



Scan Times Research Project:

# *Do ultrasound examination times correlate with quality outcomes?*

## Summary of Findings

*Produced by the Australasian Sonographers Association  
June 2024*

This ASA-commissioned project was undertaken by the International Centre for Allied Health Evidence, at the University of South Australia.

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The Scan Times Research Project was commissioned by the Australasian Sonographers Association (ASA), and undertaken by *Dr Rebecca Perry*, *Professor Steve Milanese*, and *Ms Angela Farley* at the International Centre for Allied Health Evidence, University of South Australia.

*The project commenced in December 2022 and concluded in March 2024.*

*For further information, please contact the ASA at [policy@sonographers.org](mailto:policy@sonographers.org)*



# Executive Summary

*This research study sought to answer the following three questions:*

## 01

### ***Do the current appointment times in Australia and New Zealand affect perceived healthcare quality?***

The study found that current appointment times are an issue for sonographers in Australia and New Zealand, with a significant proportion reporting dissatisfaction and challenges during scans. This extended across various types of ultrasound examinations indicating widespread concern.

Overall, 40% of respondents reported that current scan times affected the quality of the scan. Further, in a challenging examination, 57% of sonographers undertaking Echo exams, 56% undertaking Morphology exams, and 34% undertaking Abdominal exams reported having insufficient time.

## 02

### ***Is there a relationship between transducer time and appointment times, and does this relationship affect perceived healthcare quality from the perspective of the patient and the sonographer?***

There was little relationship between the proportion of transducer scanning time and sonographer/patient satisfaction with the scanning time. This suggests that the sundry appointment activities had the greatest effect on scan time and healthcare.

The study examines the impact of appointment times on scan quality and healthcare outcomes from both the patient and sonographer perspectives. It identifies how limited appointment times can compromise scanning effectiveness, patient

and sonographer safety, patient-centred care delivery, and the overall timeliness of healthcare services.

Across all domains, patient-related factors emerge as pivotal determinants of appointment difficulty, ranging from physical characteristics to cognitive and behavioural aspects. Additionally, scan-related challenges encompass the complexity of pathologies and scanning environments, while clinic-related issues include equipment quality and workflow efficiency.

## 03

### ***If there is a perceived issue with current appointment times, what can be done to help improve this?***

To address exam challenges and enhance appointment outcomes, multifaceted solutions are imperative. Timetabling adjustments, such as setting longer exam times and triaging for complex cases, can alleviate scheduling constraints. Process enhancements, including appropriate patient preparation and streamlined workflows, are vital for optimising scan efficiency. Also, investments in equipment upgrades and staff training are crucial for ensuring scan quality and positive patient outcomes.

In addition, the role of professional bodies in establishing guidelines and best practice recommendations for standardised scan times cannot be understated. Clear directives

can foster consistency and quality across imaging departments, benefiting patients and healthcare providers.

In conclusion: A holistic approach encompassing timetabling, process optimisation, equipment upgrades, and regulatory standards is essential for addressing the challenges outlined in echocardiography, singleton second-trimester morphology, and routine abdominal scanning. By implementing these measures, healthcare facilities can elevate the quality of diagnostic services, improve patient outcomes, and enhance overall efficiency while ensuring sonographer wellbeing is maintained.



# Project Aim, Methodology and Scope

## Project Aim

- Identify the relationship between appointment and transducer times and the quality of the healthcare service provided.
- Provide evidence to assist in developing recommendations in setting scheduled ultrasound examination times undertaken by sonographers to ensure sufficient time is allocated to support quality outcomes.

## Methodology and Scope

### • *This project used a staged methodology:*

1. Targeted observational cohort study of sonographers and patients capturing qualitative data about the perceived quality of healthcare following a standard sonography appointment; and quantitative data from the sonographer on the total appointment time and actual transducer time (n = 10 sonographers; n = 22 patients).

2. Survey and interviews of Australasian sonographers capturing qualitative data about perceptions of the quality of healthcare services provided by sonographers and possible mechanisms for improvement (survey n = 1,170; follow-up interview n = 39).

• **Scope:** The research considered three exam types: Transthoracic echocardiography (Echo), second-trimester singleton morphology (Morphology), and abdomen ultrasound (Abdomen).

• **Population:** The project sought to reflect the Australasian sonography profession, covering Australia and New Zealand; public and private sector; geographic locations (metro/regional/rural/remote); and range of sonographer experience/roles.

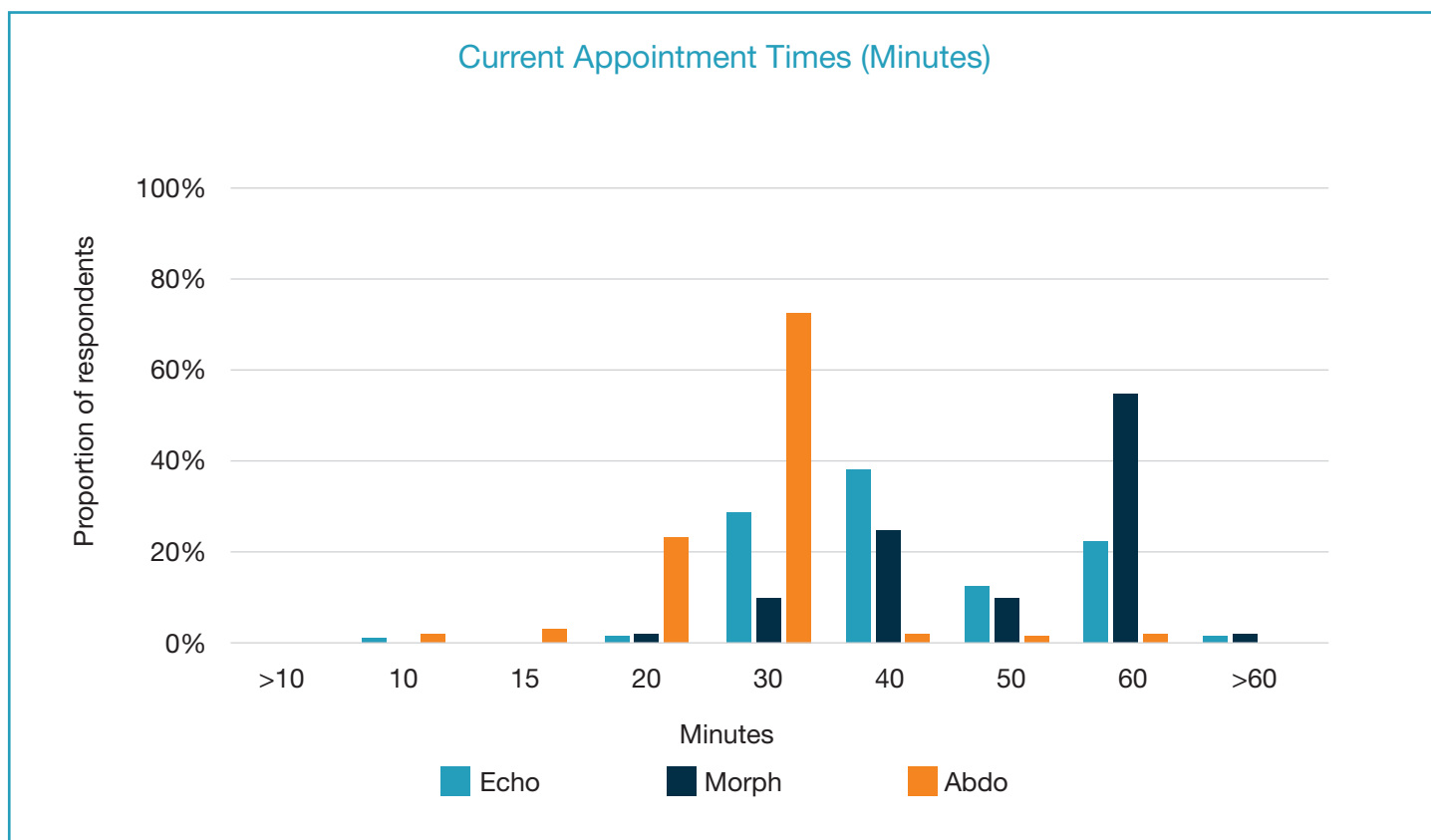
***‘Limited time is more likely to result in missing pathologies and brief reports with no details.’***  
– Survey respondent

# Summary of Research Findings

## How long do you have set aside for an exam appointment?

Responses varied by examination type, with the most common responses being:

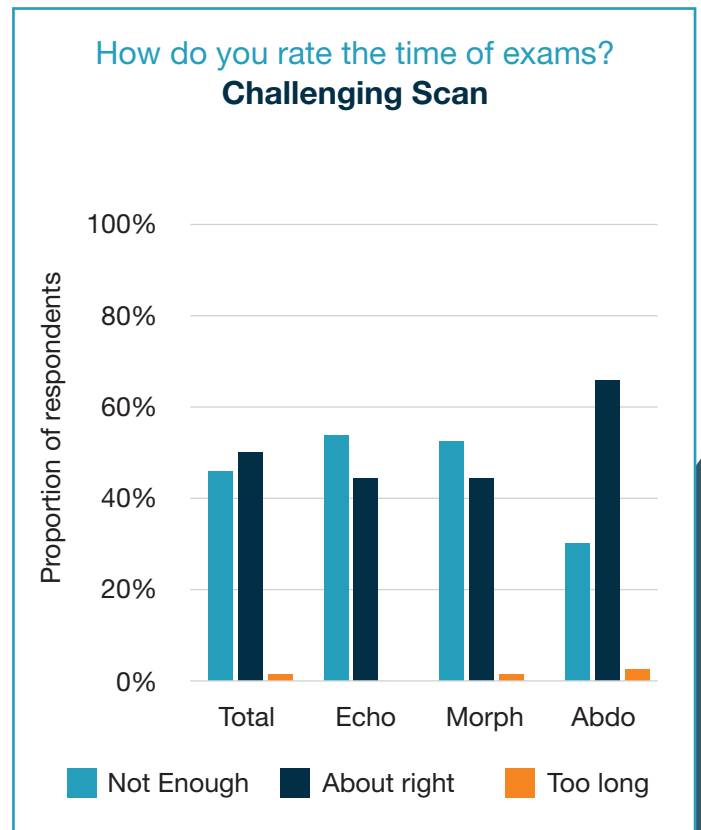
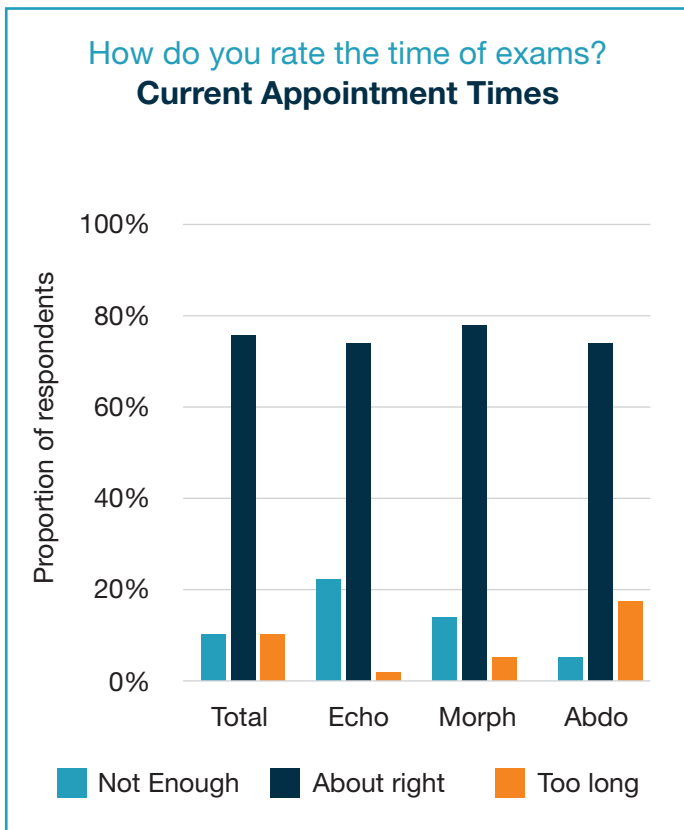
- **Echo** – 30, 40 or 60 minutes
- **Morphology** – 40 or 60 minutes
- **Abdominal** – 20 or 30 minutes.



## How do you rate the time set aside for an exam (average exam vs challenging exam)?

Around three-quarters of sonographers felt current scheduled examination times were 'about right'. However, 22% of those undertaking an Echo exam and 16% undertaking a Morphology exam indicated they regularly run out of time. A further 7% of sonographers undertaking an Abdominal exam regularly run out of time.

The results are more pronounced in a challenging exam, where 57% of sonographers undertaking an Echo exam and 56% of those undertaking a Morphology exam regularly run out of time. In addition, 34% of sonographers undertaking Abdominal exams regularly run out of time in a challenging exam.



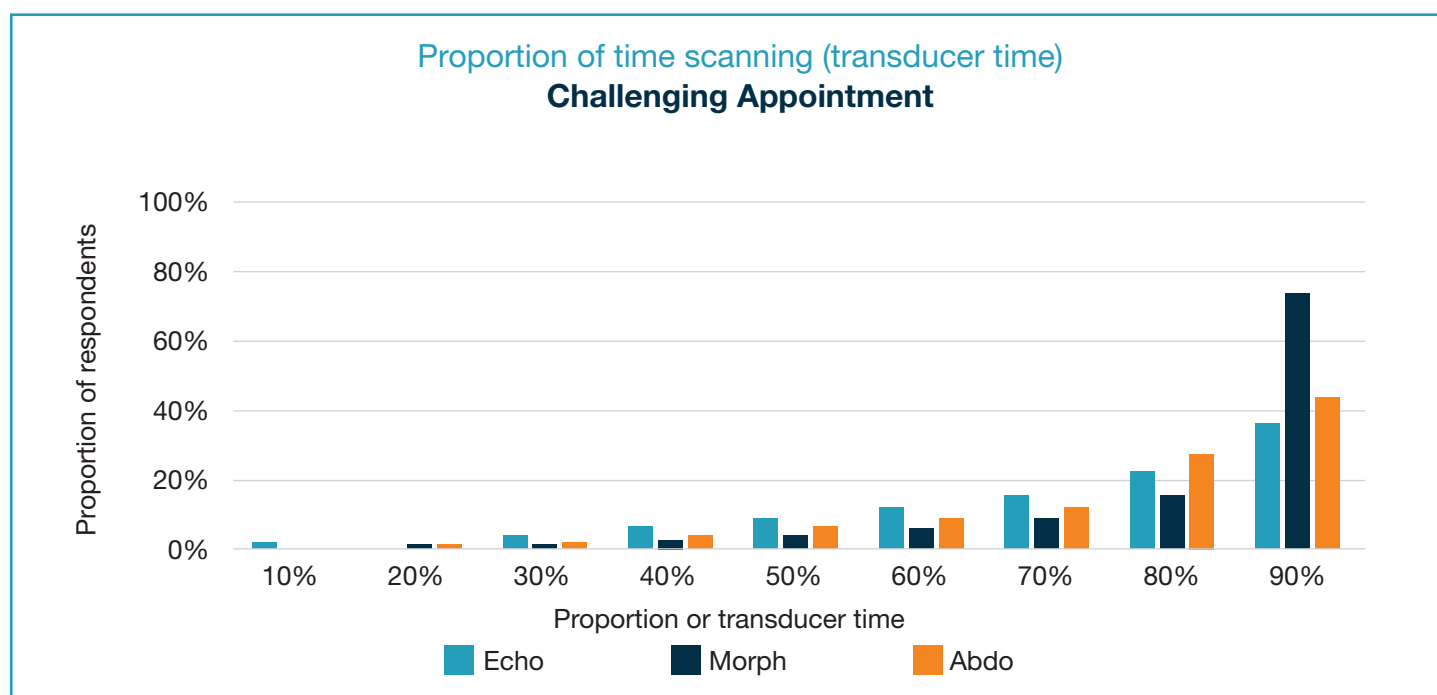
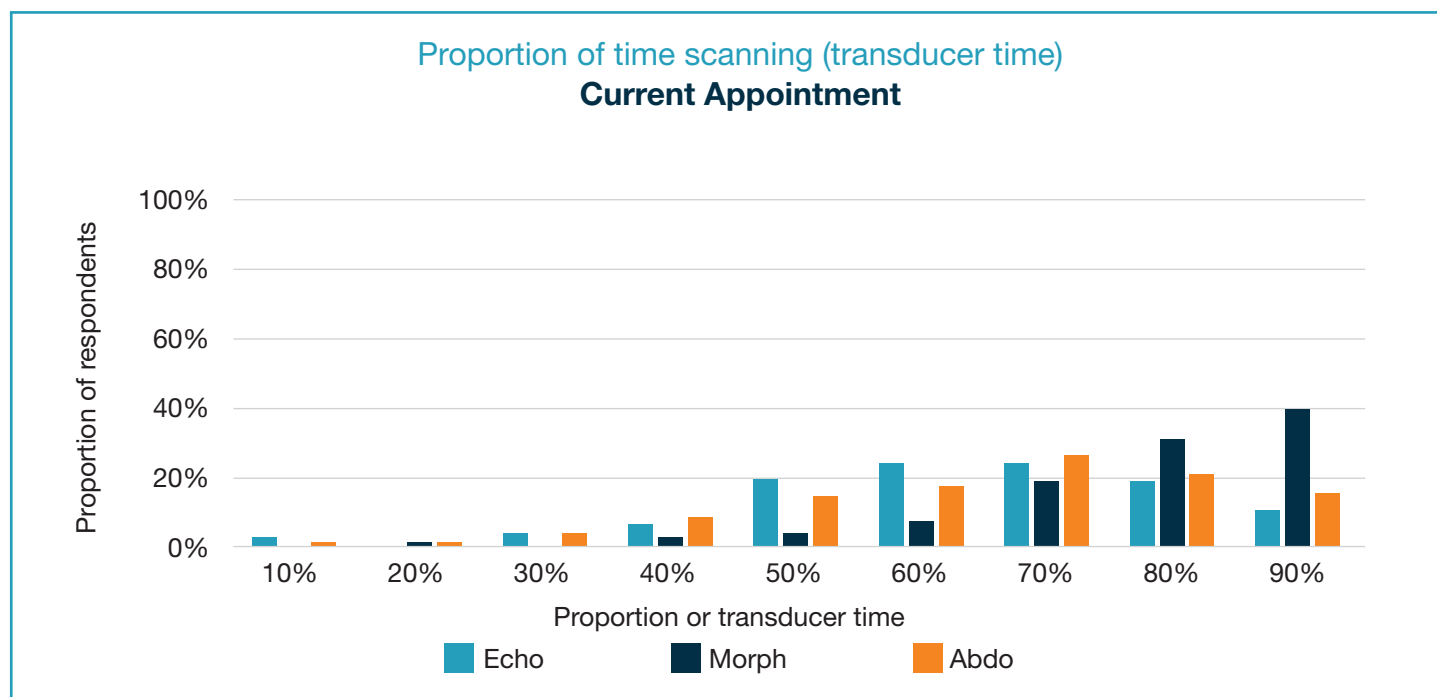
***In a challenging exam, more than half of all sonographers undertaking an Echo or Morphology exam report having insufficient time.***

## What proportion of time is used for actual scanning – i.e. ‘transducer time’ (average exam vs challenging exam)?

The proportion of time used for scanning (i.e. transducer time) varies and tends to be highest in Morphology exams, with 72% of sonographers undertaking a Morphology exam spending 80–90% of the total exam time physically scanning the patient.

In a challenging exam ‘transducer time’ is typically higher. For example, in this context, 70% of respondents

undertaking a Morphology exam report spending 90% of the total scheduled time physically scanning the patient. In comparison, 39% of sonographers undertaking an Echo exam and 46% undertaking an Abdominal exam reported spending 90% of the total scheduled time physically scanning the patient in a challenging exam.



## What makes an appointment challenging?

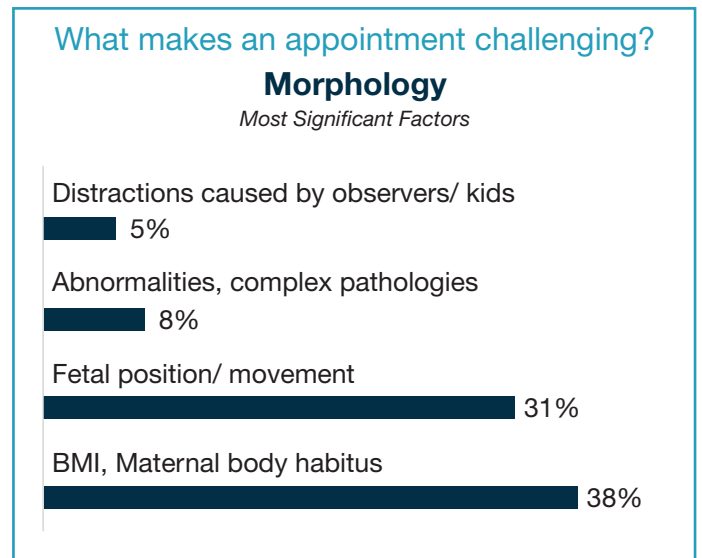
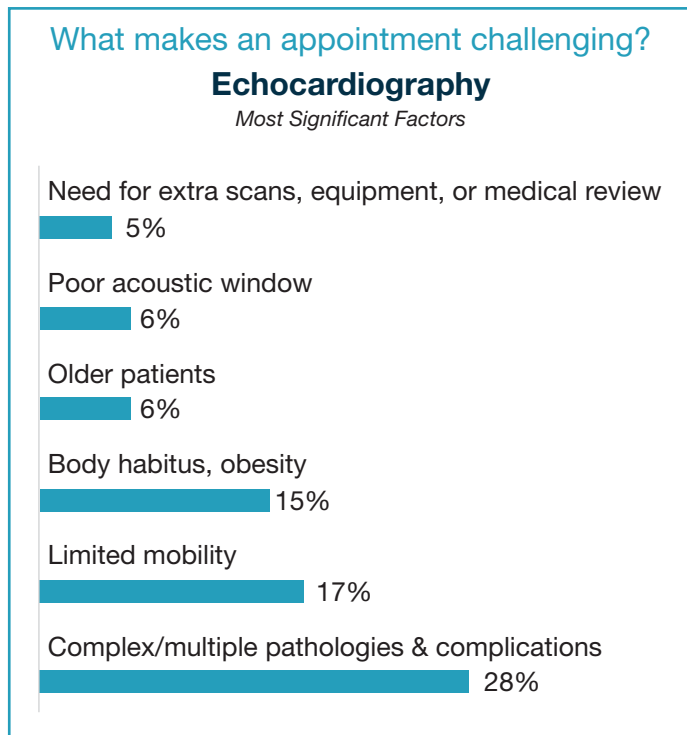
Sonographers highlighted various factors that make appointments challenging, including the patient's physical and behavioural characteristics, as well as complexities in patient presentations or unexpected findings.

**Significant patient-related factors include** body habitus, poor mobility, elderly, or frail patients, and anxious or non-compliant patients.

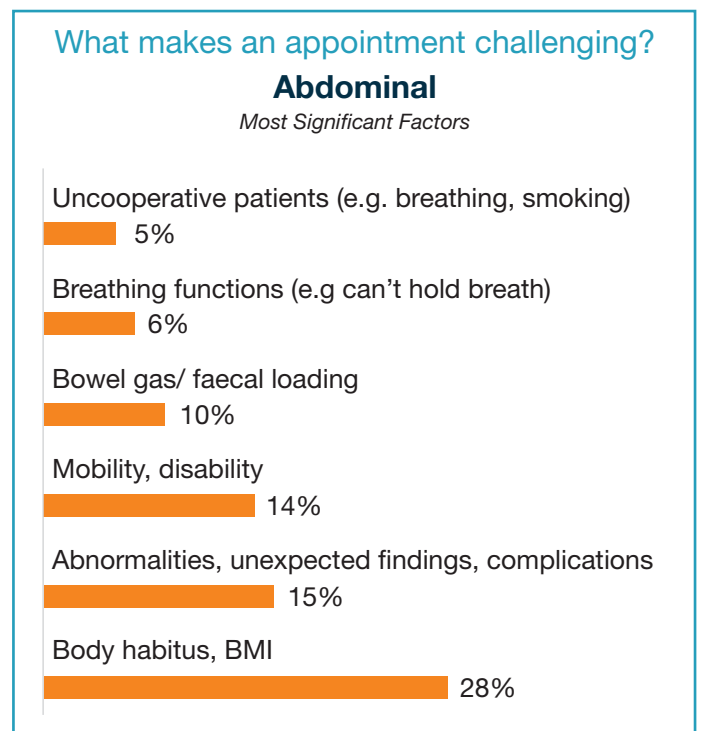
**Significant scan-related factors include** complex presentation, extra requests, abnormalities, unexpected findings, and a lack of background information.

**Other factors,** such as scheduling and workflow challenges, staffing, and clinic environment and equipment, were also highlighted.

\*\* The charts below highlight common factors reported by 5% or more of respondents. Numerous other factors were also raised.



**Factors making exams challenging include body habitus, poor mobility, frailty, complex pathology, and unexpected findings.**





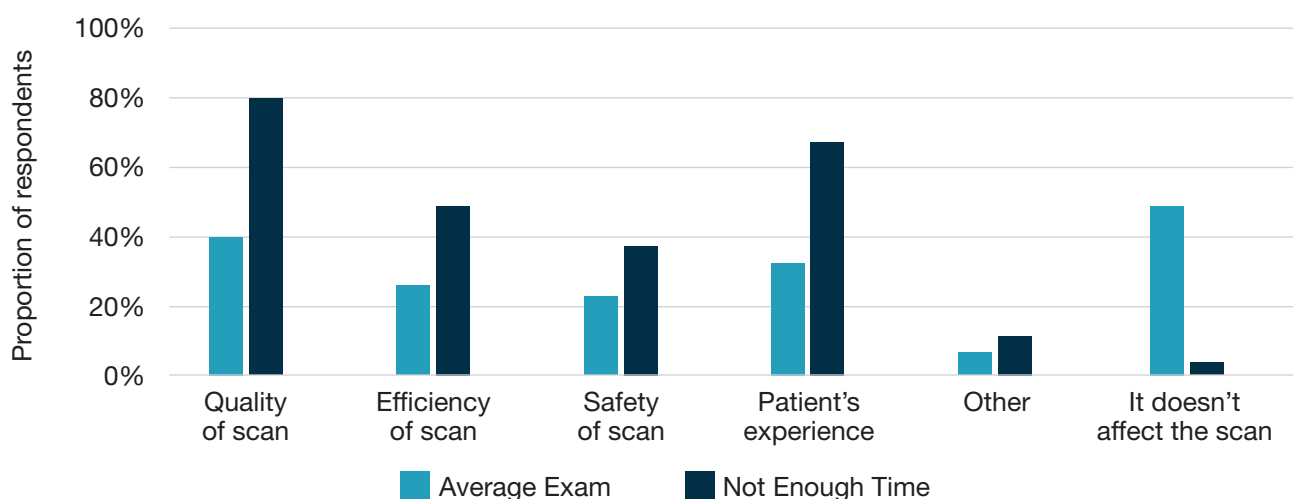
## How do current appointment times affect the exam?

When asked how current appointment times affect the exam, sonographers indicated that current times are most likely to affect the quality of the scan and the patient experience, as well as the efficiency and safety of the scan. Among sonographers who reported regularly running out of time, 80% reported that current exam times impact the quality of the scan, and 66% reported it impacted the patient's experience.

Results were most pronounced in Echo exams, particularly among sonographers who report regularly running out of time, where 82% felt appointment times affect the quality of the exam, and 60% feel it affects the patient's experience.

**Current appointment times affect the quality of the scan and the patient's experience, as well as the efficiency and safety of the exam.**

How current appointment times affect the exam: Total



	Total		Echo		Morph		Abdo	
	Normal	Not Enough Time	Normal	Not Enough Time	Normal	Not Enough Time	Normal	Not Enough Time
Quality of scan	40%	80%	56%	82%	43%	80%	34%	78%
Efficiency of scan	25%	49%	33%	47%	26%	49%	22%	54%
Safety of scan	21%	39%	22%	26%	25%	44%	17%	38%
Patient's experience	35%	66%	45%	60%	43%	66%	27%	68%
Other	8%	13%	14%	18%	9%	12%	6%	10%
It doesn't affect the scan	45%	2%	22%	0%	42%	3%	54%	2%

### Other interesting research findings

#### Country:

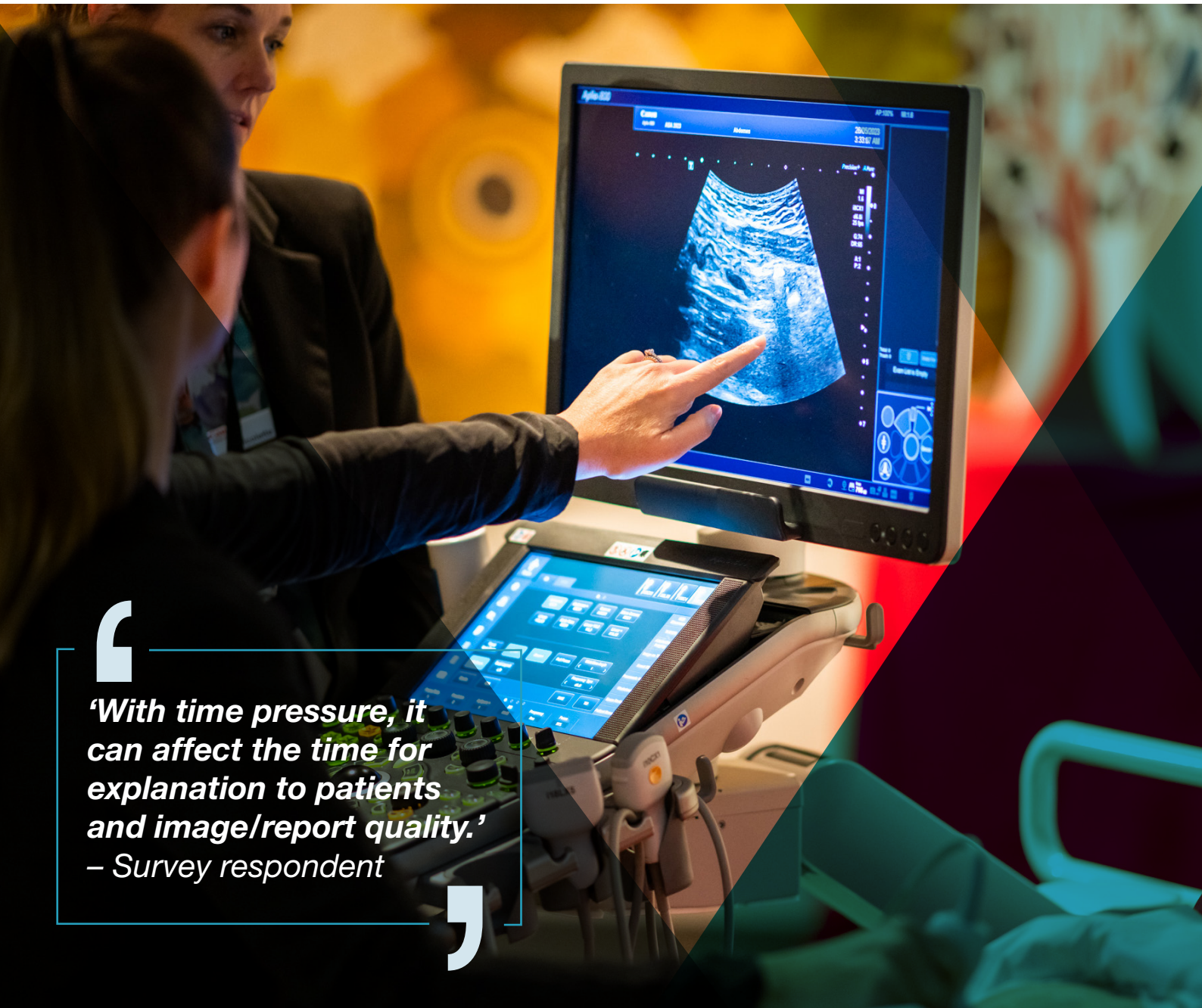
- No significant differences were found between Australia and New Zealand.

#### Public vs private sector:

- Generally, no significant difference, except in Morphology exams where sonographers in public hospitals/ departments were more likely to report having sufficient time in a standard exam, compared to sonographers in private practice and private hospitals. There was no significant difference by sector in a challenging exam.

#### Experience of the sonographer:

- In a challenging Morphology and Abdominal examination, less experienced sonographers were more likely to feel they regularly ran out of time compared to more experienced sonographers.
- However, in a standard Echo examination, those with 3–5 years' experience were more likely to feel they had enough time, compared to those with 11–15 years. There was no significant difference in a challenging examination.



**‘With time pressure, it can affect the time for explanation to patients and image/report quality.’**  
– Survey respondent

# Suggested Improvements and Recommendations

*Most sonographers believe examination times could be improved, and provided a variety of suggested strategies and recommendations.*

## Key strategies for improving appointment times include:

- **Staffing:** ensuring adequate staff, improved communications, and training for sonographers and administration staff
- **Flexibility in scheduling:** tailoring times based on patient features, referral complexity, and experience of the sonographer undertaking an exam
- **Departmental and scanning protocols:** reviewing and streamlining appointment scheduling and scanning processes, including simplifying paperwork and standardising minimum scan criteria
- **Plant and equipment:** enhancing infrastructure and utilising technology to support sonographers
- **Organisational:** guidance from professional bodies for standardised practices.

## Key recommendations for improvements include:

- Conducting systems-based reviews of scanning processes, from referral to report writing, to identify and address time-related challenges
- Implementing measures to ensure adequate staffing, training, and maximising communication between staff and patients
- Allowing flexibility in scheduling and involving sonographers in the establishment of timetabling protocols
- Standardising departmental policies and procedures to streamline workflows
- Exploring technological solutions to support sonographers and enhance equipment standardisation.

***‘Rushing an examination to meet time constraints and targets is bad for morale and risks sonographer soft tissue injury.’***  
– Survey respondent



# Project Conclusions

- *Current appointment times are an issue for sonographers in Australia and New Zealand with many reporting dissatisfaction and challenges during exams.*
- *This study highlights the complex interplay between appointment times and scan quality, highlighting the need for multifaceted interventions to improve efficiency and effectiveness while prioritising patient and sonographer wellbeing.*

## In summary, the research concludes that:

- Appointment times should be flexible to accommodate complex cases, train students and provide adequate time for thorough examinations
- Better staffing, scheduling and workflow can improve appointment efficiency and quality
- Investments in technology and equipment upgrades can enhance scan quality, and in turn, decrease scan times
- Addressing patient-related issues where possible and improving departmental communication with patients and between staff can improve outcomes
- Professional bodies should establish guidelines and recommendations for scan times to ensure quality standards are met.



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