Victorian Allied Health Workforce Research Project

Sonography Workforce Report

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Sonography Workforce Report

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Contents

Abbreviations and acronyms

ABS	Australian Bureau of Statistics
AH	Allied health
AHA	Allied health assistant
AHOMT	Allied Health Organisation Mapping Tool
AHPRA	Australian Health Practitioner Regulation Agency
AHWQ	Allied Health Workforce Questionnaire
ASA	Australasian Sonography Association
ASAR	Australian Sonographer Accreditation Registry
ASUM	Australian Society of Ultrasound in Medicine
CPD	Continuing professional development
EBA	Enterprise bargaining agreement
EFT	Equivalent full time
GP	General practitioner
MSK	Musculoskeletal
NFP	Not for profit
RSI	Repetitive strain injury

Executive summary

Overview

This report provides an overview of the sonography workforce in Victoria in 2015 - 2016. It is based on survey responses from 279 individual sonographers (approximately 42% of the sonography workforce identified in the 2011 Australian Bureau of Statistics (ABS) census data, or 24% of the Victorian sonographers registered with the Australian Sonographer Accreditation Registry (ASAR) (Australian Government, Department of Employment, Victoria - Sonographer, 2015), two focus groups involving five participants, and surveys from 36 organisations that provide services across 151 different locations or sites in Victoria.

Public sector and older employees were over-represented in the survey sample. Seventy two percent (72%) of respondents stated that they were public sector employees as compared with 46% in the 2011 ABS census data, and 6% were aged 30 and under in the survey sample as compared with 16% in the 2011 census. Where appropriate, issues of representativeness have been addressed by performing subgroup analysis by sector of employment.

Findings

Sonographers	Survey	ABS, 2011 [a]
Victorian population	279	669
Female	73%	72%
Aboriginal and / or Torres Strait Islander	<1%	<1%
Australian trained	92%	
Age 30 years and under 55 years and older	6% 58%	16%
Median age (years)	46	
Median income / annum	$90,000 to $99,000	
Public sector	46%	
Private sector (includes not for profit)	46%	72%
Principal area of practice	Generalist - 78%	
Clinical stream		
Reporting advanced scope of practice role	13%	
Work with allied health assistants	20%	
Reported use of telehealth	2%	
First qualification to practise	Graduate Diploma – 75%	
Hold PhD	1%	
Intention to stay in profession for more than 5 years	76%	
Work for two or more employers		
Of those with a supervisor, sonographer as supervisor	64%	
% of workforce primary role in non-metro	20%	

[a] *Source: Australian Bureau of Statistics (ABS) Census, 2011*

Sonographers were generally satisfied with their jobs, particularly the opportunities for work / life balance, professional challenge and autonomy. Continuing advances in technology added interest and meant their careers were not stagnant. They also valued the independence they have in their roles and take pride in their diagnostic expertise. The sonography profession is relatively stable, with the majority intending to continue working for five or more years.

The demand for sonographers was difficult to quantify because of a lack of systematic approaches to measuring demand for allied health (AH) services. However, there was evidence of unmet needs for sonography services including long waiting times for non-urgent services in the public sector; longer

inpatient stays, inability to provide services, reduced service volumes, recruitment delays of more than 52 weeks, and service rationing resulting in shorter consultation times.

These shortages have led to a number of concerns for public services including reduced clinical quality, increased complaints, increased service costs due to the need to employ locum sonographers, lack of time for sonographers to access training, and increased workplace injury due to repetitive strain injuries (RSI). Shortages have prevented services from being able to plan adequately, and to innovate and create longer term solutions to better meet service needs.

Having staffing capacity to meet demand, provide backfill and enable CPD, project and research capacity, further enables services to plan, innovate, and create longer term solutions to better meet community health need, provide patient centred care and improve outcomes and health service efficiencies.

New training courses have been introduced to try to address the workforce shortages, mostly at the undergraduate level. Many sonographers believe post-graduate training programs are also required to ensure the appropriate quality of training and level of credentialing required to practise safely as a sonographer.

The private sector cannot necessarily assist with the lack of capacity in the public sector because tertiary centres do not always provide similar services and the fee-for-service model in the private sector means that the cost of private sonography services can be prohibitive to clients.

Differences between public and private sector sonography services were evident from the data. The public sector was perceived to provide services to more complex clients across a diversity of clinical settings; while the private sector was perceived to pay more and provide more flexibility to staff. This inequity in conditions is likely to be a barrier to recruiting sonographers to the public sector.

The self-reported attrition rate from the sonography workforce was identified as 1% in the next 12 months increasing to 24% in five years. However, 12% of sonographers intend to change jobs within 12 months, mostly to achieve better working conditions or pay.

The sonography workforce is predominantly clinical. Respondents to this research would like to have clearer career development pathways including continuing professional development (CPD) opportunities, mentorship and opportunities to perform research. Because sonography does not often have its own separate department within hospitals and other facilities, being usually embedded within larger radiology or medical imaging departments, management opportunities were identified to be somewhat limited. Also, despite an interest by some in research, structures were not available to support this. The cost of and lack of rewards or recognition for additional training were seen as disincentives to undertaking additional study.

There were no systemic skill gaps identified within the sonography profession; however a number of respondents highlighted the importance of broad generalist skills, rather than specialist skills, particularly within the locum and regional workforce. A specific challenge identified by the sonography workforce was the technical difficulties of performing scans on the increasing number of obese clients.

Conclusions

Key areas of consideration for the sonography workforce going forward include:

- Developing metrics of community need / demand for sonography services.
- Establishing clear leadership roles and structures to promote professional career growth which would include a culture that acknowledges and rewards research to provide new avenues to expand the sonography scope of practice, as well as career paths.
- Increasing profession representation in leadership roles to advocate for patients and the profession, particularly around funding models and approaches.
- Service mapping to identify sonography service accessibility issues (from the patient perspective) arising from the division between public and private sector service provision.
- Improving clinical governance and support, particularly for private practitioners.

Introduction

The Victorian Allied Health Workforce Research Program (the Program) aims to contribute to the evidence base of 27 selected Victorian allied health (AH) professions in the public, private and not-for-profit (NFP) sectors in Victoria. The data will be used to inform the policies and programs of the Department of Health and Human Services, provide a platform of evidence on which to build further understanding and development of the AH workforce, as well as guide any improvements to the associated education and training system.

This report presents the data arising from research on the sonography workforce in Victoria.

Please note: Terminology used in this report reflects that used in the survey process by Southern Cross University, rather than standard Department of Health and Human Services terminology.

Background

Who are sonographers?

Sonographers are medical imaging professionals within the AH sector who operate an ultrasound machine to perform diagnostic medical sonographic examinations. In most instances, sonographers practise as part of a multi-disciplinary diagnostic imaging team working in either a public or private sector environment.

Sonographers undertake an accredited graduate diploma or master's level course in Medical Sonography or Ultrasound. Sonographers and student sonographers are required to be accredited by the Australian Sonographer Accreditation Registry (ASAR) in order to receive a Medicare rebate.

There are numerous areas of practice within sonography and whilst there are commonalities across all, many have different work practices and educational requirements. Specialties include general, musculoskeletal (MSK), rheumatology, vascular, cardiac, obstetric, breast and cerebrovascular sonography.

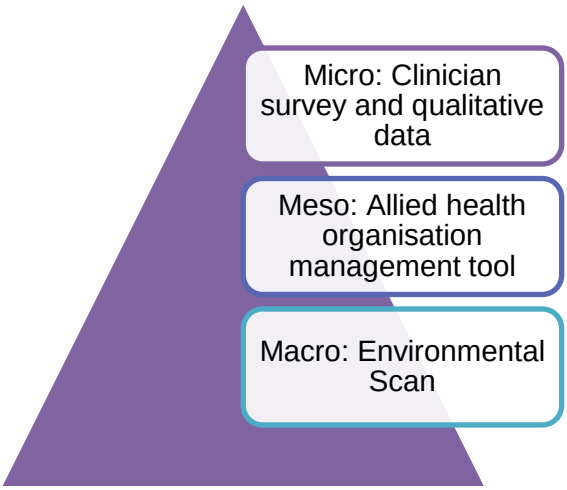
Sonography is not a registrable profession under the *National Registration and Accreditation Scheme* / *Australian Health Practitioners Regulation Agency*. ASAR and the Australasian Sonographers Association (ASA) provide self-regulation for the profession and are members of the National Alliance of Self Regulating Health Professions.

Based on the most recent available data, there was a total workforce of 669 sonographers working in Victoria in 2011 (ABS 2011) and the ASAR registration data for Victoria in 2015 has 1,158 accredited qualified sonographers (ASAR, as reported by Department of Employment, 2015). The workforce profile in 2011 was 72% female with just over half (54%) working in full-time employment; for 29% of this workforce the highest qualification was a bachelor degree, 41% a graduate diploma or certificate and 10% a post-graduate degree (ABS, 2011).

Method

A three tiered approach was used to capture workforce data at macro, meso and micro levels (Figure 1).

Figure 1: Three tiered research approach



Macro

Environmental scan

The environmental scan examined 27 AH professions in Victoria during the first six months of the research program. The process involved engagement with each of the professional associations regarding workforce trends and issues alongside an analysis of a range of existing data sources. A 'snapshot' was generated for each profession which included key workforce statistics, workforce trends and issues presently affecting the profession, and those likely to affect the profession in the future. An environmental scan has been produced as a stand-alone document for each profession. Relevant findings from the sonography environmental scan have been incorporated into this report.

Meso

Subsequent to the environmental scan, four professions (speech pathology, physiotherapy, allied health assistance and sonography) were analysed in-depth at the organisational and individual level using the approaches described below. The rationale for initially focussing on these professions was that they were all high priority professions for DHHS and existing data sources provided different levels of coverage for each profession. Therefore, the in-depth analysis for each of the four professions required different research methodologies and consultation strategies to achieve the project aims.

Allied Health Organisation Mapping Tool

At the meso level an Allied Health Organisation Mapping Tool (AHOMT) was developed which provides information on the profession's size, location, skill set, recruitment and retention issues, and organisational contexts. The AHOMT was developed using a Qualtrics online survey tool and distributed electronically. It was completed at a regional or organisational level, typically by a team leader or human resources department, to provide detailed information about the workforce structure and organisation.

The AHOMT was adapted from a previously developed tool called the Service Proforma, which was designed to be completed by a multidisciplinary team leader to provide team or service level information about the staffing size, organisation and configuration. The Service Proforma tool was substantially

modified for this project to be completed at an organisational level for specific disciplines. Despite substantial initial piloting, the first iteration of the AHOMT presented some challenges for complex organisations with multiple sites. In particular, organisations providing services across geographic locations felt that the nuances of specific sites were not being addressed (for example, outer Melbourne has different recruitment issues to inner metropolitan Melbourne).

To address this issue, a modified version of the AHOMT (AHOMT2) was developed that could be completed at a team level, and a new tool, the Allied Health Human Resource Tool was developed to capture the whole of organisation workforce data (workforce numbers and location).

Allied Health Human Resource Tool

As outlined above, the Allied Health Human Resource Tool was introduced after the first round of data collection to address a perceived gap in the data, i.e. the geographic location, numbers and grades of workers, particularly for large, complex organisations. This tool was also developed online using Qualtrics and distributed electronically.

Micro

Allied Health Workforce Questionnaire

Individual clinician data were captured through the Allied Health Workforce Questionnaire (AHWQ). The AHWQ captured information about education and training, the nature of work, location of work, job satisfaction and career development opportunities, as well as open ended questions exploring issues that the profession specifically identified as being important.

Participants who completed the AHWQ were invited to provide their contact details for future follow-up.

Focus groups

Survey respondents who agreed to be followed-up via email were invited to participate in one of four focus groups, stratified by grade (or equivalent pay level), rurality and public / private sector. The focus groups explored issues that were highlighted in the survey responses. The questions were developed in consultation with the reference groups and DHHS. Each focus group was held via teleconference using GoToMeeting and was approximately 90 minutes. The focus groups were recorded and detailed contemporaneous notes were taken and used as the basis for analysis. Where necessary the recordings were accessed for clarity or confirmation.

Research governance

The research was overseen by an overarching research advisory group comprising experts from many health disciplines and sectors. In addition, each of the four professions had a discipline specific reference group comprising members of the profession who represented specific sectors or subgroups (such as new graduates, public, private and NFP sectors, and academics). The advisory group and the reference groups were consulted about the research approach, survey distribution methods and engagement strategies, as well as providing substantial input into the survey content and piloting. The discipline specific reference groups also advised on the content of the focus group questions, aided the interpretation and verification of the final reports, and provided feedback on the penultimate drafts of the discipline specific reports.

Distribution approaches

Surveys were initially distributed through the reference groups, the professional associations and DHHS contact lists. In addition, a communications database was developed comprising employers, professional

networks and associations, individual professionals and relevant contacts for each profession. This database evolved during the project and continues to evolve.

The AHWQ and AHOMT surveys were circulated from October until 31 December 2015. The Allied Health Human Resource Tool and modified AHOMT were circulated during February and March 2016.

Other methods of distribution and marketing included DHHS newsletters and road shows, a stand at the National Allied Health Conference, and regional conference presentations.

Analyses

The Qualtrics survey tool generates descriptive results for all questions in Microsoft Word and Microsoft Excel formats. In addition, all survey data were exported directly into IBM SPSS V21 where they were analysed descriptively, and where appropriate, correlations and ANOVA analyses were performed.

Data limitations

- The challenge of distributing and marketing a survey commissioned by a single government department to distributed health services, non-government services and private providers means that the data may not be representative of each profession.
- It was difficult to engage with the large number of small private sonography practices. As a result, it is not possible to determine the representativeness of the data for this group.
- Distribution of revised AHOMT (AHOMT 2) may have confused some respondents and created some challenges for data analysis.
- The focus group participants were invited from the AHWQ respondents who agreed to be followed-up. This may have resulted in selection bias. However, more than half of all survey respondents agreed to further follow-up.

Results

The source of data in the tables and figures going forward is AHWQ or AHOMT survey response data unless otherwise specified.

Responses and respondents

Respondent numbers for each of the different data collection methods are presented in Table 1 below.

Table 1: Respondent numbers by data collection approach

AHWQ (individuals)	HR survey (organisations)	AHOMT1 (organisations)	AHOMT2 (organisations)	Focus groups
279	3 (14 locations / sites)	33 (102 sites)	13 (49)	4 (Grade 4 and above) 1 (Grade 2)

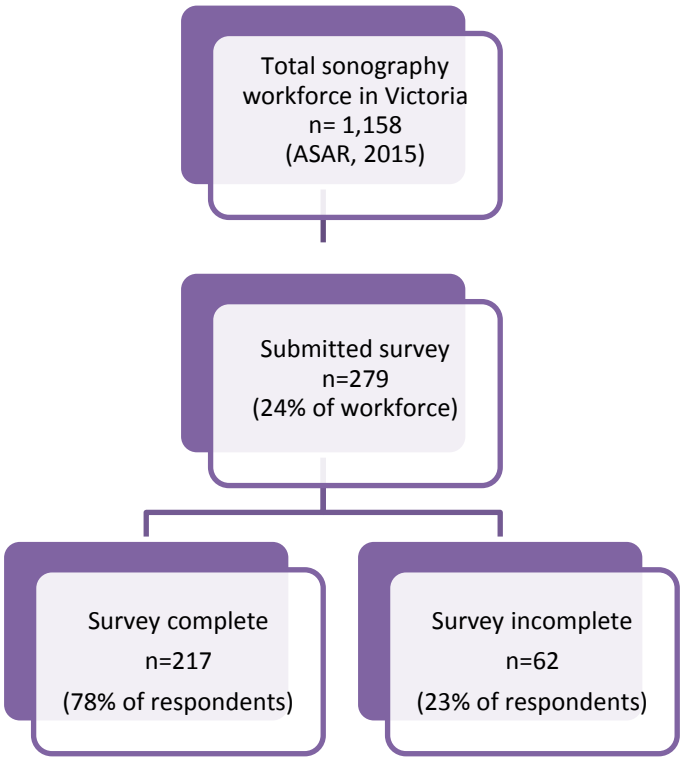
Allied Health Workforce Questionnaire

The AHWQ survey consisted of 69 questions or opportunities for the respondent to comment. Completion of the survey was voluntary and respondents had the opportunity to choose if they wished to answer a question or not. Some of the questions were conditional on the response to previous questions. Some questions allowed for multiple answers. As a result, the number of responses for each question varied and is included in the presentation of the data for each question.

A total of 279 sonographers completed at least one question on the survey and submitted their survey. The range of respondents to an individual question was from 217 to 279. Responses from all persons who answered an individual question have been included, irrespective of whether they completed the entire survey or not.

Of the 279 sonographers who submitted the AHWQ (24% response rate based on 2015 ASAR registered sonography data) 90% were employed in the sonography workforce at the time of completing the survey. The survey respondents were predominantly female (73%); this is consistent with the 2011 ABS data which showed 71.5% of the profession was female. One quarter of respondents were aged 55 and older, while only 6% of respondents were 30 and under (Table 2). In contrast, the 2011 ABS data found that 16% of the sonography workforce were aged 30 and under. Thus the AHWQ respondents were an older cohort, and almost half (47%) worked in the public sector (Table 3).

Figure 2: Survey responses



Capacity

Capacity refers to the ability of the profession to meet the needs of the community in terms of workforce numbers and allocation of staff, skill mix, ratios, geographic distribution, organisation of the workforce, and their ability to influence these factors at the political, professional and organisational level (Figure 3).

Figure 3: Workforce capacity framework

Key findings

- Without good measures of demand it is difficult to assess whether the workforce supply is adequate, however qualitative data indicates the sonography workforce is stretched, with pressure to increase patient throughput with fewer staff.
- There is evidence of explicit shortages in grade 3 and 4 roles, and across most regions.
- There is opportunity to support workforce shortages through the training of radiographers.
- Clinical quality is being affected by demand pressures, including finding time for staff training and having time to undertake thorough scans. Workplace injury is also a concern.
- The differing pathways to qualifying to practice sonography may be an opportunity for review.
- Differential employment conditions are evident between private and public sectors. The flexibility and better pay offered by the private sector is balanced by the challenging work and stable environment in the public sector.
- The most successful recruitment strategy used by respondents was advertising via professional associations.
- The proportion of time spent performing different tasks (66% of sonographers' time spent providing sonography services) reinforces the predominantly clinical nature of sonography work,
- Sonographers feel they are held back and / or unrecognised in performing advanced practice roles. There is scope for reviewing professional boundaries of sonographers and radiologists, particularly in the area of reporting.
- One in five respondents (20%) reported their work involved delegation to an AHA. There may be further opportunity for AHA's assisting in patient flow through tasks such as organising patient lists, getting patients up and down off beds and cleaning beds.
- There was low usage (2%) of telehealth reported. There may be opportunity for further use for increasing clinical education access. Sonographers currently working in regional/rural areas were almost seven times more likely to have grown up in a regional/rural area.
- A key issue is limited career pathways, particularly in rural areas, due to limited senior positions, stability in the workforce and a lack of a distinct management structure, separate from radiology.

Workforce distribution

Demographics

One quarter of AHWQ sonography respondents were age 55 and older while only 6% of respondents were 30 and under (Table 2). The mean age of sonography respondents was 47 years (range 25 to 71 years), median 46 years (Figure 4).

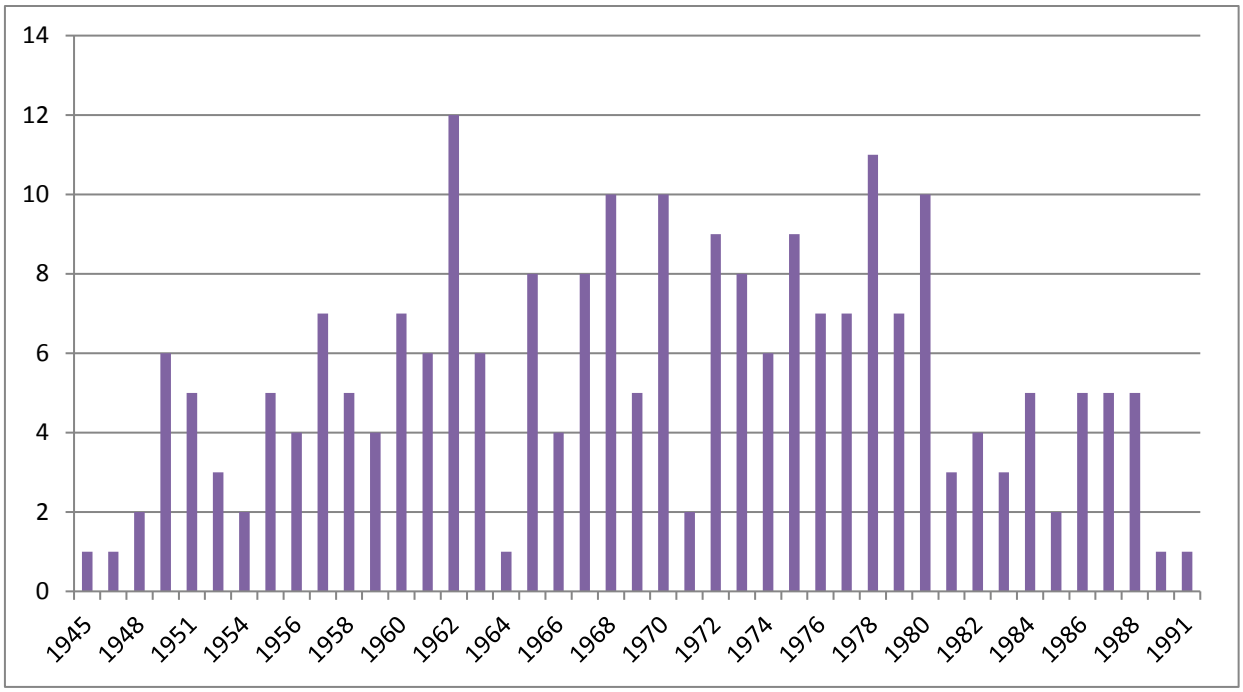
Table 2: Demographics (n=234) compared with ABS 2011 data

Demographics	AHWQ		ABS 2011 [a]
	n	%	%
Female	171	73	72
Aboriginal and / or Torres Strait Islander	1	<1	<1
Australian citizen / permanent resident	232	99	-
Age 55 years and over	58	25	-
Age 30 years and under	17	6	16

Median age (years)	46	-	-
Public sector	??	46	-
Private and NFP sector	??	46	72

[a] *Source: Australian Bureau of Statistics (ABS) Census, 2011*

Figure 4: Year of birth (n=219)



Geography

The respondents were metro-centric with approximately two thirds (62%) of AHWQ respondents reporting they undertook their primary role in metropolitan Melbourne with less than 4% in the Grampians, Barwon southwest or Gippsland regions (Table 3). Many sonographers worked in a single local government area (43%).

Table 3: Geographic distribution (n=279) compared to ABS 2011 respondents

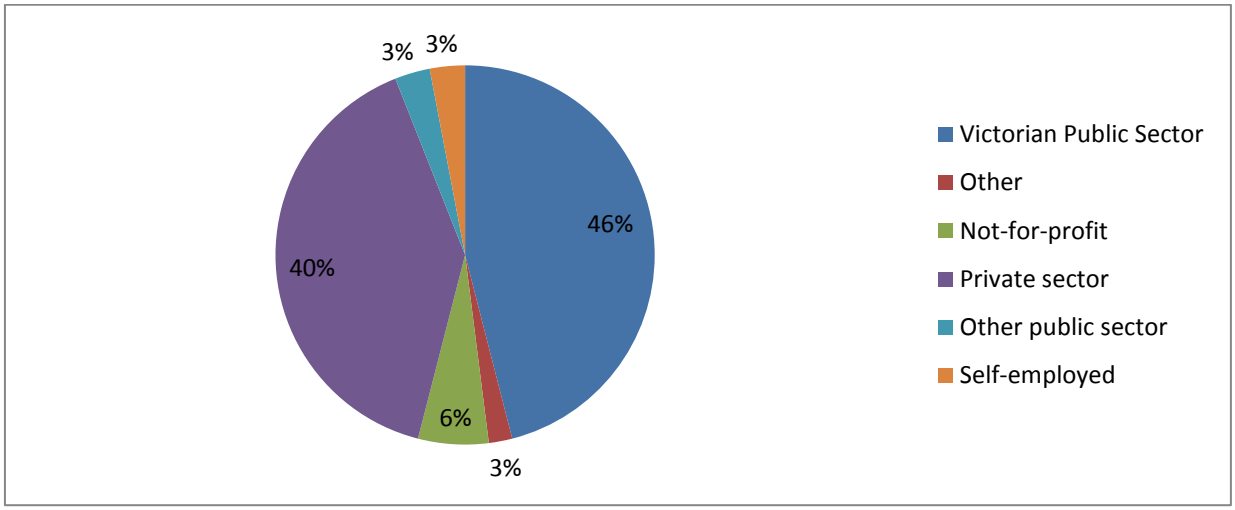
Victorian region	Barwon South West	Gippsland	Grampians	Hume	Loddon Mallee	Northern and Western Metro	Southern Metro	Eastern Metro	Telehealth/mobile outreach	Unattributed	Total
Primary location (AHWQ)	10	9	9	14	15	90	42	31	2	57	279
Primary location (AHWQ) %	3.6	3.2	3.2	5.0	5.4	32.3	15.1	11.1	0.1	20.4	100

The ABS 2011 report showed that the largest proportions of sonographers were found in eastern metropolitan (0.14 per 1000), north and western metropolitan (0.12 per 1000) and southern metropolitan (0.10 per 1000) Melbourne, while the lowest proportion of sonographers were located in Gippsland (0.04 per 1000). The survey results only reported the number of responses per regional area, which cannot be directly compared to the ABS findings; however there were responses from all Victorian regions, with approximately 61% of responses from people practicing in metropolitan regions of Melbourne and the lowest response rates were from Gippsland.

Sector

Almost half of all AHWQ respondents (n=231) were employed by the Victorian public sector (46%, n=107), followed by 40% in the private sector (n=93) and 6% in the NFP sector (n=14) (Figure 5).

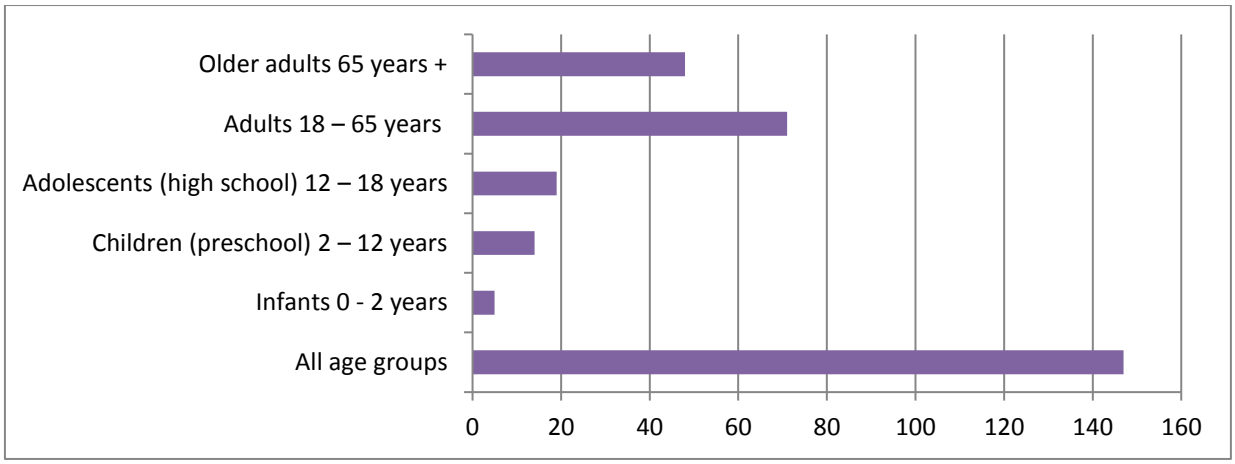
Figure 5: Employment sector of current main employer



Clients

Sonographers predominantly worked with clients from all age groups (66%), or specifically with adults (32%). Very few sonographers reported that they worked specifically with children or adolescents (Figure 6).

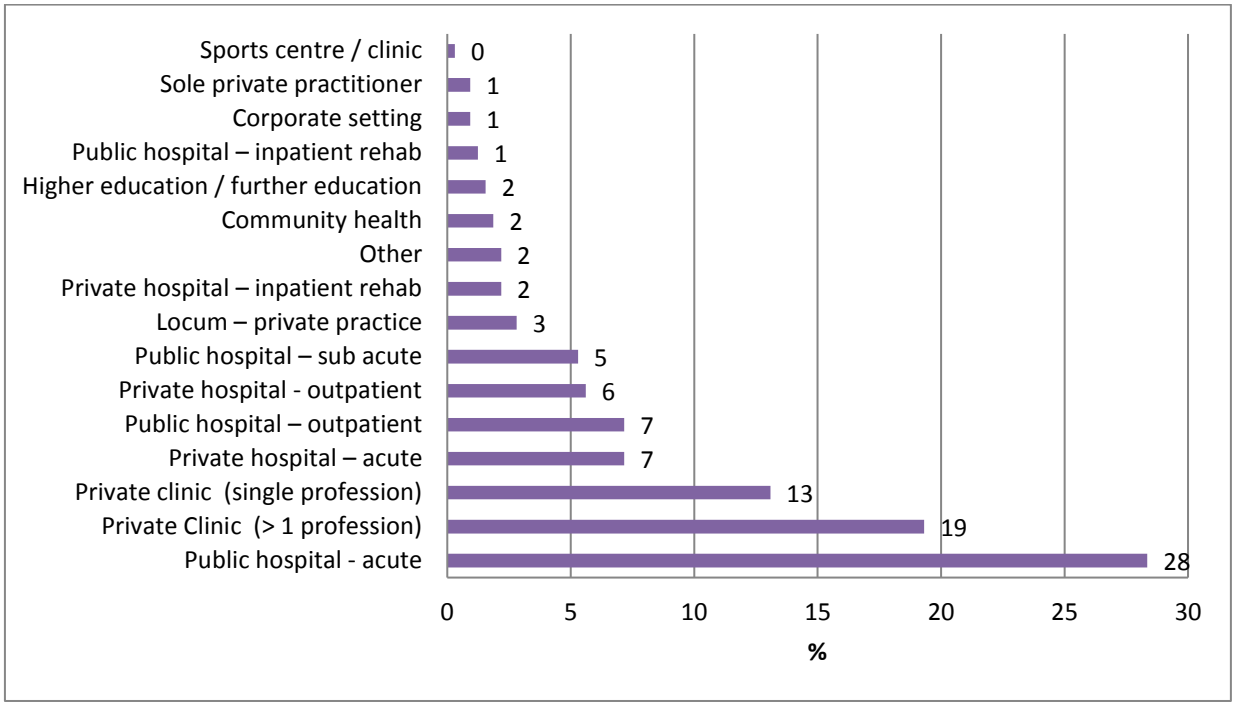
Figure 6: Clients by age (n=223)



Settings

A third of respondents indicated they delivered services in private clinics (either with other professions or as a single profession) and 28% delivered services in acute public hospital settings (Figure 7).

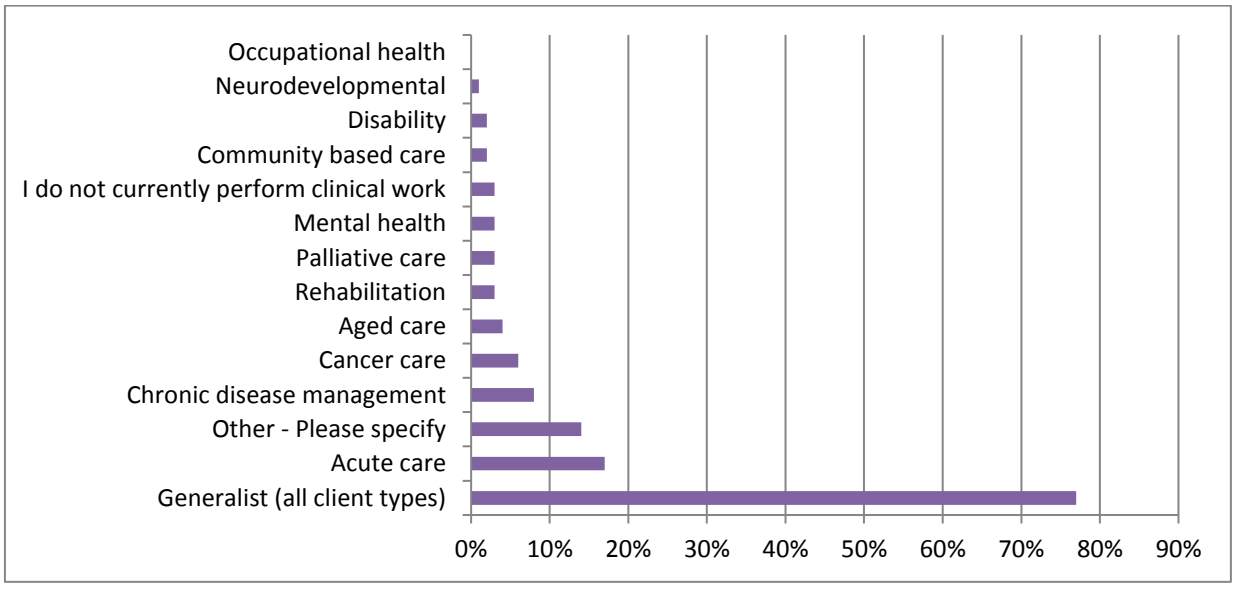
Figure 7: Setting for service delivery of current main employer (n=229)



Area of practice

Sonographers worked predominantly in generalist roles (78%), while fewer than 20% of survey respondents worked in specialised areas such as acute care, cancer care, aged care and palliative care (Figure 8).

Figure 8: Areas of practice (n=217)



Demand

There were no quantifiable measures of demand for sonography from the data collected. Respondents described demand for sonographers from the perspective of high volume client throughput and high workloads caused by a perceived shortage of sonographers in the workplace, particularly in hospitals.

While there is substantial evidence of unmet need for sonography services, the extent of the demand is not well quantified.

Supply

There are a number of factors that interact with and influence the supply of sonographers. These include the size of the sonography workforce, the number of graduating sonographers, the profession's age and gender profile, employment grades, remoteness, remuneration, and local approaches to recruitment.

Sonography workforce

In 2011 there were 669 sonographers residing in Victoria (ABS, 2011) and in 2015, 1,158 accredited qualified sonographers (ASAR, cited in Department of Employment 2015).

Student completions

Between 2010 and 2015, an average of 50 students per year completed a course in sonography (unpublished data, Department of Education and Training[1]). Just over a third (35%) of respondents to this survey received their sonography qualification in the last nine years.

The traditional path into a sonography career is for medical imaging technologists to complete a postgraduate course in medical ultrasound, either as a graduate diploma or a master's level course. However, ultrasound skills are increasingly being sought by other types of clinicians. The Australian Society of Ultrasound in Medicine (ASUM) has developed a *Certificate of Clinician Performed Ultrasound* for medical practitioners who are not imaging specialists but who may use ultrasound as a diagnostic tool at the point of care, as well as a *Certificate in Allied Health Ultrasound* for practitioners such as nurses, physiotherapists and paramedics. These are much shorter courses than the postgraduate courses, focused on specific medical specialities and require significantly fewer completed scans to gain the qualification (ASUM, 2014).

There is debate about whether sonography should only be practiced by university-trained professionals or whether it can be taught via the vocational education and training sector. Currently, nationally only seven percent (7%) of Australian Sonography Association (ASA) members have a higher qualification (master's or PhD), while 86% have a postgraduate qualification in ultrasound (ASA, 2014). Focus group participants were concerned about the number of non-medical imaging specialists undertaking ultrasound courses.

"Too many graduate ultrasound courses are opening up. The profession should be restricted to professionals from a medical imaging background."

In 2013, Central Queensland University began delivering a four-year combined bachelor / graduate diploma program in medical sonography in Melbourne. It is possible that over time this educational pathway will begin to address the workforce shortage of medical sonographers by permitting school leavers to access the career directly, as occurs in other health professions.

Ironically, the longer duration of training, alongside limited training programs is likely to contribute to increased workforce shortages, placing pressure on the quality and access of service delivery.

[1] The Department of Education and Training (DET) conducts the Higher Education Statistics Collection, which provides information on the number of student commencements and completions in higher education courses. While DET data does not identify those courses that lead to professional-entry for most disciplines, using information supplied by DET (in a particular field of education and course name), the Victorian Department of Health and Human Services has estimated the number of domestic students commencing and completing professional-entry courses for selected disciplines. Given this is an estimate; caution should be used in interpreting these data.

Workforce supply

There were several indicators that signified sonography faces workforce shortages including difficulties recruiting sonographers, long waiting times to fill positions, an inability to provide backfill for and plan for unplanned leave, and challenges recruiting staff in rural areas.

AHWQ, AHOMT and focus group respondents identified a number of indicators of significant sonography workforce shortages including:

- long waiting periods for non-urgent scans of between three and 12 weeks (public sector)
- longer inpatient stays (public sector)
- inability to provide services (public sector) and reduced service volumes
- high volume client throughput 'volume scanning'
- service rationing e.g. shorter consultation times
- high equipment to sonographer ratio
- sonographers overworked / working long hours

There is reasonable evidence of workforce shortages across the sonography profession, with explicit shortages in grade 3 and 4 roles (Table 4), and across most regions (although the regional data are patchy). Some reasons for unfilled sonography positions were provided by 13 AHOMT respondents (Table 5).

Table 4: Workforce shortages (n=25 organisations representing 102 sites)

	Total EFT currently employed	Total Headcount	Unfilled EFT in this role	Shortages in this role (EFT not funded but required to meet demand)	EFT currently unfilled for ≥ 6 months
< $52,000 per annum	1.57	6	0	0	0
Grade 1	2.5	2	0	0	0
Grade 2	9.5	4.5	0	0	0
Grade 3	49.6	57.26	6.5	7	8.5
Grade 4	22.1	13	1	2	2
Grade 4 Tutor	2.1	2	0.5	0	0

EFT = Equivalent full time

The lack of capacity in the public system is not necessarily relieved by the private or tertiary sector as cost is often a barrier to clients for private consultation and tertiary centres are not providing similar services. Obstetric ultrasound was highlighted as an area being affected by lack of capacity.

"[we] recently had patient complaint from pregnant woman unable to access ultrasound during pregnancy at our service. Services were referred out of health service [AHOMT]."

"Obstetric ultrasound is particularly difficult with private providers charging for scans and the tertiary centres doing less/no screening."

There are concerns that the shortage of staff and high volume of client throughput is lowering clinical quality and reducing the reputation of services and the profession. This is compounded by current funding structures that reward quantity of service and not quality. Some report that managers are forced

to perform clinical over management roles and locums are being increasingly relied upon to clear waiting lists.

"Quality of scanning. Sonographer's especially in private practice, being paid per patient, doing 40 plus examinations per day, there are quality issues related to this."

The focus group participants were concerned that the pressure to increase throughput in both public and private sectors means that sonographers are being forced to cut corners.

"Some large private practices are wanting to mandate 10 minute scans across the board. This is a major problem."

"You can't conduct full abdominal exam in 5 minutes – it's irresponsible. But this is an emerging trend in our profession."

Another issue participants experienced due to workforce shortages is people not being released for training, which has a flow on effect for career paths, quality of practice, use of new models of care.

"People are allocated training but staff shortages mean they can't do the training so can't get to the next level"

Qualitative data from both the AHWQ and focus groups indicates that the shortage of sonographers impacts on the occupational health and safety for workers. There are high risks of workplace injury for sonographers from the repetitive nature of the sonography tasks compounded by the higher numbers of obese clients accessing services. While more ergonomic equipment and guidelines around patient positioning has helped, sonographers are still being injured.

"More ergonomic work place set ups and equipment to decrease the number of MSK and RSI injuries monographers are prone to suffer."

"Obesity. I think we need to have very clear guidelines of our physical limitations in dealing with obese patients. Limitations are placed on other imaging modalities due to table weight capacities unfortunately in ultrasound this is not the case so we are expected to perform multiple ultrasounds on obese and bariatric patients with the immeasurable cost of workplace injury."

"Number of scans per sonographer per 8 hours work shift should not exceed more than 12 scans per 8 hours shift."

Unfilled positions

Focus group participants highlighted workforce shortages as a significant issue and reported that positions might be available but they often go unfilled, either due to lack of resources or lack of qualified staff.

"[we] have more ultrasound machines than sonographers".

"Our current sonographers work long hours. They are overworked. They have to do lots of weekend shifts. Patients need to wait long times for their scans."

"There's a shortage of sonographers. If people start to leave we will be in trouble. Particularly in the public system."

"We have one chief sonographer, but the position is not filled so everyone's the chief."

Table 5: Reasons for unfilled positions

No unfilled positions	Lack of applicants	Lack of suitably qualified applicants	Funding unavailable from service	Total responses
4	3	5	1	13

Respondents could select more than one response

Reported impacts of these factors included:

- substandard clinical quality
- workplace injury, resulting in more WorkCover claims e.g. repetitive strain injuries (RSI)
- loss of business / having to refer clients out of the service for their scan
- increased acute hospital inpatient costs
- increased staffing costs due to employment of locum sonographers
- staff stress and burnout
- reduced reputation of the service and profession
- management and education staff forced to perform clinical duties in lieu of management or training role
- staff not released for training
- client complaints

Recruitment

Delays in recruitment and relatively few applicants for advertised sonography positions were reported by focus group participants and AHOMT respondents (Table 6).

"Grade 1 and 2 sonographers are only sourced in-house from current radiography staff. Our ultrasound training positions are part of our total radiography EFT [equivalent full time] and trainee sonographers are utilised for radiographer backfill for unexpected leave (mainly sick leave) when required. … We have advertised for a chief sonographer for 2 plus years and have yet to find a candidate suitable to organisational needs."

Table 6: Time to fill vacancies

No vacancies	0 - 5 weeks	6 - 10 weeks	11 - 20 weeks	> 20 weeks	Total responses
6	4	7	3	10	**30**
20%	13%	23%	10%	33%	**100%**

The most successful recruitment strategy used by respondents was advertising via professional associations. Few other methods appear to be successful; however this is based on a small number of responses.

A mix of barriers to recruitment were identified by various respondents and included:

- remoteness of location (regional/rural areas)
- lack of autonomy and professional status/recognition
- complexity of clients in the public system

- lack of career pathways
- disparity between public and private sector pay
- challenges finding experienced sonographers
- less desirable/accessible suburbs of Melbourne difficult to recruit.

The difference in pay rates between public and private sectors is considered a significant issue for recruiting sonographers. A perceived heavier workload due to staff shortages and more complex inpatient clients affected recruitment in the public sector.

"Public pay rates are MUCH less than private and the workload much heavier (inpatients are complex, difficult and demanding compared to ambulant Medicare outpatient settings - the award system is TOO restrictive."

"We are a public hospital and pay sonographers according to EBA [enterprise bargaining agreement] entitlements… a number of private practices surrounding us pay sonographers far more than public hospital rates."

"We have an extremely diverse caseload with sonographers who work for us requiring skills across complex obstetrics, gynaecology, paediatrics, general ultrasound, vascular and MSK."

"Temporary vacancies (such as maternity leave) are extremely difficult to fill and usually only option is to use contract or agency staff for whom cost is far greater than that of position to be replaced."

Despite the pay differential, many focus group participants said they prefer the public sector due to the breadth of work and the challenges presented by the more complex cases, but trainee positions in the public sector are hard to come by.

"Inpatients are complicated and immobility, comorbidities and more difficult work. But that's also a learning opportunity. As a trainee I'd be happy to stay for 5 years in public."

"They go private because there aren't that number of public traineeships so they don't have the choice."

Retention

Around 24% of respondents said that they intended to leave the profession within five years (Figure 9). Most people planned to stay in the profession and in their current employment sector for over six years and about half said they will stay in their current role for more than six years (Figure 9). Less than 1% of responders intended to leave the profession in the next 12 months.

Of those who intend to change their career in the next 12 months (n=16), the majority intended to move into a similar role in another organisation (Figure 10). The main reason cited for changing roles was better working conditions (n=10) and better pay (n=8) (Appendix Table 9).

Figure 9: Cumulative intention to change current job situation by years

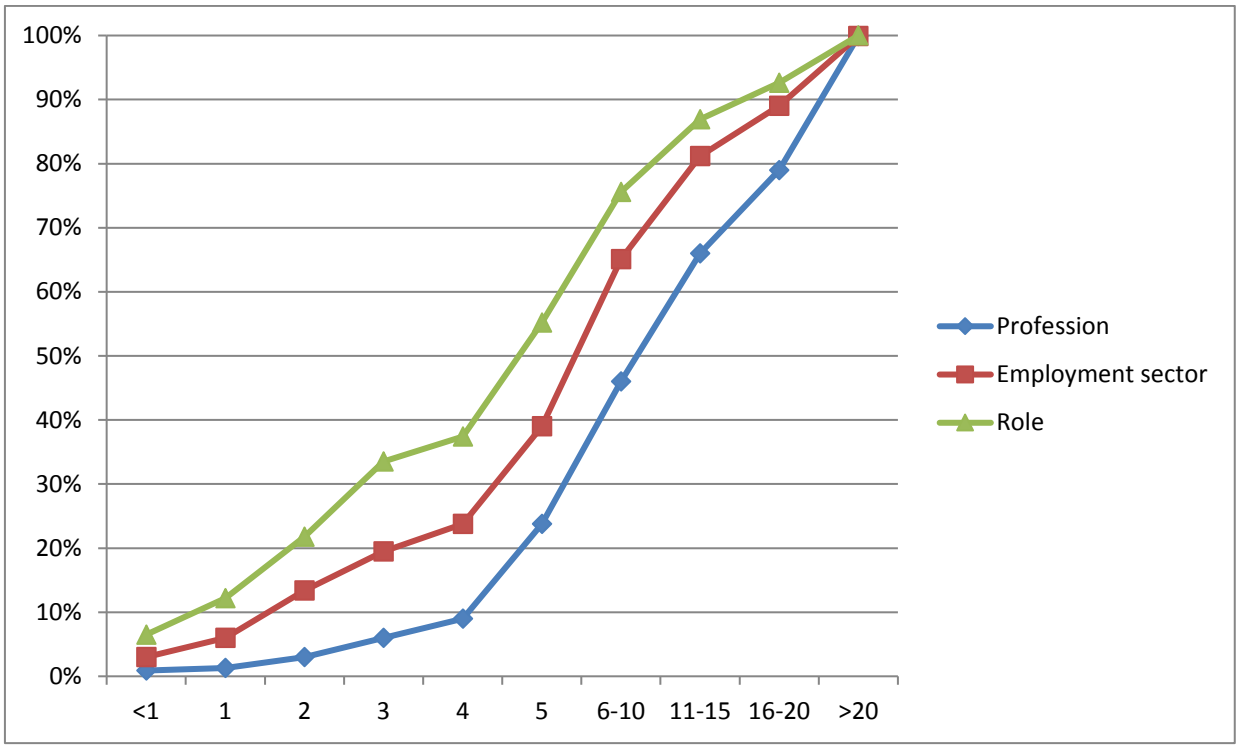
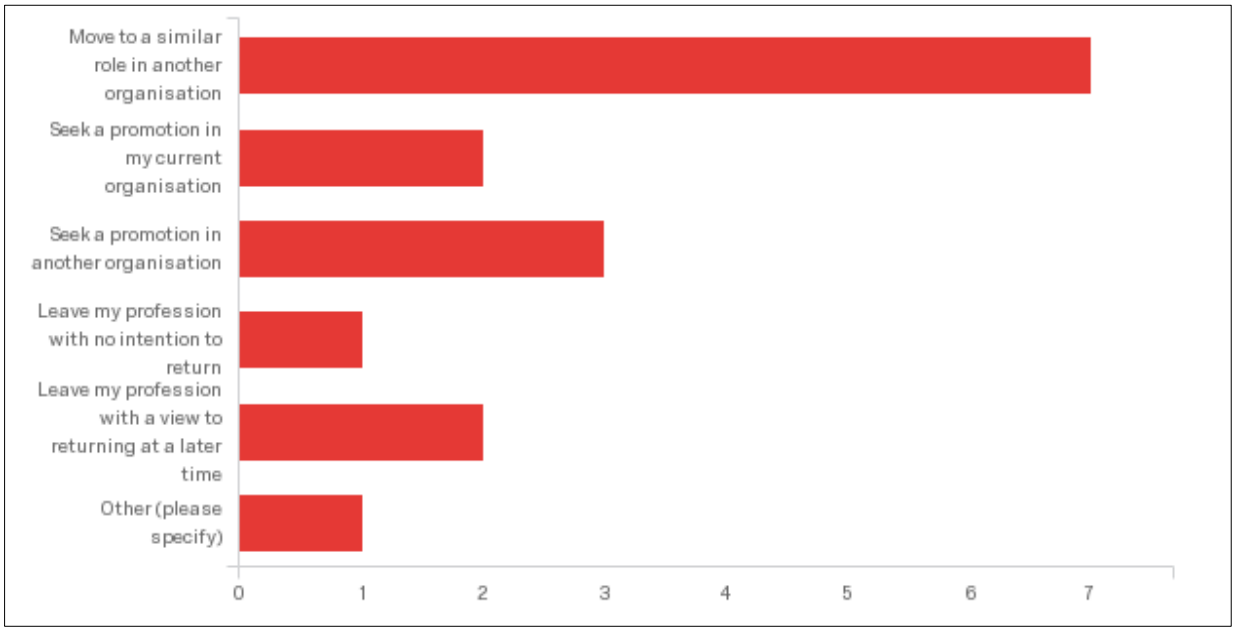


Figure 10: Career intentions over the next 12 months (n=16)



Focus group participants stated that flexible employment conditions contribute to the high retention rate. Employment intentions suggest high workforce stability with fewer than 7% (n=15) intending to leave their current role and only around 3% (n=7) planning to leave their current employment sector.

"Because sonographers are scarce, employers, especially in the private sector, are more likely to accommodate flexible working arrangements, particularly for people returning to work from maternity leave."

"People don't leave the profession entirely but tend to go to the private sector once they've got enough skills. Private doesn't have to deal with inpatients, a lot less complicated work and better paid."

The main issues contributing to retention challenges included:

- pay rates being higher elsewhere (public vs private sector pay)
- the need for more autonomy and greater professional recognition
- complexity of work in the public sector.

Organisation of the workforce

Pay and award

The median annual earnings for sonographers were between $90,000 and $99,000. The majority of respondents earned between $80,000 and $110,000 last year (2015) (Figure 11); equivalent to a grade 3 or 4 position in the public sector. The private sector included slightly more practitioners employed at higher grades than the public sector and NFP workforces (Figure 12).

Figure 11: Total annual income last year, before tax

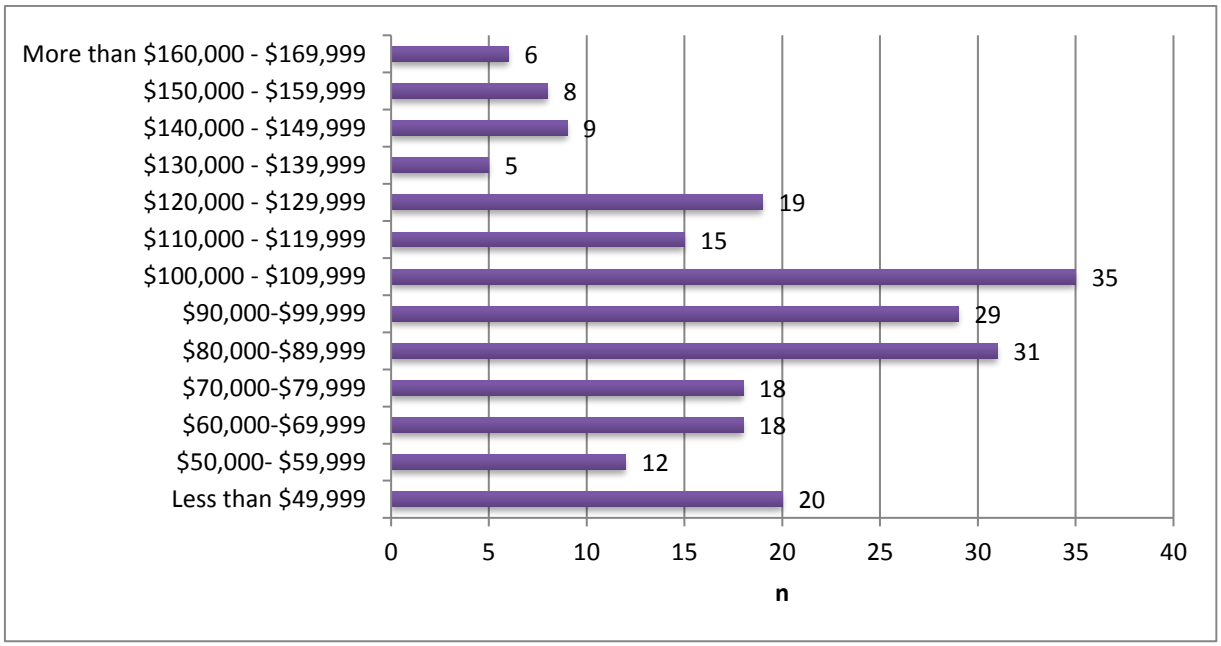
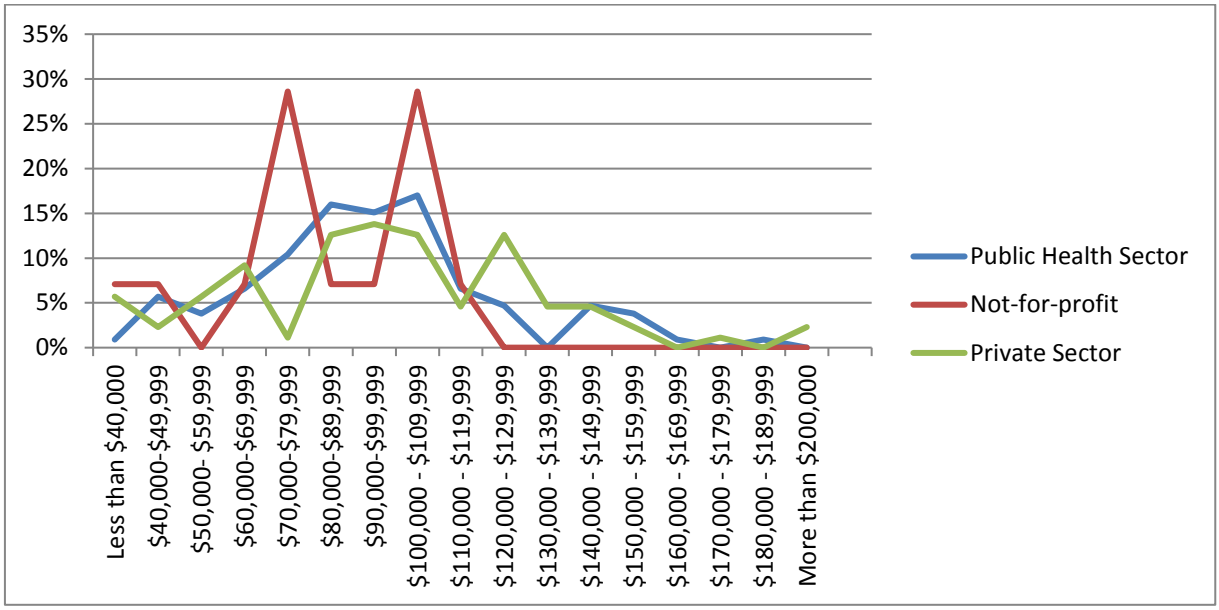


Figure 12: Pay range by sector



Respondents excluded from this analysis included self-employed, other public sector employers and other (n=16).

Hours of work

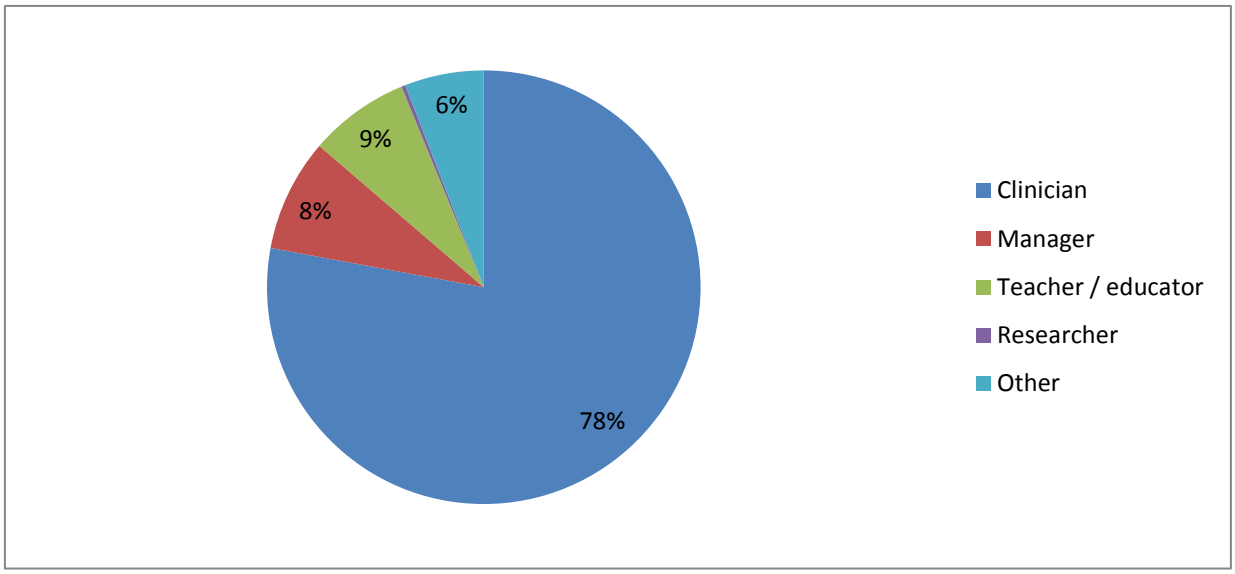
A typical working week for sonographers involved 30 hours performing clinical work, 10 hours of teaching, supervising or educating, and eight hours of management and administration. Most performed their duties between 7am and 7pm Monday to Friday (n=224) with a small proportion working on Saturdays, Sundays and on call. Focus group participants indicated that out of hours work has really grown in the public sector and that this suits some people and their family life, but only if it is an option, rather than compulsory. In some organisations people are required to work on call. One participant indicated that unpaid overtime was an expectation for trainees.

Most sonographers worked for one employer (76%) with a large proportion working 32 - 40 hours per week (n=89). A smaller percentage worked across two employers (19%), often working 8 - 16 hours per week for each employer (n=86). There are reasonable proportions who are working in excess of 44 hours per week across several employers (n=47). (Appendix Table 1)

Roles

Respondents' primary roles were mostly clinical (78%) with a small percentage reporting management (8%), teaching (8%), or research (<1%) as their primary role (Figure 13).

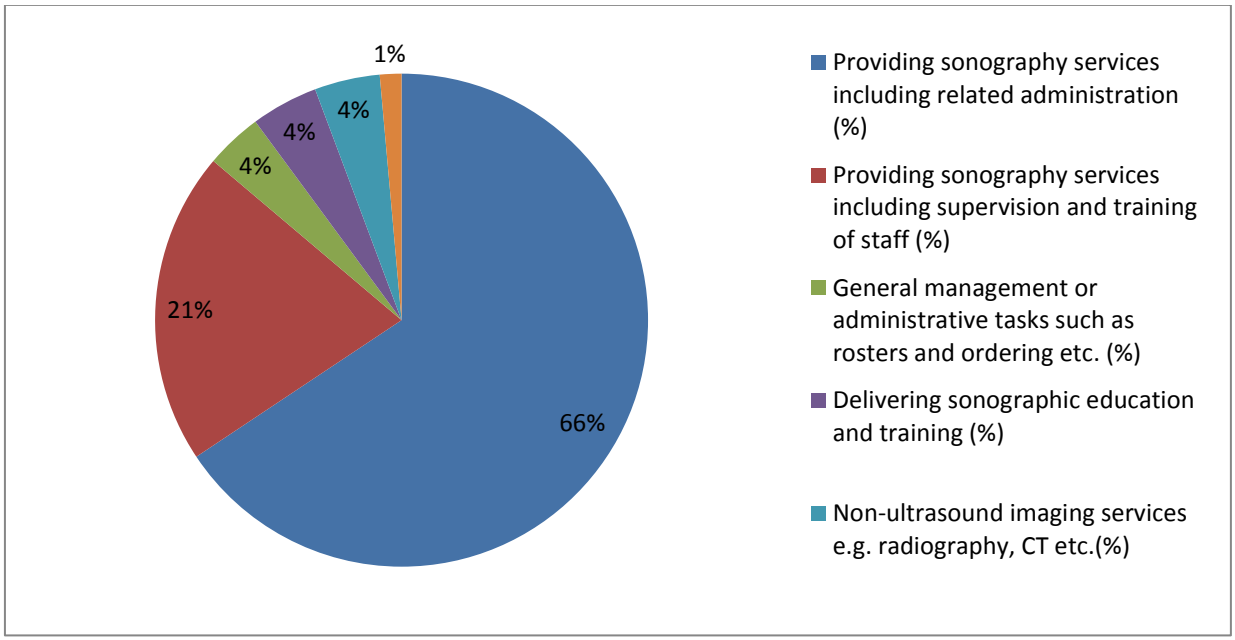
Figure 13: Primary role across all current employers



'Other' included studying and departmental quality manager.

The proportion of time spent performing different tasks reinforces the predominantly clinical nature of sonography work, with 66% of sonographers' time spent providing sonography services and 21% providing services and supervision and training of staff (Figure 14).

Figure 14: Proportion of time spent in different activities



Scope of practice

Advanced practice

The following definition of advanced scope of practice was used and respondents were asked to describe their advanced scope of practice role.

> *Work that is currently within the scope of practice for your profession, but that through custom and practice has been performed by other professions. The advanced role requires additional training,*

competency development as well as significant clinical experience. Examples include non-medical prescribing (e.g. pharmacy, podiatry), physiotherapy led post-operative review clinics; physiotherapy and occupational therapy led spasticity and intervention clinics.

Few respondents (13%) reported that their work involved advanced scope of practice. The most common advanced practice roles identified included performing nursing / clinical duties during procedures (including drug contrast administration, intravenous cannulation, ultrasound guided steroid injections, MSK injections/interventions, fine needle aspiration and biopsies), undertaking research, providing interim reports to doctors for urgent scans/reporting/assisting radiology doctors with diagnosis and second opinion, and nuchal translucency scanning.

These advanced roles demonstrate that other practitioners are delegating roles to sonographers (e.g. radiologists/emergency medical staff); however respondents reported a distinct lack of recognition for performing such tasks. This highlights that the professional boundaries between radiologists and sonographers are a particular issue:

"Radiologists turf. They are unwilling to allow us to perform tasks traditionally performed by doctors."

Many respondents said they would like to be able to do reporting as part of mainstream practice and be recognised for this.

"We need to work more closely with radiologists on (reporting). Some already do reporting - vascular sonographers and cardiac sonographers, but mainstream sonographers less so. But we all effectively report in a lot of circumstances for example verbally in the emergency department. This work is unrecognised. Also reporting occurs in rural areas."

Focus group participants indicated that sonographers feel dependent on their radiologists in relation to whether they are encouraged to embrace innovative approaches or remain limited in their practice.

"One radiologist was very passionate about contrast use and therefore we were able to do things that wouldn't be possible if he wasn't there. Relationships with others are important for enabling the innovation opportunities."

Allied health assistants (AHA)

One in five respondents (20%) reported their work involved delegation to an AHA.

Sonographers who participated in the focus groups indicated that there was nothing in their core role that they could conceivably delegate to AHAs but that AHAs make a big difference in assisting with patient flow through tasks such as organising patient lists, getting patients up and down off beds and cleaning beds.

Telehealth

Only five respondents (2%) reported the use of telehealth in any way and all were public sector employees. Telehealth was used only for clinical education, not delivery of services.

Workforce movement

To identify movement between sectors and settings, respondents were asked to describe the location, sector, role and duration of their first position (starting position), most recent position, and the three most signification positions in between. These results are presented as percentages as not all respondents had five roles. The numbers of respondents for each role are summarised in Table 7.

Table 7: Number of respondents for each position

Position	Numbers of Respondents
Most recent	216
Position 2	143
Position 3	100
Position 4	60
First (starting) position	75

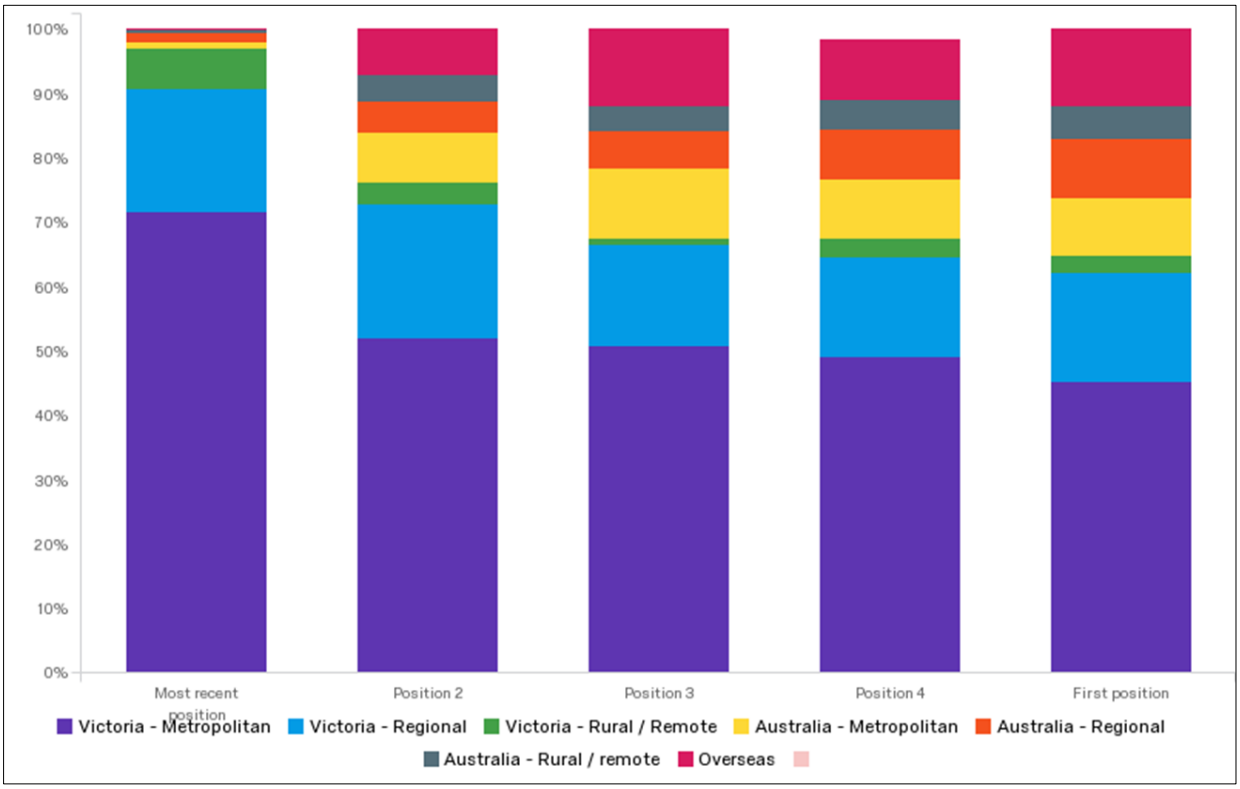
Figures 15 - 18 illustrate the broad trends in movement between sectors and settings.

Changes in location

The AHWQ findings suggest that while geographic distribution changes slightly over the course of a sonographer's career, the profession becomes more metro-centric as their career progresses. The proportion of respondents working in Victorian rural and remote areas was low overall, but increased across the overall career trajectory. Similarly, the proportion of respondents working in regional Victoria increased over the career trajectory. Based on the findings it is reasonable to surmise that the increase in rural and remote workers in Victoria came from interstate migration and sonographers arriving/returning from overseas work.

Sonographers currently working in regional/rural areas were almost seven times more likely to have grown up in a regional/rural area (odds ratio (89.36/13.08 = 6.83).

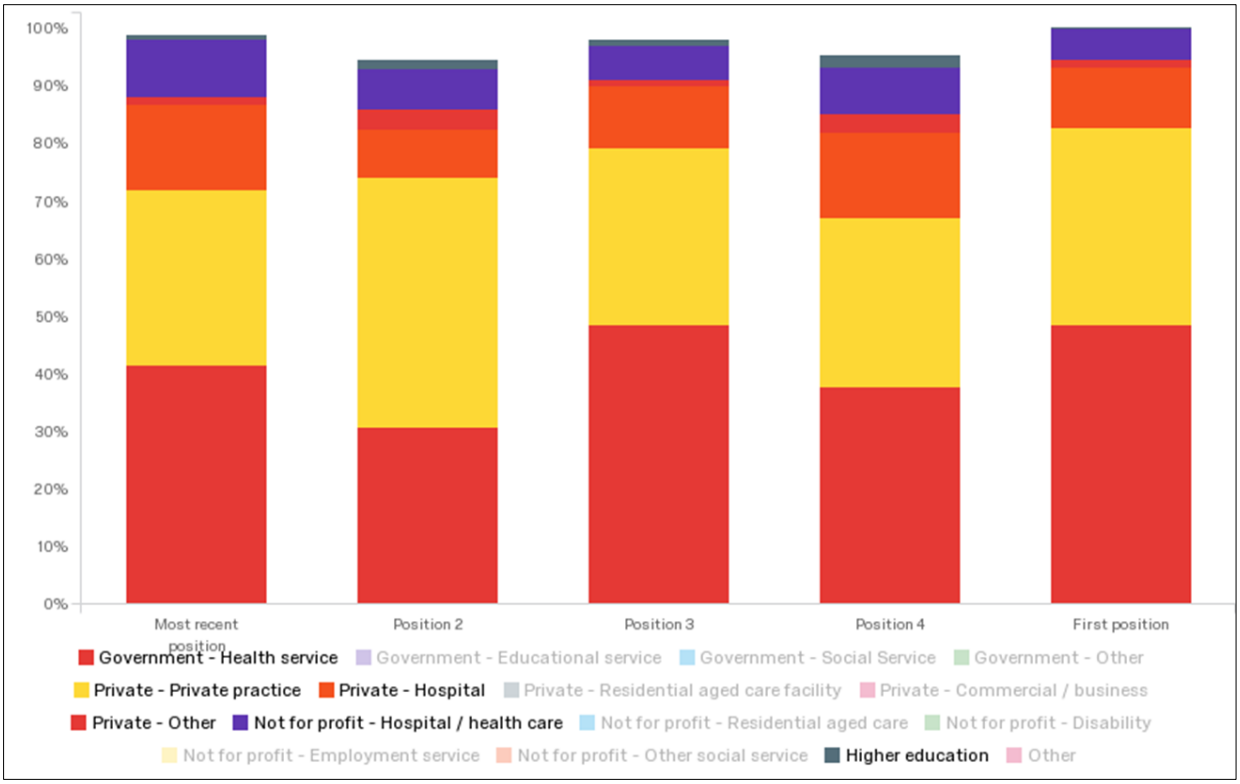
Figure 15: Changes in location across the career path



Changes in sector

The government health sector and private practice accounted for the greatest proportion of sonographers who responded to the survey as their starting position and most recent position. (Note that several of the potential sectors were supressed in this output due to small numbers of respondents which is why the bars do not total 100%).

Figure16: Changes in sector over the career path

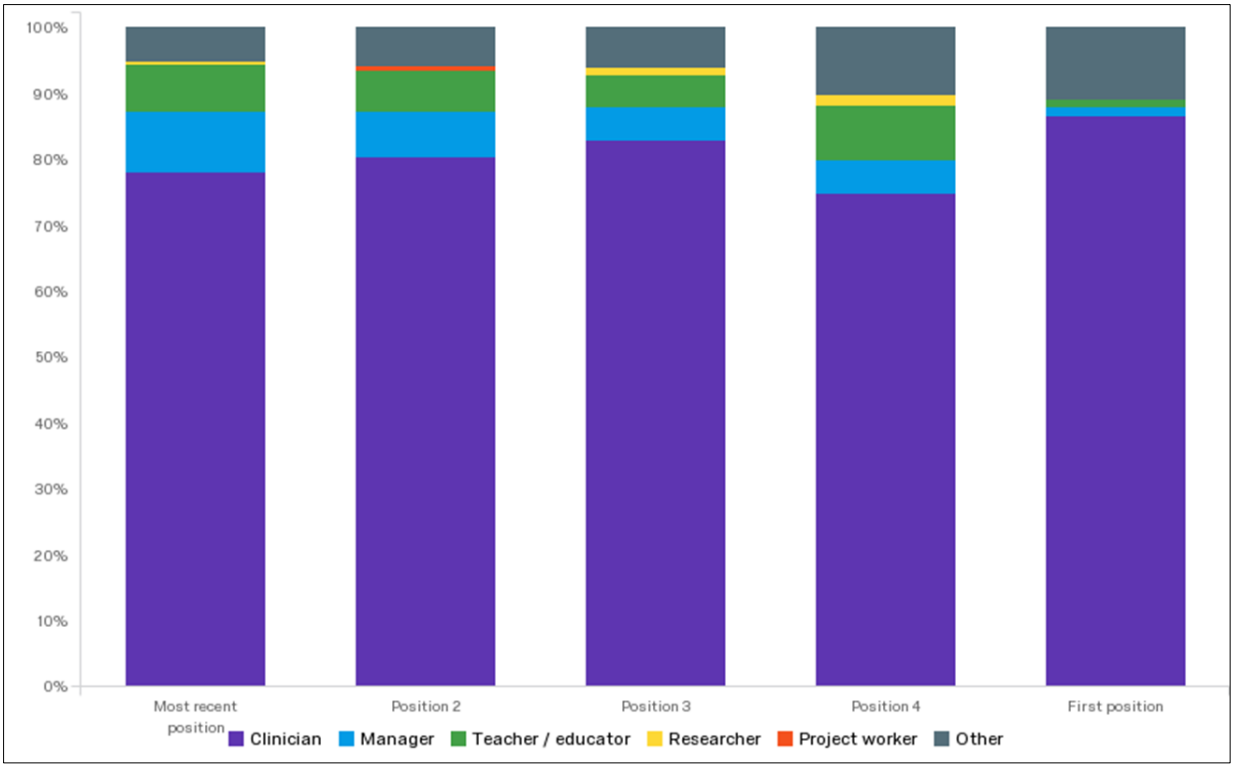


Note: some of the potential sectors were supressed in this output due to small numbers of respondents which is why the bars do not total 100%.

Changes in role

The majority of sonographers primarily work in clinical roles, however, as expected, the proportion of sonographers in managerial positions increases gradually over their career progression, with 10% reporting managerial positions as their most recent role.

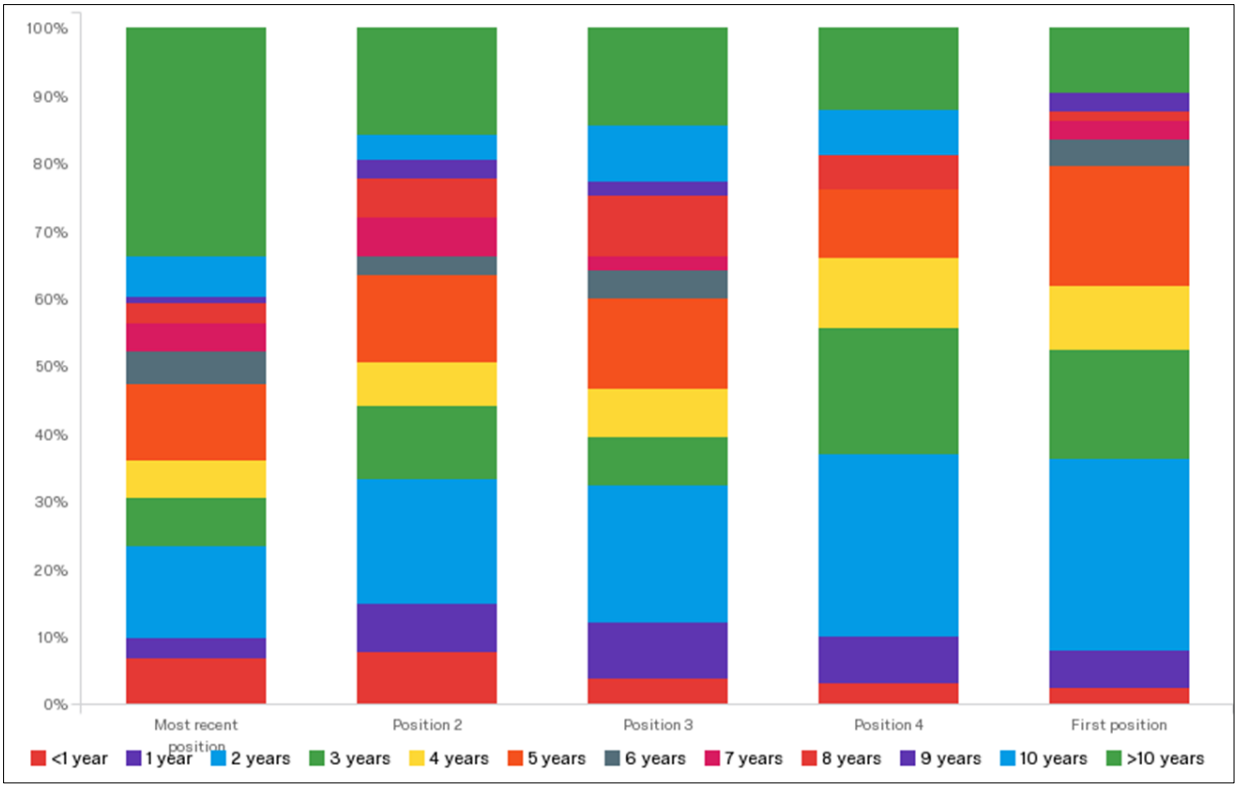
Figure 17: Changes in role over the career path



Years in role

The time that practitioners spent in each role becomes more stable over the duration of their career. Fifty per cent (50%) of respondents reported that they had stayed for three or less years in their starting position, while 40% of respondents reported that they had been in their most recent position for 10 or more years.

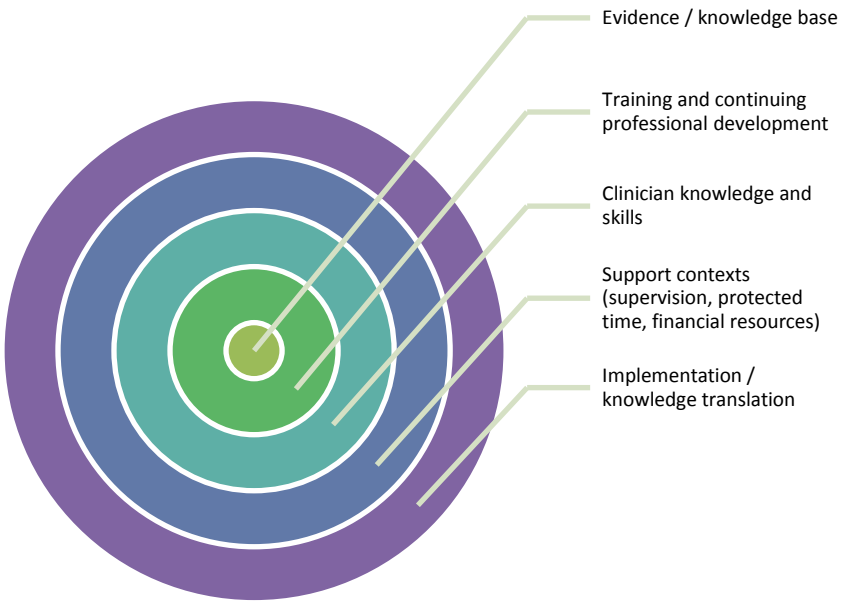
Figure 18: Years in each role over the career path



Capability

Capability refers to the strength of the evidence underpinning relevant sonography activities, access to training and continuing professional development (CPD) to develop the appropriate skills, the standard of skills practitioners have to deliver evidence-based services, the contextual supports available (supervision, mentoring, dedicated time and appropriate funding models), and opportunities for change in practice to occur (i.e. knowledge translation and implementation) (Figure 19).

Figure 19: Workforce capability framework



Key findings

- Sonographers are confident about their skills and capability, but at the same time would value more opportunities for training and supervision.
- Specific skill gaps are not an issue and the quality of Australian graduates is considered high. However, it is hard for those expected to work in a broad range of areas (e.g. rural practitioners, locums) to maintain the breadth of skills required.
- Sonographers are interested in becoming more involved in research. This is an underdeveloped skill in the profession. However, there is little support or reward for undertaking research qualifications. There is opportunity for the profession here.
- Eighty-two per cent (82%) of respondents reported that they had worked in a role or profession other than sonography. The most common of these was as a radiographer (44%), with 17% identifying other health roles including nursing, midwifery, general practitioner (GP), sleep technician and psychiatric assistant.
- There appears to be a tension between the master's qualified sonographers who have a background in radiography and the other modes of training (e.g. undergraduate and postgraduate certificate) suggesting that the profession is factionalised around a belief that there is a minimum knowledge and skill base underpinning professional practice. There was no empirical evidence to support one model over another provided within this study.
- The majority (82%) of respondents were accredited with ASAR as a Medical Sonographers, 32% were accredited with ASAR in another speciality, and only three (1%) respondents reported no ASAR accreditation.
- There appears to be insufficient opportunities and funding support to access training and CPD.
- Extra qualification make minimal difference to pay or employment opportunities and are costly to the practitioner.

Evidence / knowledge base

There was little explicit discussion about the evidence or knowledge base underpinning the sonography profession. Implicitly, the tension between the master's qualified sonographers who have a background in radiography and the other modes of training (e.g. undergraduate and postgraduate certificate) suggests that the profession is factionalised around a belief that there is a minimum knowledge and skill base underpinning professional practice. There was no empirical evidence to support one model of training over another provided within this study.

A small number of sonographers expressed frustration at the lack of a research culture within the sonography profession; this is seen to stifle professional growth.

"I have been very keen in research and spoken to a number of people in authority. No support is given to me and it's quite discouraging."

"We need sonographers to be involved in research. It's the only way to advance the profession and develop practice further."

Training and continuing professional development

Prior work experiences

Eighty-two per cent (82%) of respondents reported that they had worked in a role or profession other than sonography (Appendix Table 5). The most common of these was as a radiographer (44%), with 17% identifying other health roles including nursing, midwifery, general practitioner (GP), sleep technician and psychiatric assistant (Appendix Table 6).

Thirty per cent (30%) of respondents had worked in their alternative profession for 10 or more years. However, in many cases, this reflects the high proportion of respondents who were also trained as a radiographer (Appendix Table 7).

Qualifications

The main qualification held by respondents was a graduate diploma (n=179) and this was the dominant qualification used for entry to practice as a sonographer. In addition, 145 participants hold a bachelor degree: this was the main qualification for entry to practice for 40 respondents (Table 8).

Table 8: Qualifications held or currently studying

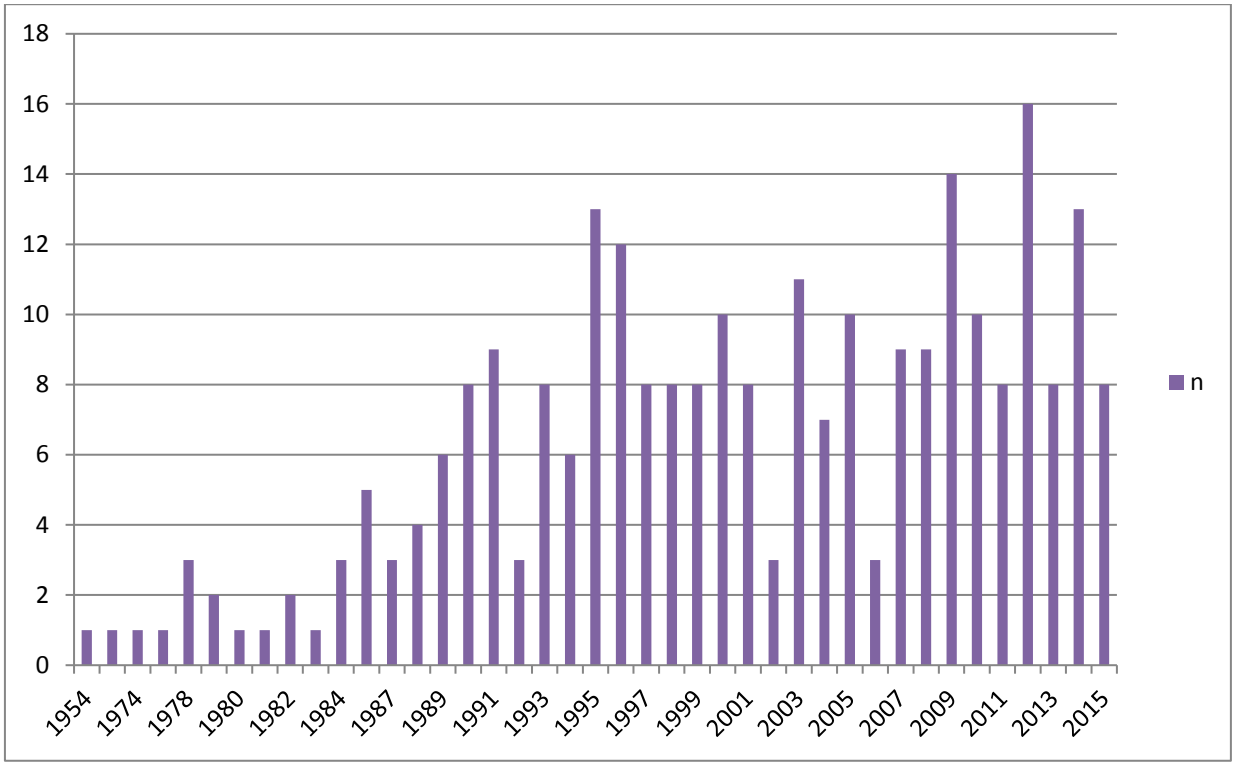
Qualification	Current qualification/s	Qualifications currently studying	Main qualification to practise
Certificate III	6	1	1
Certificate IV	12	1	2
Associate diploma	20	0	14
Advanced diploma	42	0	24
Bachelor Degree	145	1	40
Honours Degree	20	0	3
Graduate Certificate	13	2	3
Graduate Diploma	179	9	128
Master's Degree – Graduate entry	9	0	2

Qualification	Current qualification/s	Qualifications currently studying	Main qualification to practise
Master's degree - Clinical	11	4	3
Master's degree – Management (e.g. MBA)	3	1	0
Master's degree - Research	9	3	1
Professional Doctorate	0	0	0
PhD	1	1	0
No formal qualifications	1		6

Over one third of participants (35%) received their sonography qualification in the last 10 years, with a mean length of time since completing training of 15.6 years (Figure 20). The majority (82%) of respondents were accredited with ASAR as a Medical Sonographers, 32% were accredited with ASAR in another speciality, and only three (1%) respondents reported no ASAR accreditation. These respondents did not report their employment setting (Appendix Table 3).

Most respondents qualified to practise as a sonographer in Victoria (74%), or another Australian state (17%), predominantly New South Wales or South Australia. Only 8% of respondents were trained overseas. The majority of respondents trained in a metropolitan area (97%).

Figure 20: Year of qualification



Participants identified a need for quality training. Respondents noted a lack of access to ongoing training for new sonography positions and a perceived critical shortage of adequately trained sonographers in the workplace. There was a nervousness expressed by a number of participants about the quality of training currently provided and the feeling that training and development opportunities were somewhat ad hoc.

"Increase the quality of training of new sonographers. There is a critical shortage and the gaps are often filled with poorly trained sonographers."

"That all sonographers have appropriate undergraduate and postgraduate qualifications in order to practice, and therefore maintain a high standard for our profession. Having done significant study to obtain these roles, ensure that the remuneration is also appropriate."

The majority of AHWQ survey respondents identified insufficient opportunities to access training and a lack of funding to support CPD.

"There is more opportunity to train in the country, but less access to continuing professional development."

"I'm too busy (understaffed) to have time to further my education."

"My employer does not provide adequate training and ongoing opportunities for continuing professional development - I have to spend my own time and $$ and I cannot afford either!"

However one respondent felt there were sufficient opportunities for CPD.

"Plenty of workshops, meetings and online education programs."

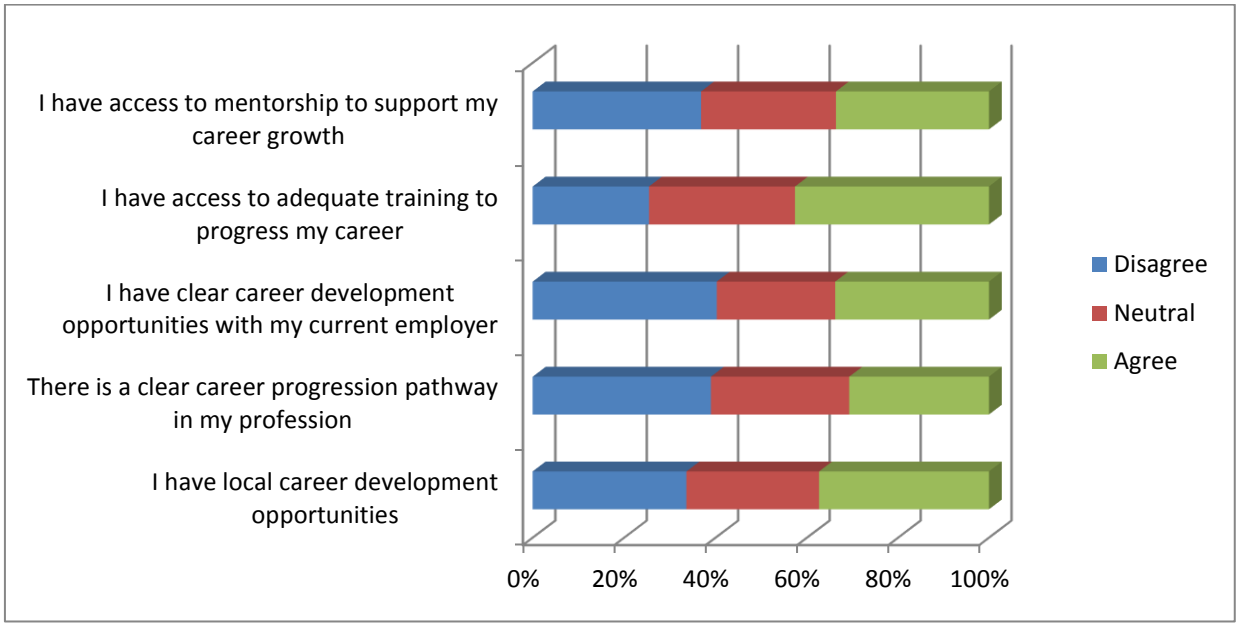
Focus group participants felt that it would be difficult to justify higher level qualifications and specialisation by sonographers. Extra qualifications make minimal difference to pay or employment opportunities and cost a lot of money.

"I investigated doing a master's, but it costs $18,000. I can't justify that given that it won't give me any higher remuneration."

Career development opportunities

A large proportion of respondents (over 40%) reported that career development opportunities available to them with their current employer and in their profession were unclear (Figure 21). A similar proportion of respondents were also dissatisfied with this element of their current position.

Figure 21: Career development opportunities (n=217)



The qualitative data highlighted the need for improved job opportunities, grading scales and career development opportunities. Numerous comments (n=23) related to the lack of career pathways in sonography, lack of more senior positions to advance to, lack of access to clinical training to progress career pathways, lack of career structures with employers and lack of research opportunities. Career opportunities were even more restricted in regional and rural areas.

Focus group participants commented that because sonography often doesn't have its own management structure, it is seen as part of the radiography/imaging structure, this can present barriers for advancement.

"Other than expanding clinical skills and training which for the most part results in no career progression, I believe that there are very few opportunities to progress in your career path. We can always be better sonographers, however in terms of changing or progressing in roles, I think there is virtually no career progression. Grade three, year four and that's about it!!!"

"If you don't want to work doing scan after scan, day after day, the only other options are teaching and management. If there is already an educator and a manager in your department one must then wait (sometimes many years!) for those staff members to move on or retire."

"Career progression is limited by distance - distance to colleagues, distance to education and meetings. It is impossible to attend week night education meetings when there is a four-hour drive each way."

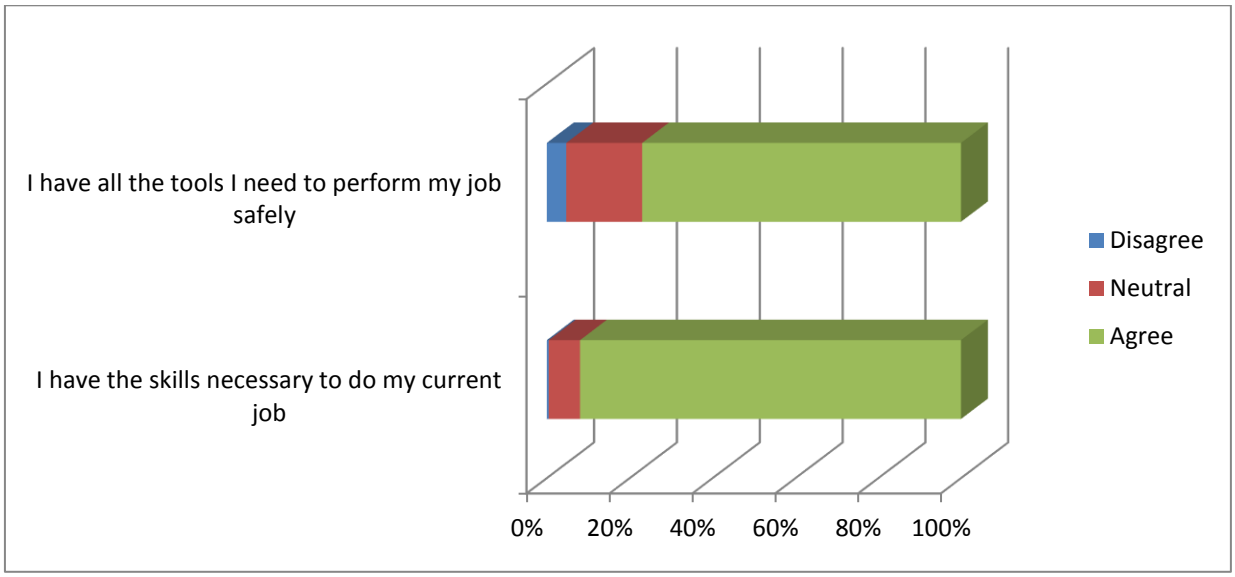
"Sonography is a profession where people get comfortable. Often people are in management roles because they're good at it but then they get stuck there and stay a long time."

"In the private sector there's a low glass ceiling – only a sonographer in charge with limited management time assigned, or a tutor role. Beyond that there are limited options and lots of difference across organisations."

Clinician knowledge and skills

Most survey respondents felt they have the skills necessary to perform their job; however 10% believed that they do not have adequate tools to perform their job safely (Figure 22).

Figure 22: Clinician knowledge and resources



Skill gaps

Few specific skills gaps were identified by sonographers, and the quality of Australian graduates was perceived to be very high. However, a number of quality issues arose in the feedback from practitioners and employers including gaps in skills in internationally qualified graduates, the lack of experience and breadth of skills of locum and rural and remote sonographers.

"Locum agencies have very junior staff that are also looking for training."

"Require locums to have knowledge of all areas - these are rare and would be snapped up by private centres who can afford to pay more."

"Some limit themselves to some areas and do not embrace the notion of an all-encompassing sonographer." (Employer)

"In regional areas sonographers typically have very broad roles. This is hard to do."

"Our sonography workforce is required to provide the full range of ultrasound examinations. It is very difficult to attract staff with this full skill set into the public system. We attempt to upskill our team in-house. However, this can be difficult to achieve as learning new sonography skills is very much a hands on practical requirement and we do not have allocation of additional funding to achieve this so it often has to be an ad-hoc approach when resources allow rather than a planned and funded strategy."

Focus groups identified the MSK area as one where there is limited opportunity to practice in the public facilities.

"We do everything but MSK. That's a gap in my knowledge."

Support contexts to enhance capability

Supervision and support

Associated with the need for better career development opportunities and access to professional development was a recognised need for better supervision and support within the profession.

The majority of sonographers are supervised by another sonographer (64%) while 15% who work clinically had no clinical supervision (Figure 23). However the AHWQ results suggest that the profession are not well supported in their workplace. Just under 40% of the sonography workforce report limited access to peer support, 20% are professionally isolated, less than half report adequate access to clinical supervision and 60% do not have formal management support from a member of their own team (Figure 24).

Of some concern is the reported lack of access to supervision and support by student and newly qualified sonographers, with 40% reporting inadequate access to supervision (Figures 23 & 24).

Lack of time was one reason supervision activities were neglected.

"Lack of management support for the profession, lack of mentoring and lack of appropriate supervision."

"Sometimes supervisors don't get enough time to do the supervising role because they're employed as fulltime sonographers and don't get enough time off the floor to do that role one-on-one."

There was a particular concern amongst focus group participants about new graduates in the private sector lacking appropriate clinical supervision.

"New graduates starting in private – they would definitely have times when they are over their heads because they wouldn't have the same senior staff members and doctors on site that they can question."

This concern was supported in part by the quantitative data; staff working in the private sector reported slightly lower, but statistically significant (p=0.3), levels of access to clinical supervision and mentorship than those working in the public sector (n= 104 and 86 respectively) (Figure 25). However, those working in the private sector also reported less professional isolation, better access to training and slightly better access to help if they need support with clinical decision making: these latter findings were not statistically significant. There were few differences in access to supervision and support when the data was stratified by grade (Figure 26).

Figure 23: Professional background of clinical supervisor

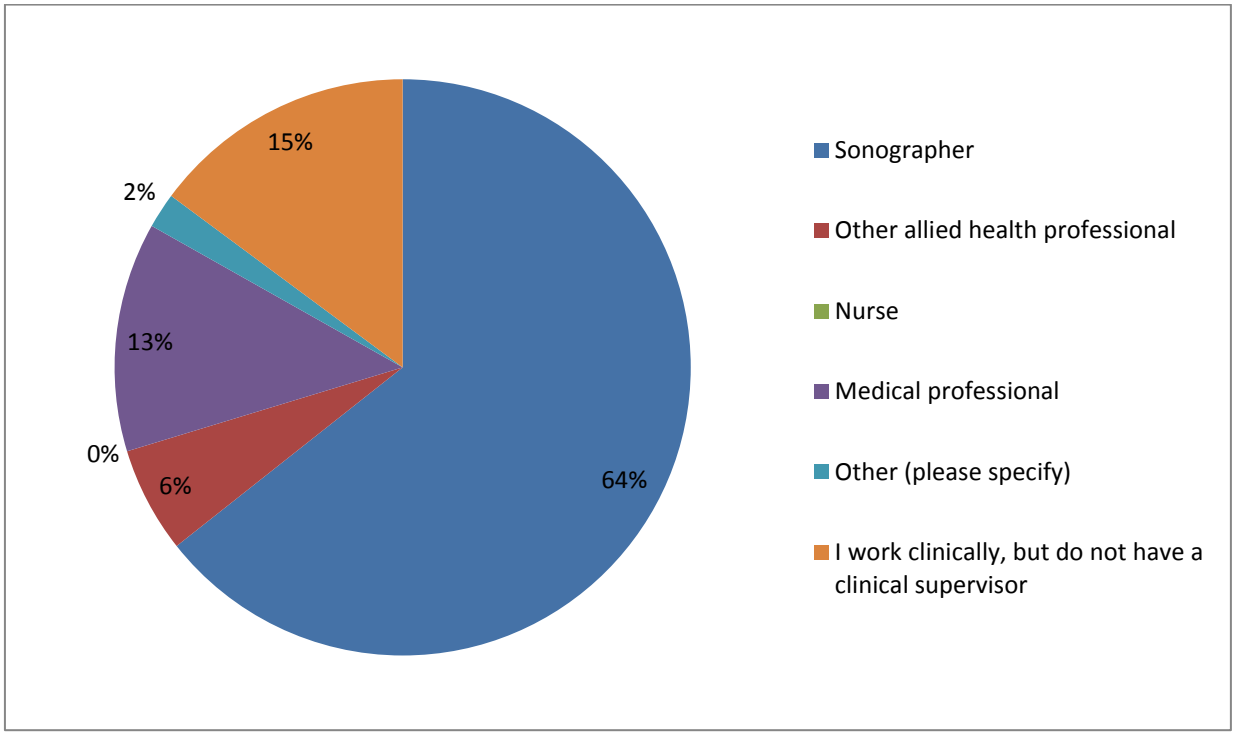


Figure 24: Access to clinical supervision and support

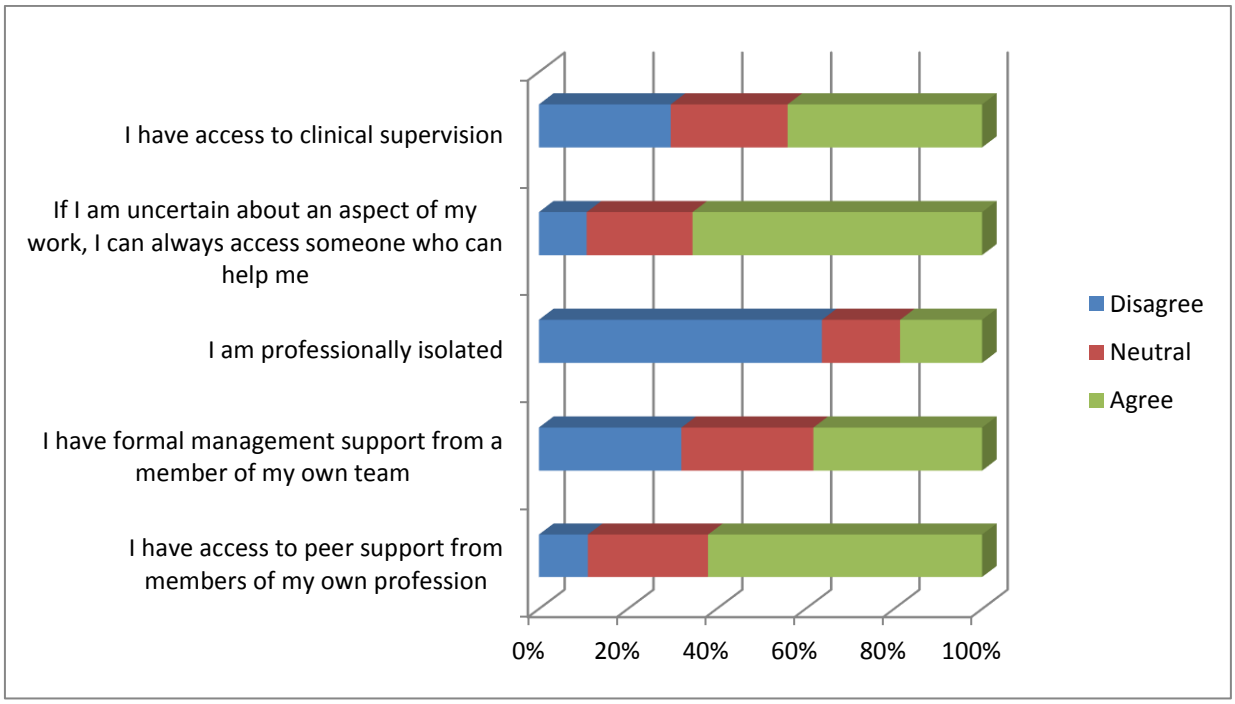
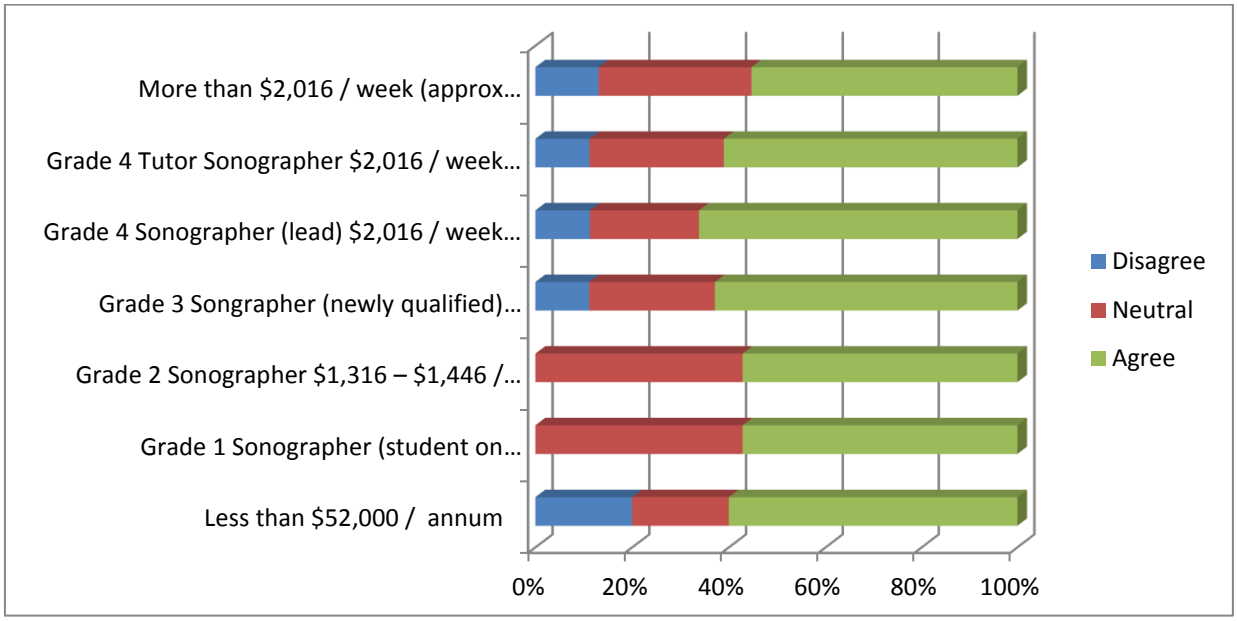


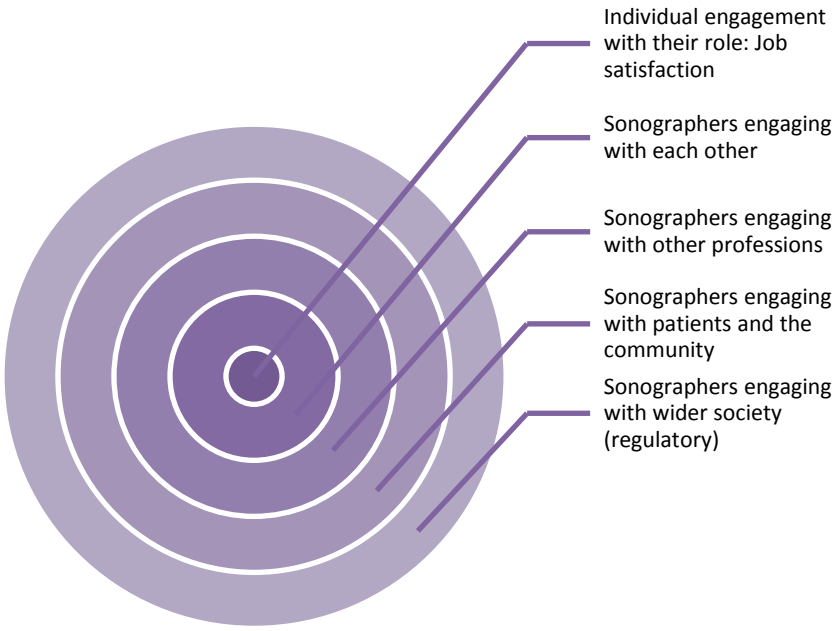
Figure 26: Access to clinical supervision and support by grade / pay level



Engagement

Engagement involves a continuum from the individual practitioner's engagement with their role to the wider engagement of the profession with society through regulatory mechanisms. Within this course there is engagement with the profession, engagement with other professions, and engagement with patients and the community (Figure 27).

Figure 27: Model of engagement



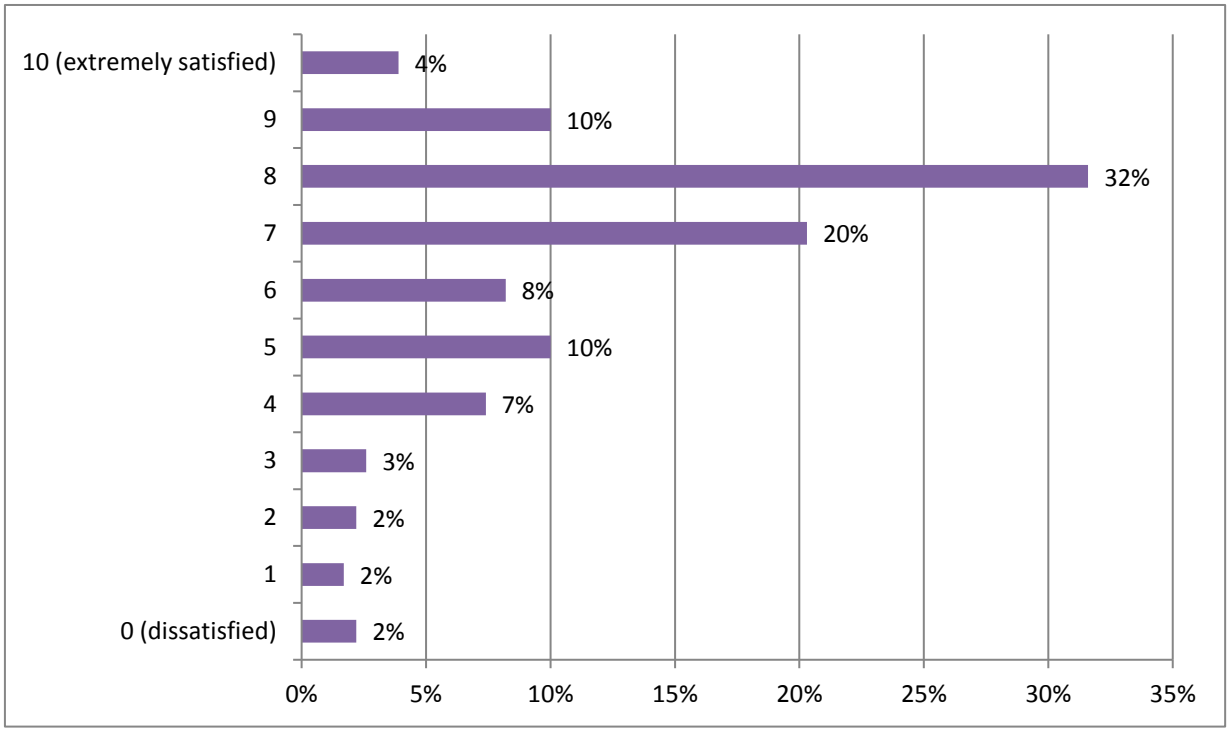
Key findings

- Sonographers are generally satisfied with their jobs, particularly opportunities for work / life balance, challenge and autonomy. Lack of career pathways and limited opportunities to undertake research affected satisfaction. There may be opportunity in the private sector for research opportunities.
- Around 25% of the workforce intends to leave the profession within five years, suggesting that strategies to limit attrition could be beneficial in increasing the workforce.
- Nevertheless, it is a stable profession, with the majority of people intending to stay in their roles for more than six years.
- The professional bodies are well regarded by the profession.
- There are concerns in the profession around providers increasing volume of scans (quantity over quality).
- Opportunity for increased engagement for the profession through advanced practice roles and providing diagnosis from scans.
- Professional recognition is an important issue for the profession. They feel there is a general lack of understanding about their role and respect for what they do.
- Opportunity for sonographers to increase their involvement in clinical and multidisciplinary team meetings to increase understanding of profession.
- No cultural training provided to this profession.

Individual role engagement

Overall, respondents were quite satisfied with their current work situation, with a mean satisfaction score of 7.7 on a scale of 0 - 10 (Figure 28).

Figure 28: Overall satisfaction (n=231)



Focus group participants indicated that they found their careers challenging and rewarding. They stated that the continuing advances in technology added interest and meant their careers were never stagnant. Compared to radiography, sonographers felt they had more independence and control.

"Ultrasound is more satisfying than radiography. It is a lot more independent and involved than radiography. We help diagnose the patient. It's very operator dependent. You're involved in diagnosis."

"You feel that you are worthwhile in the bigger picture of the hospital or bigger medical system, feel like you're challenged – sonography is very challenging which gives a lot of rewards even though sometimes it's too challenging"

The most important factors affecting employment choices were work / life balance, income, location, professional development opportunities and flexibility of hours (Figure 29). However, respondents reported they were dissatisfied with opportunities for career advancement and to undertake research; only one third were satisfied with the income and professional development prospects in their current position (Figure 30).

"I believe sonographers pay in the Victorian public health system is quite poor. I work in a major trauma hospital involving shift work and within the last 10 years it has become very busy. I enjoy my job caring for patients. However, the increased workload for sonographers in my department is not well recognised. We are expected to scan very difficult patients in short time spans in order to 'get through the work!' At times, there are no tea breaks. I also feel it is difficult to employ sonographers as it is very busy. An increase in pay might help this factor and work as an incentive to attract radiographers in becoming sonographers."

Figure 29: Importance of factors affecting employment choices

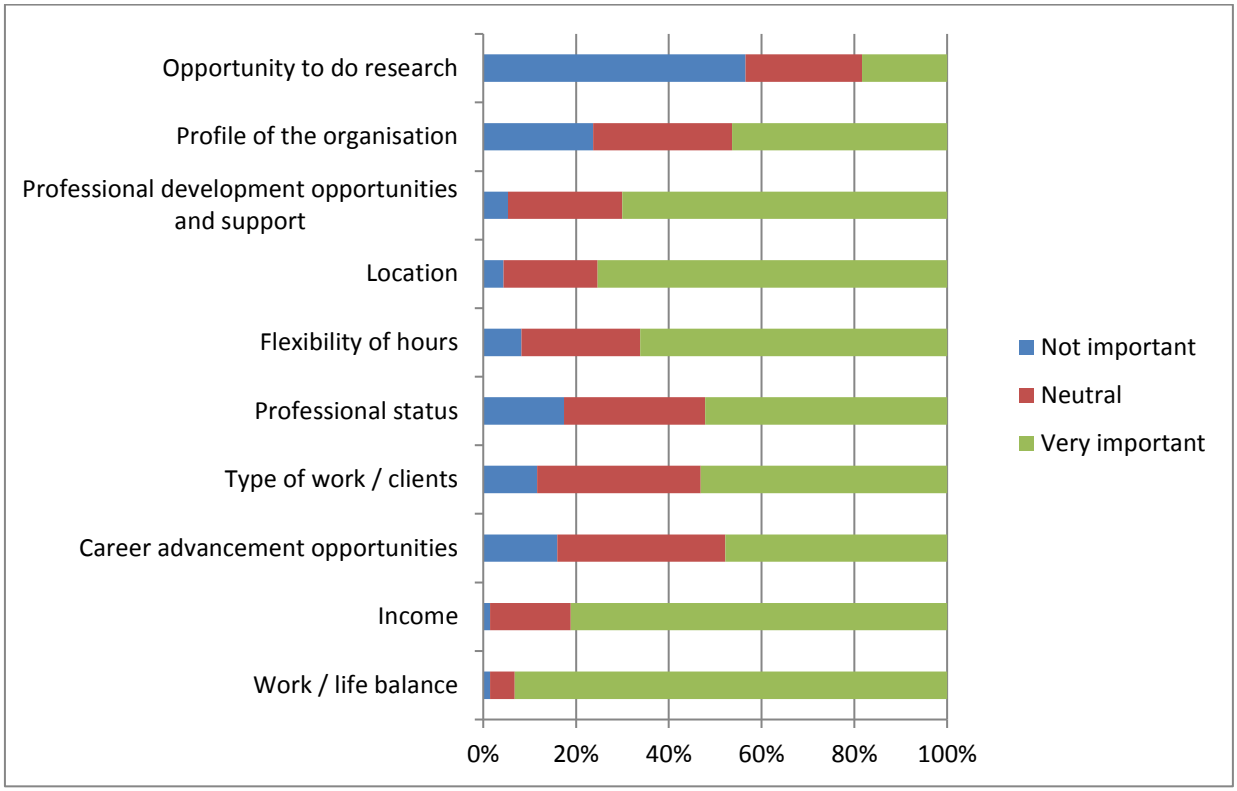
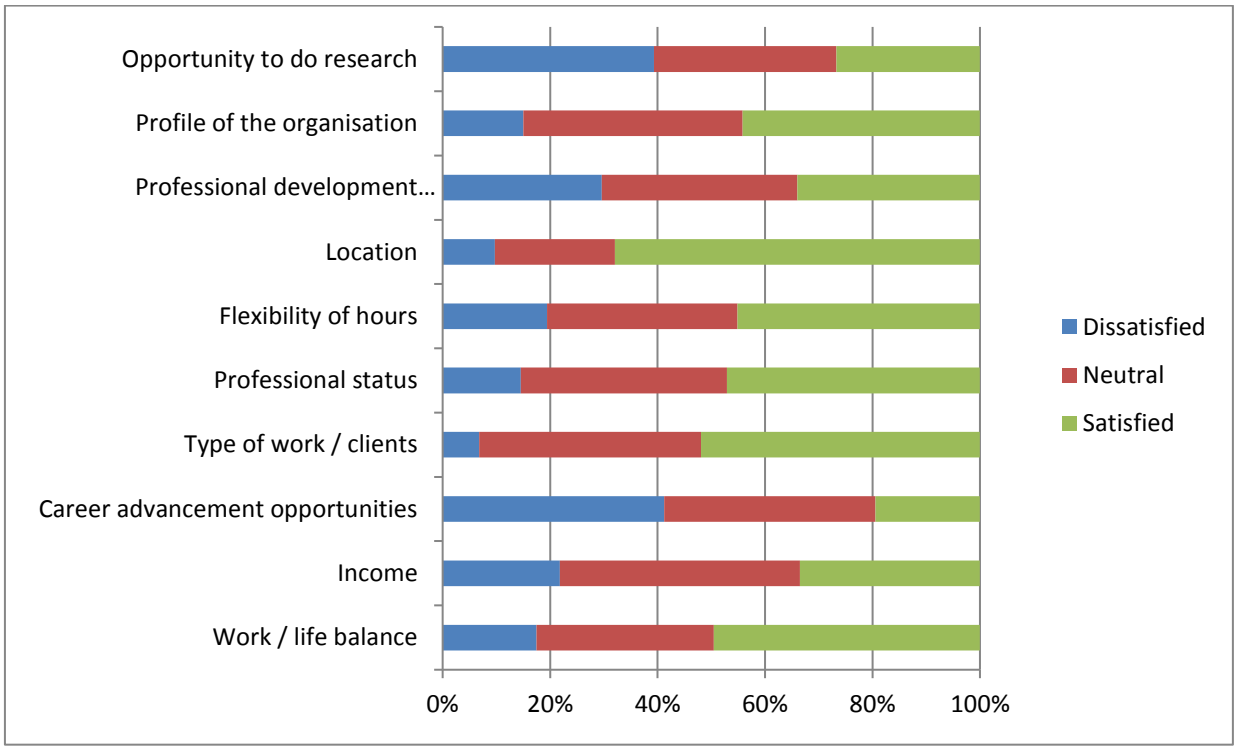
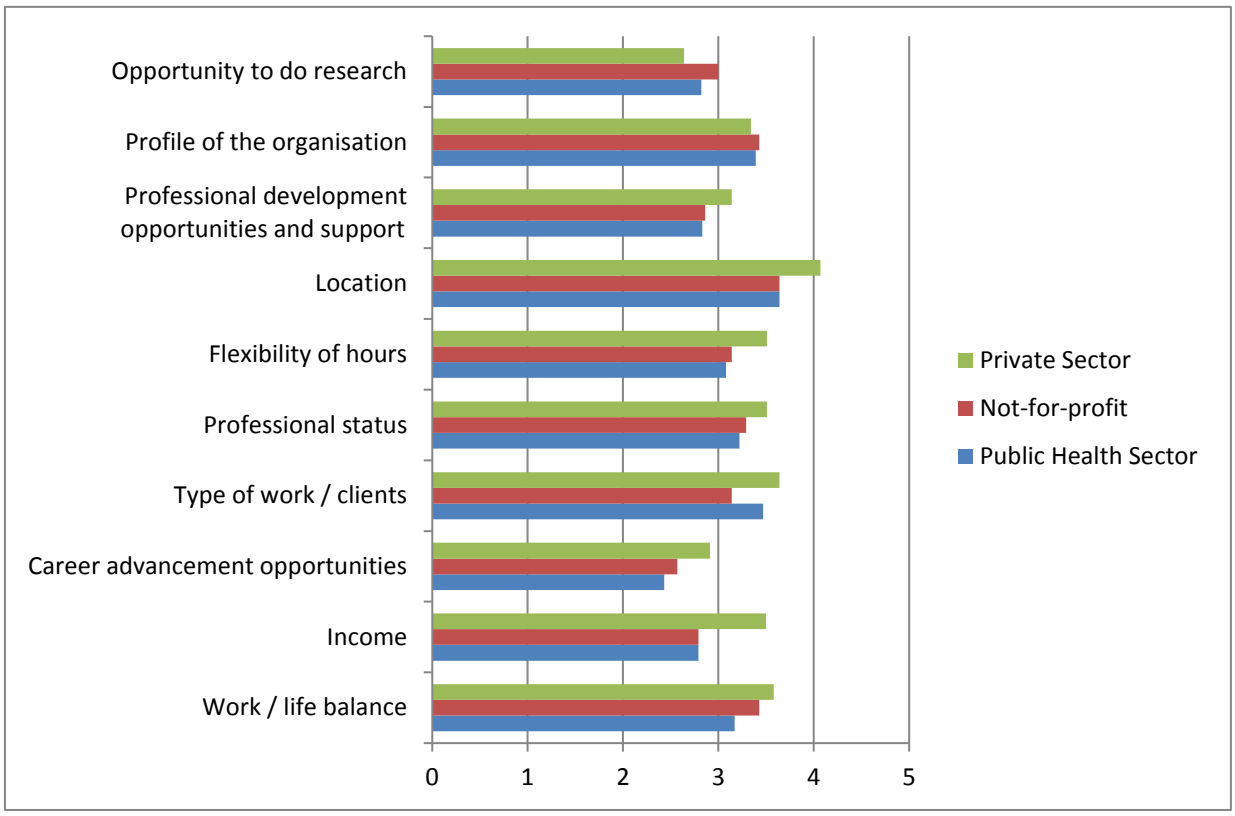


Figure 30: Current satisfaction with factors affecting employment choices



Overall respondents working in the private sector expressed greater satisfaction with every aspect of their work, except the opportunity to do research and the profile of the organisation. They were significantly more satisfied with the income, location and flexibility offered by the private sector (Figure 31).

Figure 31: Levels of satisfaction with work attributes by sector*
(mean satisfaction score, 5 = highly satisfied)



*Self-employed and other employers were not included as they had only 4 – 6 respondents in each category

Intra-professional engagement

There were concerns that some providers were cutting corners in an effort to increase the volume of scans and rewarding sonographers to encourage client throughput. Some believe this will affect the reputation of the profession.

"Moves towards bonuses and incentives… it's an emerging trend in our profession. It's irresponsible."

"Incentive work from privates gives rise to 'fast and loose' scanning techniques where speed means more money but I feel quality suffers."

Overall, the profession's professional bodies were well regarded.

"Professional bodies are doing a good job, but it's slow to move to be recognised at a government level."

Inter-professional engagement

Professional recognition was an important issue and included a desire for more acknowledgement and understanding of their role, as well as greater autonomy and increased scope of practice. Sonographers reported concerns relating to the general lack of understanding of their role by other practitioners and management; this affected their remuneration and recognition.

"Recognition of the role we play in providing the clinical report that most of the time the radiologist just repeats for their report."

“Lack of professional recognition i.e. no provider number.”
“A poor understanding by executive on how strenuous the role is. Being thought of as a cash cow by executive.”

Lack of understanding of the profession by GPs was seen as a particular problem.

“GPs do not have good knowledge about the tests they are asking for, but they are the key communicators to patients. GPs need better awareness of ultrasound in terms what neonatal screening is needed and how results should be communicated to patients.”

There were a number of comments around the need for professional autonomy, to develop advanced practitioner roles and the ‘permission’ for sonographers to be able to make a diagnosis based on a scan.

“Sonographers need recognition as advanced practitioners and access to provider numbers in the same manner as physio's. Most radiological reports are a narrative directly from the sonographer worksheet.....in the main the sonographer can answer the clinical question the radiologist is not needed for routine first order examinations’.”

“Being responsible for our reporting of studies as in UK [United Kingdom], this would entail some interventional work as well.”

Sonographers would like to have a higher profile in hospitals and contribute more broadly to clinical issues, building good inter-professional relationships is part of this.

“It is important for sonographers to get involved in clinical meetings at the hospital. We’re only just starting to have opportunities to participate in multidisciplinary team meetings and being welcomed and included. Sometimes you feel you don’t have time to be involved but it’s really important.”

“Sonographers have always believed they’re 'special'. This has unfortunately come about due to low numbers and a belief that their postgraduate training makes them superior to others.” (Employer)

Community and society engagement

Sonographers feel that their role is not well understood by the general community. They are still developing as a profession in its own right and are often thought of as an offshoot of radiography.

Some felt that professional registration and recognition by APHRA would assist with increasing their profile and reputation and / or professional accreditation or regulation of scope of practice.

“Regulation and registration of sonographers in order to ensure that all sonographers are properly trained and using appropriate equipment for the scans they are performing. In this way, the high standard of clinical care and the professional conduct expected of sonographers can be monitored and maintained.”

“Respect and acknowledgement of my profession, including an expanded scope of practice. I am a sonographer NOT an ultrasound technician.”

“Cardiac technology needs to be protected; it is the feeder to cardiac sonography. It needs registration and management at the highest level to prevent nursing staff taking on these roles.”

A key issue for sonographers in engaging with patients is the increasing number of patients with high body mass index (BMI) they are now seeing. This creates a range of clinical and technical challenges.

“One of the biggest struggles with ultrasound is scanning higher BMI patients. The signal is not strong enough to penetrate people but we are getting new machines that will help. Patients have unrealistic expectations on what they think they should be seeing.”

Sonographers in the focus groups were confident in their skills in working with people from all different cultures. While they do not get any formal cultural education, they believe they learn quickly on the job and are generally quite accommodating.

“We have a big Muslim population and they prefer to have female scanners and we accommodate that. We always try and accommodate for patients needs when booking. We’re always coming up with new ways to improve patient satisfaction. We do a good job with that.”

Conclusion

The sonography profession in Victoria is well trained, capable and looking for opportunities to extend their practice and level of professional recognition; however, they are challenged by workforce shortages. Capacity to provide service is stretched contributing to high waiting times for non-acute services, staff burn out and workplace injury. There are also serious threats to clinical quality and reputation of the profession by a trend to prioritise volume over quality.

Overall, sonographers are satisfied with their roles but feel they would benefit from greater professional recognition and more career advancement opportunities. Looking to the future, with an ageing population and ongoing advances in technology, the demand for ultrasound will continue to grow and capacity issues will need to be addressed. There is scope for sonographers to continue to build the profile and skills of the profession by increasing their involvement in research, participating in multidisciplinary teams, fostering career pathways and driving high standards for clinical quality.

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Appendix

The following section contains additional data, figures and tables referred to in the main report relating to the data collected through the AHWQ sonography survey.

Responses and respondents

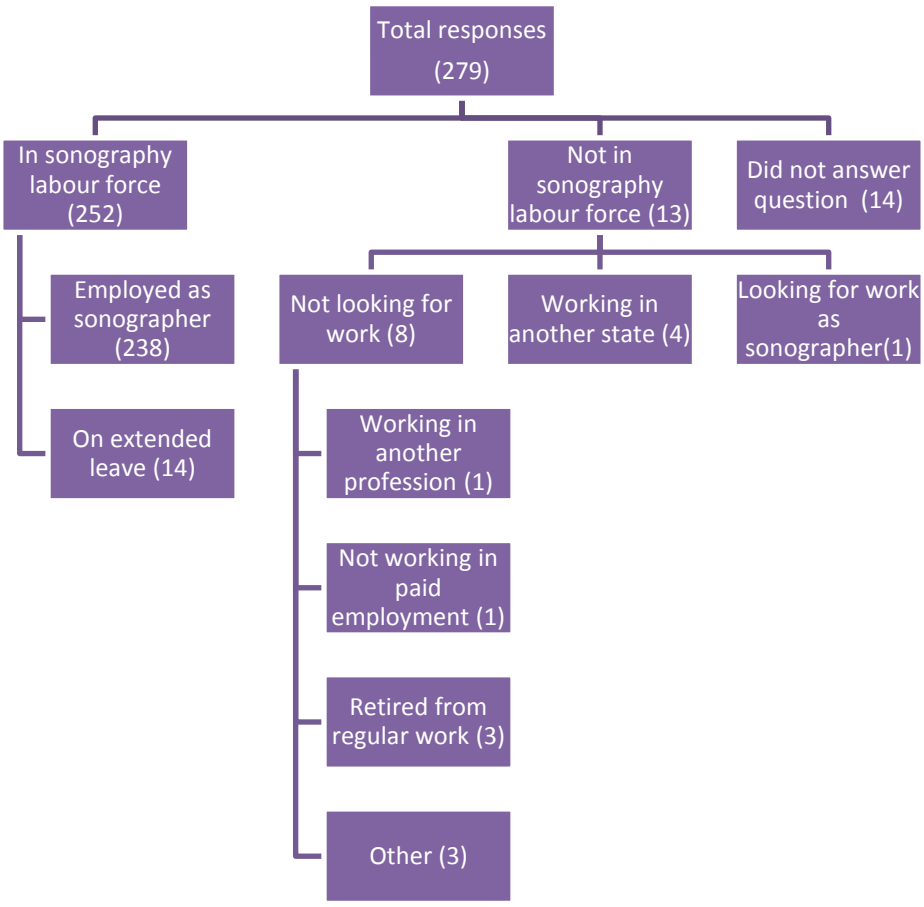
The AHWQ survey consisted of 69 questions or opportunities for the respondent to comment. Completion of the survey was voluntary and respondents had the opportunity to choose if they wished to answer a question or not. Some of the questions were conditional on the response to previous questions. Some questions allowed for multiple answers. As a result the number of responses for each question varied and is included in the presentation of the data for each question.

A total of 279 sonographers completed at least one question on the survey and submitted their survey. The range of respondents to an individual question was from 217 to 279. Responses from all persons who answered an individual question have been included, irrespective of whether they completed the entire survey or not.

A total of 91 respondents (41%) provided their email address and agreed to be followed up for future research.

Most respondents (90%) were employed in the sonography workforce at the time of completing the survey. Only one respondent was actively seeking sonography work

Figure 1: Current employment status[2]



[2] All data in the Appendix Figure 1 and Tables 1 – 8 comes from the AHWQ survey

Table 1: Hours worked per week across employers

Hours per week	Employer 1	Employer 2	Employer 3	Employer 4	Total
0 – 8	16	28	5	1	50
8 – 16	24	11	1	0	36
16 – 24	27	9	4	1	41
24 – 32	31	5	1	0	37
32 – 40	87	1	0	1	89
>40	44	1	1	1	47

Table 2: Nature of employment

Question	Employer 1	Employer 2	Employer 3	Employer 4	Total
Permanent	211	29	5	2	247
Temporary	0	1	1	1	3
Self-employed	4	6	2	1	13
Contract	6	6	1	0	13
Casual	7	12	3	0	22
Locum / other	1	1	0	0	1
Total Responses	**229**	**55**	**12**	**4**	**300**

No responses to voluntary work, column removed

Table 3: Current accreditation status *(multiple responses possible)*

Answer	Response	%
Other (please specify)	1	0%
ASAR accredited Student Sonographer	9	4%
ASAR accredited Medical Sonographer	186	82%
ASAR accredited Cardiac Sonographer	31	14%
ASAR accredited Vascular Sonographer	13	6%
ASAR accredited Obstetric Sonographer	9	4%
ASAR accredited Breast Sonographer	6	3%
ASAR accredited Cerebrovascular Sonographer	1	0%
Registered with the New Zealand Medical Radiation Technologists Board	2	1%
Not accredited	0	0%

Table 4: Scope of practice

Scope of practice	n	%
Participants reporting their work includes an advanced practice role	30/238	13
Participants who delegate to allied health assistants	47/233	20
Participants who use telehealth (including video conferencing for supervision)	5/233	2

Table 5: Roles other than a sonographer (n=232)

Answer	n	%
No	41	18%
Yes	191	82%

Table 6: Type of other role (n=165)

Type of role	n	%
Administrator	11	6.7
Cardiac technician	7	4.2
Farmer	5	3.0
Hospitality	4	2.4
Medical imaging technologist	10	6.1
Other health (e.g. nurse, midwife, paramedic etc.)	28	17.0
Other non-health (music teacher, nanny, police force, teacher, pilot etc.)	11	6.7
Radiographer	72	43.6
Researcher / academic	11	6.7
Retail	6	3.6

Table 7: Time worked in other profession

	Profession 1	Profession 2	Profession 3	Profession 4	Profession 5	Sum	%
< 1 year	4	3	2	0	0	9	3.5
1 - 2 years	18	8	4	1	0	31	12.2
2 - 3 years	25	6	1	1	0	33	12.9
3 - 4 years	10	8	2	0	0	20	7.8
4 - 5 years	28	6	2	0	0	36	14.1
5 - 10 years	45	5	2	0	0	52	20.4
>10 years	57	12	3	1	1	74	29.0
Total Responses	**187**	**48**	**16**	**3**	**1**	**255**	**100.0**

Table 8: Reason for change of position (n=16)

Answer	n	%
Better working conditions	10	63%
Better pay	8	50%
Better benefits	5	31%
Conflict with manager or other employees	5	31%
Better job opportunity	4	25%
Travel	3	19%
Commute	2	13%
Current role not challenging	2	13%
Physical work environment (e.g. space, equipment)	2	13%
Relocation to preferred location	2	13%
Other (please specify)	2	13%
Position is low status	1	6%
Work related injury	1	6%
Retirement	1	6%
Maternity leave	1	6%
Health reasons	1	6%
Moving to a rural area	1	
Lack of forward thinking management	1	