

Elevating vascular ultrasound care at Royal North Shore Hospital with Aplio

An interview with Linda Thebridge

From neonatal kidneys to intra-operative transplant imaging, vascular ultrasound is being redefined at Royal North Shore Hospital (RNSH). At the heart of this transformation is Linda Thebridge, Head of Vascular Ultrasound, who brings more than 30 years of sonography expertise to a department tackling some of the most complex clinical scenarios. Empowering this high-calibre work is Canon Medical's Aplio i800 ultrasound system, a solution Linda describes as having "completely changed the way we image renal transplants."

Expanding the frontiers of ultrasound

The Vascular Ultrasound Unit at RNSH doesn't just perform routine carotid and venous scans; it includes everything from trauma and reconstructive surgery support to neonatal intensive care and intra-operative imaging. In this environment, technology must be more than capable, it must be intuitive, flexible, and precise.

"The Aplio ultrasound machine and its technology allow our field to push beyond our usual comfort zone. We're now directly influencing treatment paths by scanning in operating theatres and reporting to multidisciplinary teams in real time" says Linda.



Linda Thebridge brings over 30 years of experience in general and specialised vascular ultrasound. She has a particular passion for renal imaging, including transplant and intra-operative scanning, and is a strong advocate for expanding routine ultrasound into new and unexplored areas. She received the Australian Sonographer Association Award for NSW Sonographer of the Year in 2023.

Precision, safety, and peace of mind:
the clinical impact of Aplio

The integration of the Aplio system and its technology has directly impacted patient outcomes. At RNSH, intra-operative ultrasound using Superb Microvascular Imaging (SMI) and B-mode subtraction has helped reduce the loss of transplant kidneys due to vascular issues, a remarkable achievement in a field where technical complications affect 1% of cases globally. “We haven’t lost a kidney due to vascular issues. We’re convinced it’s because of intra-operative ultrasound and new imaging applications” says Linda.

In procedures like renal biopsies, where precision is paramount, Aplio brings a level of confidence that directly translates into better outcomes for patients. One of the standout features is its ability to clearly visualise the needle tip in real time, a seemingly small detail that has a big impact.

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“Because we can see so well, we can guide the needle exactly where it needs to go,” says Linda. “It’s just safer.”

This visibility allows clinicians to collect high-quality tissue samples on the first attempt, significantly reducing the need for repeat procedures. For patients, that means fewer appointments, less discomfort, and reduced anxiety. It also lowers the risk of complications like bleeding or damage to surrounding organs. “Safety is number one,” Linda says. “If the needle goes even slightly off track, it can cause serious damage. Aplio helps us avoid that.”

With clearer imaging, the procedure becomes not only more accurate but also quicker and less invasive, enhancing the overall patient experience. In busy hospitals, where efficiency matters as much as precision, the ability to get it right the first time can make all the difference. Ultimately, Aplio gives patients more than just a better scan, it gives them peace of mind that their care team has the tools to deliver safer, smarter treatment.



Figure 1 Needle guidance during renal biopsy.

SMI and ADF: seeing the unseen

Among the standout technologies on the Aplio platform are Superb Microvascular Imaging (SMI) and Advanced Dynamic Flow (ADF), which have become indispensable tools for vascular imaging.

SMI enables high-sensitivity visualisation of low-velocity microvascular blood flow, revealing details often lost with conventional Doppler due to motion artifacts. "We use SMI in most vascular studies, for perfusion in organs, visualising low flow in aneurysms, and seeing behind calcified arteries," says Linda. This capability is particularly critical in transplant surgeries, where SMI is used intra-operatively to assess cortical perfusion and guide surgical decisions in real time.

ADF, on the other hand, brings enhanced colour Doppler clarity, even in deeper or more challenging anatomies. With superior spatial resolution and flow differentiation, ADF provides critical information when evaluating vessels obscured by patient habitus or pathology. "We use ADF to visualise flow in deeper vessels, especially in high BMI cases," notes Linda.

Aplio in action: ergonomics and efficiency where it matters most

In operating theatres, trauma bays, or neonatal intensive care units, every second and every movement matters. That's why ease of use and ergonomic design aren't just nice-to-haves; they're essential to delivering timely, accurate care. "You may only get two seconds with the transducer on the area before surgeons move you out of the way," says Linda. "The image must be diagnostic, and the sonographer must be confident in the result."

The Canon Aplio i800 is designed with this reality in mind. It offers sterilisable transducers and a wide variety of one-touch applications that streamline the workflow, allowing sonographers to focus fully on the patient rather than the machine. "The system is great ergonomically,"



Figure 1 Endoleak using colour SMI.

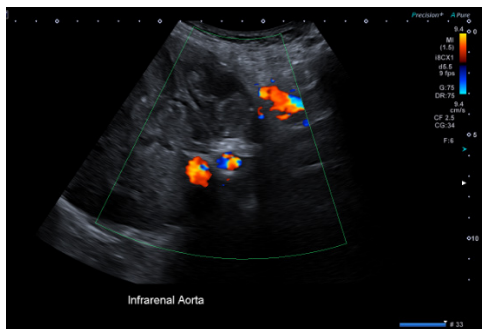


Figure 1 Endoleak using ADF.

“ Whether you’re in a high-pressure situation or not, Aplio works with you, not against you. ”

Linda adds. "Whether you're in a high-pressure situation or not, Aplio works with you, not against you."

In a single shift, a sonographer at RNSH might move from scanning a critically ill newborn to performing intra-operative imaging during a renal transplant. Aplio adapts seamlessly to these transitions, enabling sonographers to carry out their work with speed, confidence, and minimal physical strain, an often overlooked but important factor in sustained clinical excellence.

This combination of mobility, responsiveness, and intuitive design reduces setup time and cognitive load in urgent situations, ultimately ensuring that no opportunity for diagnosis is missed, even under pressure.

The future: more autonomy, more innovation

Looking ahead, Linda sees ultrasound playing an even larger role across tertiary hospitals, becoming the first-line imaging tool in operating theatres, intensive care units, and beyond. She also believes the evolution of technology will empower sonographers to take on more autonomous roles. "We can now diagnose things that previously required CT, MRI or invasive procedures. It gives sonographers a greater voice in the multidisciplinary team."

Her advice to fellow vascular sonographers? "Choose a system that boosts your diagnostic confidence, is ergonomic, and makes you love what you do. Push the boundaries, embrace new applications, and enjoy the journey."



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