicated that they had been taught all modalities, however not all students had experienced them on clinical placement. Most students had observed or performed ultrasound (US) (90%, 90%), Computed Tomography (CT) (97%, 75%) and fluoroscopy (80%, 52%), though very few had experience of mammography (55%, 8%). US, CT, and MRI were the modalities that most students would like to specialise in. Male students reported being discriminated against working in mammography as this is "female only" work. **Conclusion:** Students have more clinical access to the major modalities of US, CT and MRI, and this appears to be a major factor into why student wish to specialise in these modalities. Role extension and higher wages were given as possible incentives that would make specialising in Mammography more appealing. The gender divide may have to be bridged to enable crucial recruitment as male students feel discriminated against.

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Introduction

In Australia, breast cancer is the highest incident cancer among women and it has the second highest mortality rate of female cancer.¹ Early breast cancer detection through screening mammography is the key in the reduction of deaths.² In order to specialise in mammography, Australian radiographers must obtain a certificate of Clinical Proficiency in Mammography. To be eligible for certification, radiographers must hold a Validated Statement of Accreditation and have completed an accredited mammography course, containing both academic and clinical components.³

A report on the BreastScreen Australia (BSA) Programme showed an increase of 4% in the target age attending breast screening between 2008 and 2010; and estimated a further 20% increase to 2020.⁴ This estimate was based on a steady participation rate of 56%, the change of the target age group from 50–69 years to 50–74 years and the increasing population size. The results from a

2009 snapshot of the Australian Breast Screening workforce indicated that the average age of radiographers in mammography (48 years) is ten years older than those in CT and MRI.⁵ Data from that study indicated that there was a possibility that 30% of the workforce could retire within five years.

The Evaluation of the BSA Programme team projected that demand for screening will outweigh capacity by 2014.⁴ This has not become reality, however there is a major issue recruiting radiographers to breast screening; therefore strategies need to be implemented to ensure the continued success of Australian Breast Screening services. Possible strategies include the recruitment of radiographers from overseas; the introduction of male radiographers, and the promotion of breast imaging as a career option to younger radiographers.

During the 1990's, Australia recruited breast screening radiographers from overseas (mainly from the UK) to address the shortages. Since UK radiographers employed in Breast Screening have been undertaking advanced practice for over 15 years^{6–8} this may make them less likely to want to work in countries like Australia, where there are currently very limited role extension possibilities.⁵

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A number of authors have researched mammography client perceptions to being examined by a male radiographer and preliminary research has indicated that a mix of male and female radiographers could be accommodated.^{9,10} However, it is uncertain if male radiographers would be interested in undertaking this role.

A literature search was unable to identify any studies investigating the thoughts of young radiographers to working in breast imaging. Thus, the aim of this study was to identify the perceptions of undergraduate students to work in mammography.

Method

Study design

A cross-sectional survey design was used to gather information on the future working aspirations of current undergraduate diagnostic radiography students from one Australian university. In particular the survey sought to answer the following research questions:

- What modalities do current diagnostic radiography students wish to specialise in after completion of their degree?
- What incentives would make working in mammography more attractive to current diagnostic radiography students?
- What barriers do current diagnostic radiography students perceive to working in mammography?

Participants

Participants were recruited from students enrolled in the Bachelor of Medical Radiation Science (Diagnostic Radiography) Program at The University of Newcastle, Australia.

Research tool

The survey was divided into four sections (Fig. 1). Section A focussed on demographic mapping; Sections B focussed on student experiences of general radiography; Section C focussed on mammography and Section D comprised two open response questions. Section B required students to consider six imaging modalities: Angiography, Computed Tomography (CT), Fluoroscopy, Magnetic Resonance Imaging (MRI), Mammography and Ultrasound (US). These modalities were chosen as they are modalities required to meet the MRPB (Medical Radiation Practice Board)

Accreditation standards.¹¹ Before administration, the survey was reviewed by a panel of experts (3 radiography academics and 2 research active mammographers) to assess content validity, ease of reading and comprehensiveness.

Ethical considerations

The study was approved by the University's Research Ethics Committee. All enrolled students were invited to participate via an e-mail sent through BlackBoard Learn, an online learning system (BlackBoard Inc.). The e-mail contained a Participant Information Statement and a link to the online survey hosted by SurveyMonkey (SurveyMonkey.com). Informed consent was implied through the completion of anonymous surveys. Survey data was only accessible to the researcher, and anonymity of responses were ensured by not collecting the IP address of participant and through limited demographic data being collected.

Data analysis

Data was exported from SurveyMonkey into SPSS for generation of summary statistics and data analysis. Statistical significance (95% level) was performed with Chi-square.

Results

This article discusses only the quantitative data resulting from the questionnaire; qualitative analysis has already been reported.¹² In the results, specialisation implies obtaining the Certificate of Clinical Proficiency in Mammography and training implies undertaking further study without specialisation.

Demographics

A summary of the participating students is presented in Table 1. Also presented is the response rate by gender and year of study. Chi-square analysis revealed no significant differences in participant rates by gender ($p = 0.44$) or year of study ($p = 0.54$).

General radiography

Exposure to different modalities

Students were asked to consider six different imaging modalities (Angiography, CT, Fluoroscopy, MRI, Mammography and US) and if they "have been taught this modality"; "have seen this

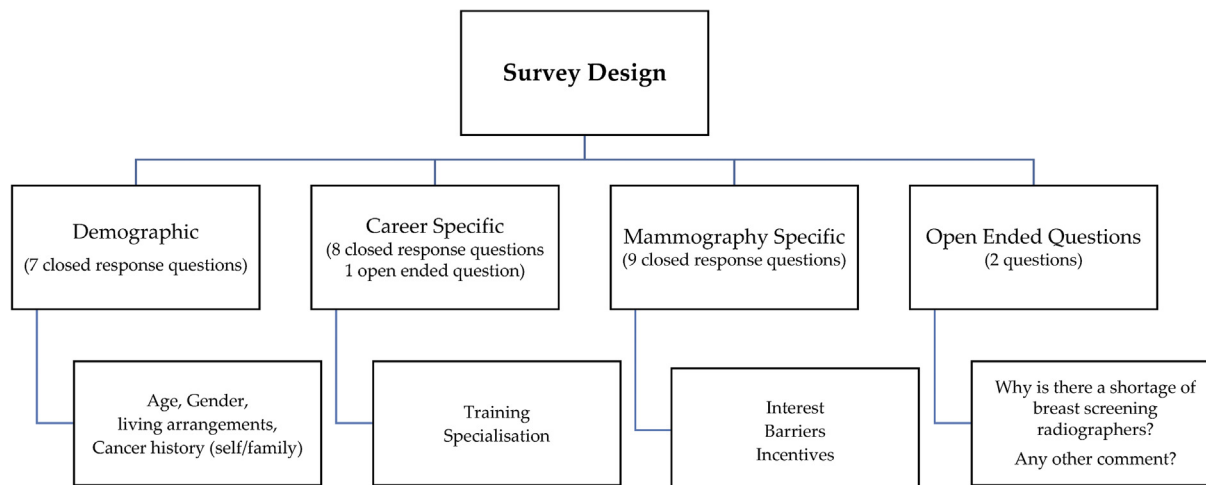


Figure 1. Flowchart of survey.

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