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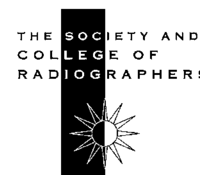

Sonographer practitioner development in Australia: Qualitative analysis of an Australian sonographers' survey

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Abstract Sonographer practitioner development involves the expansion and extension of the sonographer role to include reporting on ultrasound examinations. Australian sonographers have not seen the same degree of role extension and expansion as their counterparts in the United Kingdom, despite increasing levels of discussion regarding sonographer practitioner development.

The aim of this study was to determine if Australian sonographers want to extend their professional role and what they consider are the important issues associated with role extension. This paper reports on qualitative data derived from a survey of Australian sonographers and investigates if Australian sonographers are interested in extending and expanding their professional role and responsibilities and, if they do, what might be necessary or desirable from a professional point of view for this change to occur.

A survey was mailed to all members of the Australian Sonographers Association (ASA) in October 2006. The 31-item survey included 28 closed-ended and 3 opened-ended items to provide both quantitative and qualitative data. The quantitative data will be reported separately. Qualitative data was derived from responses to the opened-ended questions, which asked respondents to elaborate on their attitudes and feelings about role extension and development. Analysis used Nvivo7 software to aid in uncovering common themes from the qualitative data.

The analysis focused on the reported incentives or motivations for becoming a sonographer practitioner as well as disincentives or perceived hurdles that would discourage respondents from becoming sonographer practitioners. The three most reported incentives or motivations for becoming a sonographer practitioner were professional recognition, remuneration and increased knowledge. The three most commonly reported disincentives or perceived hurdles that would discourage respondents from becoming sonographer practitioners were legal issues, insurance and further study.
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Introduction

The past decade has seen noticeable changes in the delivery of health care in Australia and overseas. One of the major changes is the extension and expansion[1] of practice of many non-physician health professions, including the development of nurse practitioners. Despite resistance from some elements of the Australian medical profession,[2] nurse practitioners are authorised to provide general health services to rural and remote communities as well as in areas such as mental health, medical and surgical, high dependency, rehabilitation and midwifery.[3,4] In the allied health area many occupations have extended and expanded their realm of practice and level of autonomy. In Australia, pharmacists have expanded their practice to include health advice and monitoring as well as drug dispensing,[5] and physiotherapists now have the opportunity to practice independently and receive remuneration from private health insurers.[6]

Australian radiographers[7,8] and sonographers[9] have not enjoyed the same degree of role extension and expansion experienced by their nursing and allied health colleagues, nor have they seen the developments in reporting[10] and conducting radiological procedures such as barium studies seen in the United Kingdom (UK).[11,12] Comparatively, sonographer role extension in the UK, including reporting of ultrasound examinations, is well advanced. One recent study found that of the 146 National Health Service Trusts that provided ultrasound services, 134 (92%) indicated that radiographers (sonographers) are reporting on ultrasound examinations independently of radiologists.[13] In Australia, however, sonographer role extension is considerably less advanced. Formally at least, no Australian sonographers are reporting on ultrasound examinations independently of radiologists or other medical practitioners. This is despite similar pressures on the provision of medical imaging services evident in the UK such as a shortage of radiologists,[14] an ageing population with an associated increase in radiological procedures per head of population,[15] and technological advances leading to more complex and time-consuming medical imaging procedures.[16]

Within the Australian sonographer population, there is an increasing level of discussion regarding role extension.[9,17–19] However, there has been little research undertaken on whether sonographers want to extend their professional roles and responsibilities and, if they do, what might be deemed necessary or desirable from a professional point of view for this change in practice to occur. This paper reports on the qualitative data derived from a survey of Australian sonographers and forms part of a larger project that aims to investigate sonographers' views on practitioner development, including the feasibility of changing the way in which certain ultrasound examinations are reported. The purpose of the survey was to determine if Australian sonographers want to extend their professional role and what they consider are the important issues associated with role extension. It is important in terms of current and future professional development to determine if an extension of sonographer duties to include reporting on ultrasound examinations is acceptable to Australian sonographers, and if the idea of role extension would be endorsed by the members of the professional body representing the interests of sonographers, the Australian Sonographers Association (ASA).

Method

A survey was mailed to all members of the ASA in October 2006. A reminder to complete the questionnaire was placed on the ASA website three months following distribution. No follow-up mailing was undertaken. Ethics approval for the survey was granted by The University of Sydney Human Research Ethics Committee.

The 31-item survey included 28 closed-ended and three open-ended items to provide both quantitative and qualitative data concerning sonographer role extension. The closed-ended items sought information on the demographic profile of the membership and opinions on a range of issues related to role extension. The open-ended questions asked respondents to elaborate on their attitudes and feelings about role extension and provide a written response to three questions:

1. What factors would encourage you to become a sonographer practitioner?
2. What factors would discourage you from becoming a sonographer practitioner?
3. Any additional comments would be welcome.

The purpose of the open-ended questions and subsequent qualitative data analysis was to develop or construct theory from real-life data and to gain in-depth understanding of the area of interest.[20]

The qualitative data were analysed using the NVivo7 software, which is designed to handle text-based information and automates some of the tasks associated with the analysis of large volumes of text such as classifying and sorting data.[21] The open-ended responses were analysed using word frequency searches and targeted word and phrase searches to uncover common themes emerging from the data.

Results

A total of 689 surveys were returned from 1812 distributed, giving a response rate of 38%. The demographics (gender and age) of the survey respondents closely resembled the overall ASA member demographics. With gender, 82% of the ASA members were female compared to 80.2% of survey respondents. Similarly, the age distribution of survey respondents closely resembles that of the Australian sonographer population (Table 1), indicating that the respondents are representative of the target population.[22]

Quantitative data: a brief summary

Of the 689 respondents, 451 (65%) indicated that they were in favour of sonographer practitioner extension. Seventy-three respondents (11%) indicated that they were not in favour of sonographer practitioner development. One hundred and sixty four respondents (24%) indicated that

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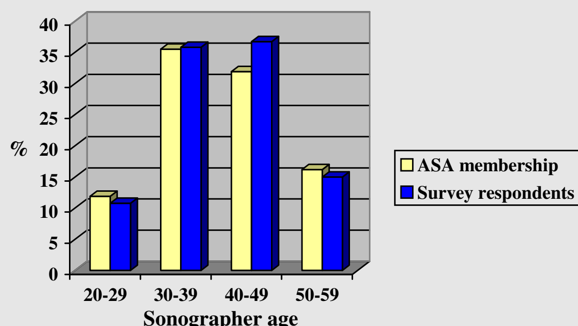
Table 1 Comparison of age demographics from the Australian sonographer population and survey respondents.



they were unsure about the development of a sonographer practitioner role. A full analysis of the closed-ended survey items will be reported separately.

Qualitative data: open-ended questions

Of the 689 respondents, almost all (92%) provided some form of written response to the open-ended questions. The length of responses varied from one-word to a four hundred word short essay. The type and frequency of responses to the three open-ended questions did not vary appreciably across age and gender.

Factors encouraging sonographer practitioner development:

The three most reported incentives or motivations for becoming a sonographer practitioner were:

1. Professional recognition
2. Remuneration
3. Increased knowledge

Referring to Table 2, 118 respondents, (26.3%) identified professional recognition as an incentive to becoming a sonographer practitioner. In the words of respondents, role extension could lead to:

''greater recognition of our knowledge and area of expertise'';

''recognition that we often 'write the reports' already'';

''improvement in status and prestige as a sonographer''.

In terms of remuneration, 149 respondents (21.6%) indicated that an increase in income would be an inducement to become a sonographer practitioner. While a typical response referred to ''financial reward'' in general, others attached the notion of increased remuneration to compensate for ''increased responsibility''. These sonographers felt that increased autonomy and responsibility associated with sonographer role extension should be rewarded financially.

Approximately 17% of respondents identified increased knowledge, defined as further training and education, as an inducement to contemplate role extension. Typical responses included: ''opportunity to further knowledge and skill'' and ''stimulate the desire to increase my education, a challenge!!''.

Table 3 presents the three most commonly reported disincentives or perceived hurdles that would discourage respondents from becoming sonographer practitioners:

1. Legal issues
2. Insurance
3. Further study

Referring to Table 3, 230 respondents (33%) reported legal issues as a disincentive to becoming a sonographer practitioner. In this context legal issues refer to the potential exposure to a greater risk of litigation as a sonographer practitioner. Respondents summed up their concerns with comments such as ''the medico-legal aspects are a major concern'', while others expressed it as a ''fear of being sued''. Associated with legal issues was a concern with insurance cover, with 153 respondents (22.2%) identifying this as a disincentive to role extension, particularly the negative impact of expensive insurance premiums on income.

While some respondents considered increased knowledge as an incentive (Table 2), additional study associated

Table 2 Commonly reported incentives associated with sonographer practitioner development.

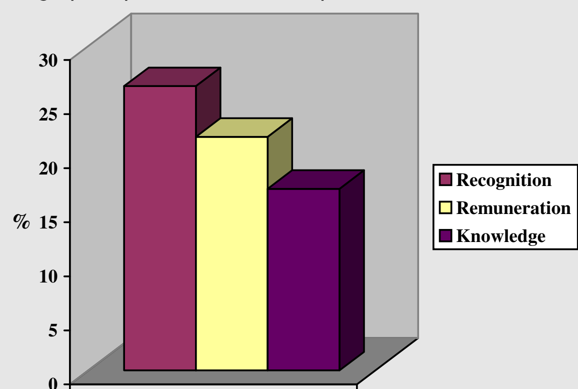
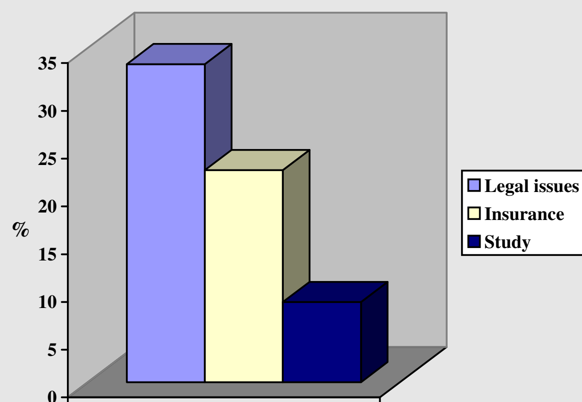


Table 3 Commonly reported disincentives associated with sonographer practitioner development.



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with sonographer role extension was seen by a small number of respondents (8.4%) as a disincentive. The reasons given for resistance to further study were articulated from both a professional and personal stance:

> ''UK sonographers report at certificate and diploma level'';
>
> ''study process... interferes with family function'';
>
> ''further study at my age and stage of work life''.

Additionally, 93 respondents (13.3%) indicated that endorsement by the medical profession of the sonographer practitioner role is important. Comments identifying medical support as an incentive for sonographer practitioner development included ''[we need] support from radiologists, support from general practitioners [and] specialists''. Conversely, responses to the question asking what would discourage you from becoming a sonographer practitioner, such as ''lack of support from the radiologists and other health professionals especially referring doctors'' indicate that a perceived lack of support from the medical profession is seen by some as a disincentive to sonographer practitioner development.

Responses to the final open-ended question provided a range of comments. Many respondents wished to describe their reasons for being in favour, not in favour or unsure of sonographer practitioner development. Responses of those in favour articulated their support with comments such as an ''overdue development'', a ''natural step for the profession''; many sonographers saw themselves as capable of becoming sonographer practitioners. Of this group, 53 respondents (8%) indicated that they were already fulfilling the role of sonographer practitioner. In particular, five vascular sonographers indicated that reporting on examinations was part of their duties. Four respondents from Queensland also indicated they report on general ultrasound examinations independently of radiologists.

Strong opinions were voiced by some of the respondents opposed to sonographer practitioner development, including two sonographers who indicated they would leave the profession if a sonographer practitioner role developed. The reasons given for not being in favour included the increased stress associated with role extension and lack of the medical knowledge and background required to report on all examinations. Six respondents did concede that it could be useful in remote locations in Australia where the services of radiologists are not readily available.

Of the respondents who indicated they were unsure about sonographer practitioner development, nine indicated they were towards the end of their careers and were reluctant to undertake further study. Other reasons cited for being unsure about sonographer practitioner development included a perceived lack of support from the medical profession and family commitments such as young children.

While the accepted definition of the term sonographer practitioner is that of sonographer role extension to include the reporting of ultrasound examinations, it became apparent that many respondents had a different understanding of the term sonographer practitioner. Possible definitions described by respondents included:

1. Reporting specific examinations, for example normal obstetrics and pelvis examinations under the direction and in close consultation with medical staff.
2. Reporting on all ultrasound examinations under direction and in close consultation with medical staff.
3. Reporting on all ultrasound examinations performed with limited contact with medical staff.
4. Independent practice with Medicare provider number, giving the practitioner the right to bill the patient directly and receive a subsidy from the Government.
5. Undertaking interventional procedures such as bursal injections and fine needle aspiration biopsies.

Discussion

This survey reported on the views of Australian sonographers towards role extension and specifically on the incentives and disincentives associated with the introduction of such a role within the Australian health care system. The concept of medical dominance will be applied to provide a context for the discussion of the practitioners' views on role extension and development. Professional recognition was identified by many respondents as a major incentive to develop the sonographer practitioner role. Professional recognition is defined as the formal acknowledgment of an individual's professional status and right to practice the profession in accordance with professional standards, subject to professional or regulatory controls.[23] In the case of sonographer practitioner development, professional recognition refers not only to the individual, but also to the recognition of the profession itself. Professional recognition in this context therefore refers to sonographers wanting to be acknowledged as autonomous health professionals who are specifically involved in the production and interpretation of ultrasound examinations, as well as recognition of the profession as a whole.

Role extension, with the formalising of sonographer involvement in the diagnostic component of the ultrasound examination, is seen by many as a way to achieve this professional recognition. In particular, some respondents see the formalising of the sonographer practitioner role as the acknowledgment of duties already being performed.

It is not only sonographers themselves who see professional recognition as an important issue. An Australian government report into workplace issues noted that proper recognition was needed in order to encourage people to consider a career in medical sonography. The report noted that sonographers needed ''recognition by governments and medical bodies that the person performing an ultrasound examination has the greatest appreciation of its findings and as such should be the author of the examination. Where a sonographer is primarily responsible for the examination the sonographer should be the author of the results, and accept responsibility for the results as reported (p. 2)''.[24]

It would also appear that sonographers are not alone when it comes to issues of professional recognition. A broader study into allied health professions in rural Australia also identified a lack of appreciation and/or recognition of their role as a disincentive for practice.[25]

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Not surprisingly, many respondents indicated that with increased responsibilities they would also expect an associated increase in income. Apart from the obvious consideration that increased responsibilities should be associated with increased remuneration, other factors also may warrant an increase in income. It is likely that there would be an increase in the cost of insurance for sonographers who are reporting on ultrasound examinations. Also, there may be educational expenses if further training is necessary to provide and maintain the required knowledge to report on ultrasound examinations. The increase in scope of practice may demand a greater commitment to ongoing education and accreditation.

In situations where sonographers already were involved in ultrasound reporting, some felt that academically and clinically they were not prepared for the duties they were asked to perform and indicated that further formal education would benefit their work. For example, one respondent noted: "I have worked in a situation where I was reporting my exams and I felt underqualified. I would strongly recommend extensive further training for sonographer practitioners. I suspect many people are unaware of the huge responsibility taken on when reporting examinations".

One third of those who responded to the survey indicated 'legal issues' as a disincentive to becoming a sonographer practitioner, thus indicating that a fear of litigation is seen by many as an obstacle to sonographer practitioner development. The evidence does not support some of these perceived insecurities and, in fact, formalising the sonographer practitioner role will help clarify the legal position of sonographers reporting on ultrasound examinations and may limit their exposure to litigation.[26]

Legally, the standard of care required by a profession in the Australian context is defined under various state and territory civil liability legislative provisions.[27] It is noted that a professional is not guilty of negligence if they acted in a manner accepted by peer professional opinion as competent as long as that opinion is not irrational. A sonographer reporting on ultrasound examinations is a sonographer exercising skills previously only exercised by a radiologist. The question then arises as to who is the sonographer practitioner's peer professional body: is it other sonographers exercising similar skills or radiologists?

If this role is clearly and formally defined it will enable sonographer practitioners to hold themselves out, in legal terms, to be sonographers with additional specialised skills. Importantly, the sonographer is not holding him/herself out to be a radiologist with all the expert medical training in other imaging areas that a radiologist would be expected to have in practice. It is reasonable to expect the same skill and expertise from all providing the service, be it doctor or sonographer, and adequate training must address this in the interests of both the practitioners and patients.

Defining and formalising the role of sonographer practitioner also has implications with respect to vicarious liability. Vicarious liability is the liability on one person for the negligence of another to whom the former has entrusted or 'delegated' the performance of some task on their behalf. It is most commonly used in the employer/employee context where the employer is liable for the actions of an employee. The sonographer may therefore have the legal protection of their employer. However, the employer is only liable for the actions of the employee whilst in the course of their employment. They are not liable for acts or omissions caused by the employee while 'on a folly of their own'. If the role of the sonographer practitioner is not clearly defined, it may be difficult to show that the sonographer was acting in the course of their employment, thereby negating any vicarious liability of the employer.[28]

Many respondents felt that increased insurance cover would be required and the cost of that insurance would be prohibitive. A report commissioned by the Australian and New Zealand College of Radiologists as part of the Quality Use of Diagnostic Imaging Program (QUDI)[29] noted that insurers indicated current insurance arrangements concerning professional indemnity would be inadequate and sonographer practitioners would require higher levels of coverage. However, the authors noted that the insurers consulted were unable to give firm figures concerning the costs involved. The availability and cost of insurance is an area that will need to be considered by the profession and other stakeholders if the sonographer practitioner role is to be developed and implemented.

Further study was described by some sonographers as a disincentive to becoming a sonographer practitioner. The underlying considerations related to time, money and relevance of academic programs. Some respondents mentioned that time constraints associated with family commitments and young children would limit their ability to undertake further academic study at this time in their lives. Some respondents felt they were towards the end of their careers and did not wish to pursue further study. Other respondents indicated the cost of further study would be prohibitive. Another group mentioned an academic program that was unsupported or irrelevant to their needs would be a disincentive to pursue sonographer practitioner role development.

Implementation of any academic program associated with the development of the sonographer practitioner role will need to be accessible, cost effective and suited to the needs of those working as a sonographer practitioner.

Despite the fact that the majority of Australian sonographers surveyed indicated they were interested in role extension, the profession lags considerably behind their counterparts in the UK in the development of sonographer role extension to include reporting. The question that one may ask is: given the considerable degree of interest in sonographer practitioner development and similar pressures on the provision of medical imaging services, why has sonographer role extension not occurred in Australia? Part of the answer may lie in the dominant position the medical profession has maintained in the Australian health care system and, in particular, its ability to subordinate other health professions.

Within the Australian health care system, the medical profession dominates every aspect of the structure and delivery of available diagnostic and treatment services.[30] Control over diagnosis and treatment gives the medical profession effective administrative and financial control over the health professions. The decisions made by doctors determine who treats the patient and what role other

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health workers, such as allied health and nursing staff, have in that treatment process. A doctor's referral is required before most other health professions can treat a patient; in effect, this is professional dominance legitimised by the state.[31] The Australian medical profession also makes up a substantial proportion of hospital management boards, advisory councils that fund research and health policy advisory bodies. The political pressure exerted by these boards, councils and bodies is effective in putting forward the medical profession's view, limiting the effectiveness of health professions such as sonography to produce evidence to support their work and expand their occupational role.[30] Opposition from elements of the medical profession such as radiologists, coupled with professional and political dominance exercised by the Australian medical profession as a whole, may be significant obstacles to formal sonographer practitioner development.

This opposition to radiographer and sonographer role extension is well illustrated by the response to an article in the Medical Journal of Australia advocating the development of radiographer reporting in the Australian Health Care system.[32] The article was met with considerable criticism from the Royal Australian and New Zealand College of Radiologists (RANZCR).[33] While it was acknowledged that there is a radiologist shortage and the workload of radiologists is likely to increase, it was argued that non-medical personnel could not perform a competent service as they lack the clinical insight that only a medically trained practitioner has developed. However, radiologists rarely come into contact with the patient and clinical information is often restricted to the request form and radiographer observations, rather than direct assessment of the patient. The editorial comment presented by RANZCR also ignores the point raised that radiographer reporting is not being put forward as a replacement for radiologist reporting; rather the aim is to help meet the demand for immediate reports such as those required for Accident and Emergency cases. It was also argued that radiographer role extension might lead to a shortage of radiographers, however it could equally be argued that the ability to undertake more complex roles may in fact positively affect recruitment and retention.[34]

Similarly, an editorial comment in Australasian Radiology indicated opposition to non-medical staff performing ultrasound examinations and suggested that high levels of recruitment of radiologists be maintained in order to avoid professional encroachment from other groups.[35]

The comments published in the Medical Journal of Australia and Australasian Radiology both indicate opposition from sections of the medical profession to role extension for Australian radiographers and sonographers and appear to be aimed at maintaining the status quo: medical dominance that is associated with subordination and limitation of other professions within the Australian health care system.[36] This is despite an increasing demand for services that are not being met under the existing model. It is to be hoped that the majority of radiologists and other medical practitioners who report on ultrasound examinations will see sonographer role extension as a more effective and efficient utilisation of the available health workforce, rather than just an encroachment on their professional territory.

Limitations

Limitations of this study include qualitative data analysis that was conducted by one researcher, the principal author, who is a practising sonographer. The objectivity of the analysis could be influenced by the researcher's 'insider' perspective. Other limitations concern the sampling method and response rate. Access to respondents was confined to the Australian Sonographer Association membership and not to the whole Australian sonographer population. Those sonographers who responded to the survey may be advocates of sonographer practitioner development; those opposed to this development may, in general, have not responded. Therefore, the possibility of some response bias cannot be discounted. Finally the overall response rate of 38%, was considered adequate for the purposes of this analysis, however it is acknowledged that it may limit the generalisability of the findings.

Conclusion

The majority of sonographers who responded to the survey indicated that they are in favour of sonographer practitioner development. However, radiographer and sonographer role extension in Australia faces substantial challenges including opposition from sections of the medical profession. Australian sonographers have identified certain advantages that could flow on to the profession if this role extension were implemented, including professional recognition, increased remuneration, as well as an opportunity to increase both knowledge and skills. However, there has to be recognition of the potential obstacles in developing the role such as exposure to increased levels of litigation, the increased cost of professional insurance and the effort required to undertake further study to increase knowledge and skills. Another potential obstacle is the lack of a clear definition of what a sonographer practitioner role actually entails. It is clear from the responses that it is necessary to clarify exactly what would be required for role extension to allow members and the profession to make an informed decision in this regard.

Conflict of interest

The authors have not identified any financial or personal relationships with other people or organisations that could inappropriately influence this article.

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