

THE RHYTHM STRIP

The newsletter for Professionals in Cardiac Sciences Australia

Now welcoming readers from The Society of Cardiopulmonary Technology New Zealand

Autumn 2025

02 Mission, Vision, Values

03 From the Chair:

Do you have a licence for that?

Miriam Norman

06 Membership Report and Announcements

Tina Hetherington

09 National Cardiac Physiologist Day

10 Trivia Night 2025

14 Inaugural Clinical Physiology Education Hub

17 Coronary Artery Stent Implantation in an Infant- A Case Presentation

Justin Gordon

20 OCT vs. IVUS: A Beginner's Guide to Intravascular Imaging

Jordan Jago

23 Lying for a Living

Megan Brydon

24 Beyond the Poker Face: Reflections on "Lying for a Living"

Miriam Norman

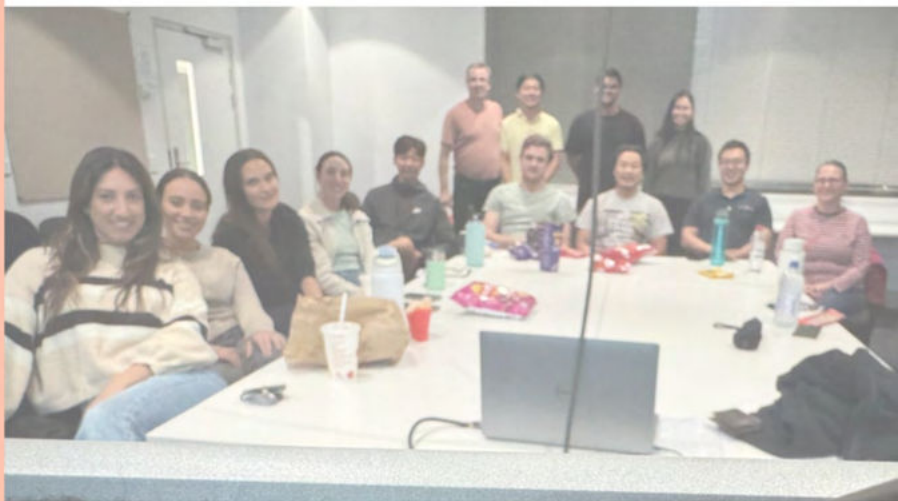
28 CEPIA EGM series #12

Harley Cross, CEPIA, QLD

32 Job Advertisements & Upcoming Conferences

35 Newsletter Submission Dates for 2025

36 Conferences and Resources



www.picsa.org.au

Our Mission To support, represent, and advance the Cardiac Physiology profession.

Our Vision A skilled, recognised, and regulated Cardiac Physiology workforce meeting Australia's healthcare needs now and into the future.

Our Values

Clinical Excellence We lead the Cardiac Physiology profession to achieve the highest standards of patient care through evidence-based practice, ongoing education, and adherence to professional and ethical guidelines.

Visibility We advocate for the recognition of Cardiac Physiologists as a vital, distinct profession among policymakers, the healthcare community, and the public.

Empowerment We equip Cardiac Physiologists with the tools, resources and support to advance their roles and rights within healthcare. We actively influence systems and policies to enable our members to achieve their full potential.

Accountability We act with integrity, are open and transparent to our members, make evidence-informed decisions, encourage ethical behaviour at all levels across the profession, and accept responsibility for strategic actions and outcomes.

The PiCSA Board of Directors

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Elected Director

Alicia Donovan (WA)

Elected Director



From the Chair

Miriam Norman

Professionals in Cardiac Sciences Australia



PiCSA is the national body representing Australia's cardiac physiologists. These are highly trained allied health professionals working across five key specialties that underpin modern cardiac care.

Do You Have a Licence for That?

Unregulated Practice in Diagnostic and Therapeutic Sciences Puts Lives at Risk

The recent ABC News report on “souvenir” ultrasound clinics has rightly sparked public concern ([ABC News, 29 May 2025](#))¹. These non-diagnostic imaging services are being performed by individuals with no accredited training, no registration, and no oversight—often leaving patients misinformed or falsely reassured.

How does this affect cardiac care?

Whilst rogue non-medical “souvenir” scans are less likely in cardiology, that doesn't mean cardiac imaging is always performed by fully credentialed professionals, or that those professionals are sufficiently regulated.

Limited cardiac ultrasound studies are often performed at the bedside by non-sonographer health professionals when a legitimate, time-sensitive clinical question arises. This practice (known as point-of-care ultrasound, or PoCUS) has a valuable role in acute care and is distinct from the comprehensive, diagnostic studies performed by accredited sonographers. PoCUS users may not have advanced scanning expertise, but patients can be reassured that they are **AHPRA-registered** clinicians such as doctors.

By contrast, accredited echo physiologists (cardiac sonographers) have advanced scanning expertise—but are not part of AHPRA's national registration system. Instead of AHPRA, they are listed with the Australian Sonographer Accreditation Registry (ASAR), and unfortunately, as the ABC report highlights, **ASAR lacks the regulatory authority to investigate unsafe practice or respond to professional misconduct.**

In cardiology, the problem runs deeper.

Cardiac ultrasound is not only a subset of the sonography workforce—it is also a core part of the broader cardiac physiology profession, where **further regulatory gaps exist.**



In Australia, as in the UK, cardiac physiologists span five key modalities:



1. ECG/Non-invasive diagnostics (e.g., 12-lead ECG, Holter monitoring, blood pressure testing, stress and tilt studies)
2. Catheterisation laboratory (Cath Lab)
3. Echocardiography (echo physiology/cardiac ultrasound/cardiac sonography)
4. Cardiac Devices (e.g., pacemakers and defibrillators)
5. Electrophysiology (EP)

Despite their critical role in the diagnosis and treatment of heart disease, and often working across multiple modalities, **cardiac physiologists are only required to be registered if they perform echocardiography**—leaving the other 4 modalities effectively unregulated within an under-resourced voluntary framework.

As alarming as unqualified scanning may be, what's more dangerous is that the person who programs your pacemaker is not legally required to have any formal training, oversight, or credentialing. While echocardiography is diagnostic, three of the other five cardiac physiology modalities are therapeutic. A poorly performed ultrasound may delay a diagnosis. A poorly programmed pacemaker can sabotage a battery—or end a life.

Key questions:

- Why does Medicare require registration for cardiac ultrasound but not for other cardiac physiology specialties?
- Why is even the ultrasound regulatory body inadequately powered?

It's time for national workforce planning and government-mandated regulation. Whether using an ultrasound probe or pacemaker programmer, no one should operate critical diagnostic or therapeutic tools without proper training, oversight, and accountability.

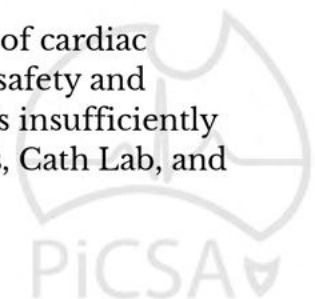
Check if your Cardiac Physiologist is Registered:

- ASAR – www.asar.com.au (cardiac sonographers / echo physiologists)
- ACCP – www.theaccp.org.au (cardiac physiologists in ECG/non-invasive diagnostics, Cath Lab, cardiac devices and/or EP)

What PiCSA Is Doing to Support the Workforce:

PiCSA is committed to ensuring that all Australian cardiac physiologists are subject to effective, enforceable regulation.

We welcome progress in the regulation of the echo modality: The inclusion of cardiac sonographers/echo physiologists under ASAR has greatly improved patient safety and strengthened the case for broader sonographer regulation. However, ASAR is insufficiently powered, and has created a growing gap—electrophysiology, cardiac devices, Cath Lab, and non-invasive diagnostics are lagging behind.



With no support from AHPRA, and noting similar gaps affecting other clinical sciences, PiCSA helped found the Australian Council for Clinical Physiologists (ACCP) to close the gap. Though still developing and not yet Medicare-recognised, the ACCP is an important step toward patient protection.

Our long-term goal is mandatory, federally backed registration across all five cardiac physiology modalities—supported by enforceable standards, continuing practice requirements, and a centralised complaints process.

PiCSA is working to:

- Advocate for national recognition and registration of all cardiac physiologists
- Develop and publish scope of practice and competency standards for each modality
- Build a professional community through education, mentoring, and leadership development
- Partner with other science-based allied health professions to support safe, accountable care
- Push for reforms including recency-of-practice requirements, complaints mechanisms, and regulatory enforcement

We believe every cardiac physiologist should be **qualified, accountable, and recognised** by both patients and employers. And the system should support practitioners who carry multidisciplinary skills². A more unified registration system would better reflect the way many practitioners work today. Aligning regulation across specialties would help support safe, coordinated care and a more flexible workforce.

To the Australian Government: We welcome the Federal Government's review of allied health regulation, as mentioned in the ABC report. The current system—where some cardiac physiologists require registration and others do not, purely based on modality—is untenable. We urge the review to include all diagnostic and therapeutic scientists whose work impacts patient safety. PiCSA stands ready to contribute solutions: national frameworks, registry models, and a vision for enforceable, profession-wide standards.

To the current workforce: Now is the time to show leadership. Be visible. Be accountable. Join PiCSA, support the existing registries, and advocate for stronger regulation. Help us build a safer, more respected cardiac workforce.

Sincerely,

Miriam Norman

References

1. Mark Butler investigating 'souvenir' ultrasound clinics targeting pregnant women. ABC News. 29 May 2025. Available at: <https://www.abc.net.au/news/2025-05-29/mark-butler-investigation-into-ultrasound-clinics/105354462>

2. Australian Guidelines for Entry and Practice in the Field of Cardiac Physiology (Adult and Paediatric). Professionals in Cardiac Sciences Australia (PiCSA). August 2024. Available at: <https://picsa.org.au/wp-content/uploads/2024/09/Career-Pathway-Position-Statement-2024-2.1-August-2024.pdf>



Membership Report + Announcements

Tina Hetherington (QLD)

Professional Members 242
Early Career 31
Affiliate 19
Student 46
Life 2

PiCSA Membership

As we head further into 2025, PiCSA continues to deliver engaging educational opportunities. We are proud to offer consistent, high-quality educational meetings each month that support ongoing learning and connection within our community.

Educational Meetings:

- **Cath Lab Focus:** In March, PiCSA held a well-attended session focused on Cath Lab procedures. Dr Sinjini Biswas (General and Interventional Cardiologist) shared insights on evolving practices and procedural safety, sparking valuable discussion among attendees.
- **EP and Devices Session:** Our April meeting was another well-received session with excellent discussion. Dr Naresh Dayananda provided an overview of pharmacological provocation testing in the EP Lab. Cardiac Physiologist, Luke Shanahan presented on LBB area pacing. Following the strong interest in Luke's presentation, PiCSA is planning a dedicated education session later this year focusing on device programming for left bundle branch area pacing
- **Upcoming Professional Issues Meeting:** In June, PiCSA are planning to host a session featuring updates from each state, highlighting key developments and current challenges in the field of cardiac physiology.

Membership Update:

We are pleased to welcome new members and thank all those who renewed their membership earlier this year. Your support helps PiCSA continue to deliver high-quality educational events and resources for the cardiac physiology community.

Remember—members who set up automatic annual renewal receive a 20% discount and stay connected year-round with no interruptions.

For assistance with renewals or to set up automatic payments, members are encouraged to contact membership@picsa.org.au.

Stay Connected:

PiCSA remains dedicated to fostering excellence in cardiac physiology. We thank our members for their engagement and look forward to another season of shared learning and professional growth.

Together, We are Stronger!



A Fond Farewell and Thank You to Leah Wollin

It's with both gratitude and a touch of sadness that we announce Leah Wollin has stepped down from her role as Treasurer of Professionals in Cardiac Sciences Australia Inc. This marks the end of an era, but also a moment to reflect on Leah's exceptional contributions to our organisation since she first joined the Board in 2020.

Leah's Contributions to PiCSA

As Treasurer, Leah's impact has been felt across the board. She's been instrumental in managing PiCSA's finances, guiding us through key decisions and ensuring the financial stability of the organisation.



Some of Leah's standout achievements include:

- Efficient financial management, ensuring PiCSA's resources were always used in the best possible way.
- Helping the Board navigate important decisions on budgeting and funding so PiCSA could keep delivering on its mission to support Cardiac Physiologists.
- Contributing to PiCSA's long-term vision, always thinking ahead and making sure we were building a strong foundation for the future of the organisation and the profession.

Thank You, Leah

Leah, your contributions to PiCSA have been invaluable. You've helped guide us through crucial stages of development, and your leadership has been key to where we are today. We deeply appreciate the time, effort, and care you've put into PiCSA's overall progress.

While we're sad to see you step down, we know your legacy will continue to guide the organisation as we move forward. Thank you for everything you've done, your impact will be felt for years to come. We wish you all the best in your future endeavours and look forward to keeping in touch.

from Leah:

Being the treasurer of a small charity board has honestly been a great experience. It's really opened my eyes to how much passion and behind-the-scenes work goes into keeping our profession moving forward and making sure it doesn't get left behind. I've met some incredible people from all over Australia—people who are generous with their time and knowledge, and who really care about making a difference. It's also been a lot of fun! I've loved being part of the energy that goes into organising educational events, trivia nights, and AGM's. It's been a really rewarding mix of purpose, community, and connection.

If you've ever thought about getting involved on a board, this is a friendly and welcoming one that truly values whatever you're able to contribute. It's a great opportunity to learn about the many different aspects of board work—from contributing to the governance and strategy of our wonderful profession, to supporting members in their roles, and helping ensure our profession continues to have a clear voice.

What makes this board special is that there's no pressure to do it all—whether you have a little time or a lot, your input is valued. It's a space where your opinions are genuinely heard and considered, and even small contributions can make a big difference. I know everyone is busy, but if you're looking for a meaningful way to get involved, this is a board that welcomes your voice.

Welcome Bianca Coelho to the PiCSA Board

We are thrilled to announce that Bianca Coelho has joined the PiCSA Board as our newest appointed director! Bianca's appointment is a fantastic addition to the team, and we're excited to have her bring her energy, experience, and dedication to this role.



Bianca is no stranger to PiCSA, she has been a vital part of our Professional Standards Committee, where she contributed her expertise and insight into shaping the standards that guide our profession. Her work with the committee has already had a positive impact, and we're confident that she'll continue to drive PiCSA forward in her new capacity on the Board.

Welcome aboard, Bianca! We're so excited to have you join the PiCSA Board, and we can't wait to see the great things we'll accomplish together.



**STRUCTURAL HEART
DISEASE AUSTRALIA**

REGISTER NOW! **SHDA Left Heart Symposium** Saturday 28th June 2025

KPEC - Kerry Packer Education Centre, Camperdown NSW

- This symposium will focus on TAVI / SAVR, Mitral regurgitation options and the LAA.
- Deep dive into the patient workup for interventions and the MDT decision-making process.
- All the specialties involved, all the imaging needed in detail.
- We have an expert Canine surgeon from Japan speaking on his program from creation to 900 cases.
- Live demonstration of AI in Cardiology and Cardiac Surgery - let the "bots" begin
- Live MDT

Streaming site registration is now open: [Click here](#)

Only registered streaming sites are allowed to stream live- SHDA is all about networking with your colleagues and with those you may refer to but have not met yet, GPs, Physiologists, Nurses, cardiologists, surgeons, Anesthetists and registrars

Questions email me: info@shda.org.au

National Cardiac Physiologists Day– 21st May 2025

21st May is National Cardiac Physiologists Day - a celebration of the professionals who keep the nation's hearts ticking - **Cardiac Physiologists!** From diagnostics to device checks, stress testing to pacing clinics, Cardiac Physiologists are at the heart of patient care, every single day. No matter your role, whether in ECG (non-invasive), the Cath Lab, Echo, Cardiac Devices, or Electrophysiology, we proudly come together to celebrate and be recognised.

What makes this day extra special? It falls on the birthday of Willem Einthoven, the Dutch physiologist who brought the electrocardiogram into clinical practice, making it a cornerstone of modern cardiac diagnostics. His legacy lives on through the skilled hands of Cardiac Physiologists around the world.

Professionals in Cardiac Sciences Australia extends sincere thanks for your dedication and impact across the field. This year, we celebrate the milestones we've achieved, the mission that unites us, and the ongoing progress we continue to make—together



Fabulous brownies baked for the team of Cardiac Physiologists at the Royal Adelaide Hospital, SA

6th Annual Trivia Night

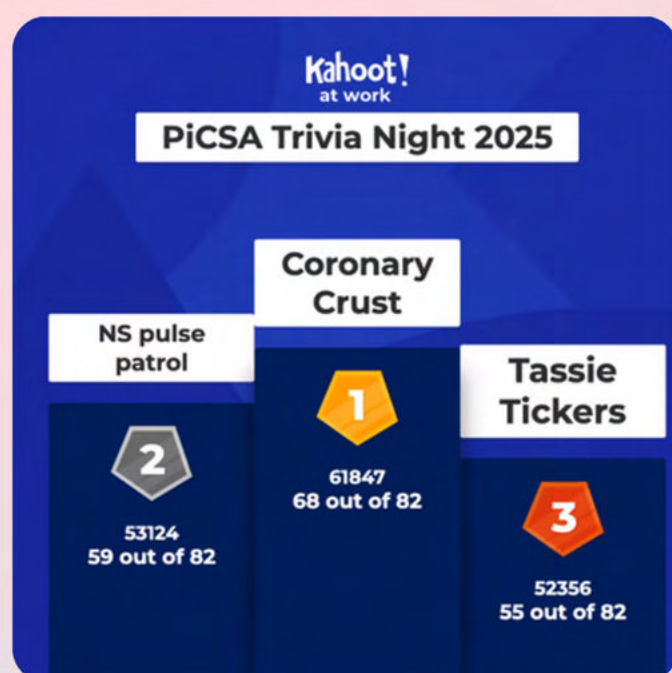
The 6th annual National Cardiac Physiologists' Day Trivia Night was held on 21st May 2025, once again bringing together Cardiac Physiologists from across Australia for a night of celebration, connection, and competitive spirit. The event continues to grow in popularity, offering a lively and engaging way to recognise the contributions of our profession.

This year's event was hosted by PiCSA Board Members Leah Wollin and Jenny Fong, who kept the evening entertaining and interactive, with a perfect mix of fun and brainpower. We are grateful to the Victorian Heart Hospital for generously hosting the event again in 2025.

With 13 teams entering the competition and over 100 participants, there was a fantastic blend of returning players and new faces. The reigning champions from 2024, "Hips and Hearts" from Queensland Children's Hospital, were back online and ready to defend their title with confidence and determination. Their return added an extra layer of excitement to the night, with teams eager for a shot at dethroning the champions and claiming bragging rights for 2025.

The "North Shore Pulse Patrol" from Royal North Shore Hospital once again came out strong in the opening rounds, building on their consistently strong showings in previous years. "Hips and Hearts" held their ground near the top, while the "Myocyte Minds" from Western Health Melbourne were not giving up, and jumped 3 placings late in the first half. The Royal Adelaide Hospital team steadily climbed the leaderboard to finish the first half in top position.

The second half brought plenty of twists. All teams made some fantastic correct answer streaks and most teams featured in the top 5 leaderboard at some stage in the second half. Notably the "Tassie Tickers" (Royal Hobart Hospital), Newy Hunters (John Hunter Hospital) and "Ventricools" (Macquarie Health) made their presence known in the later rounds.



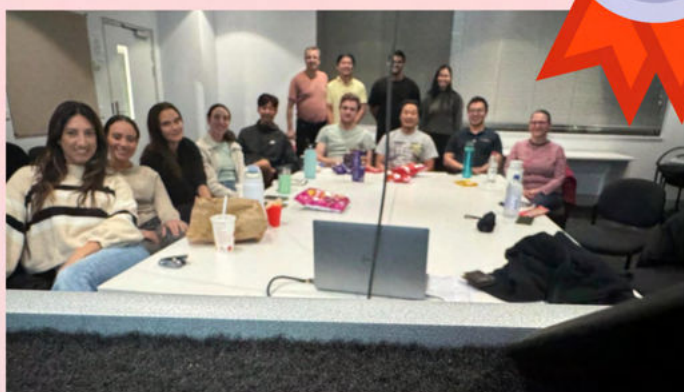
As the final four questions arrived—with double points in play—the competition tightened dramatically. In a thrilling finish, it was **Coronary Crust from Royal Adelaide Hospital** who clinched the win, thanks to a strong second-half and sharp answers when it mattered most.

Congratulations to Coronary Crust and a huge thank you to all teams who took part in making the 2025 Trivia Night another memorable success. We can't wait to do it all again next year!





*Coronary Crusts
Royal Adelaide Hospital
Adelaide, SA*



*North Shore Pulse Patrol
Royal North Shore Hospital
Sydney, NSW*



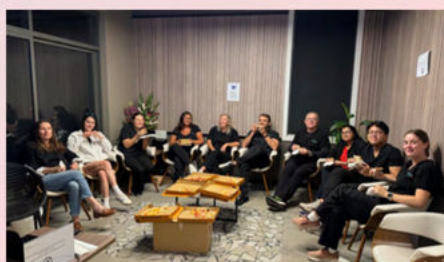
*Tassie Tickers
Royal Hobart Hospital
Hobart, TAS*



Trivia Hosts: Jenny Fong and Leah Giles



*Hips and Hearts
Queensland Children's Hospital
Brisbane, QLD*



*The Brady Bunch
Global Cardiology Perth
Perth, WA*



*The Stenographers
Epworth
Melbourne, VIC*



*Newy Hunters
Newcastle Hospital
Newcastle, NSW*



*The Kardioshians
Perth Cardiovascular Institute
Perth, WA*



*The Ventricools
Macquarie Health
Macquarie Park, NSW*



*French VT
Monash Heart
Melbourne, VIC*



*The Depolarizers
Toowoomba Hospital
Toowoomba, QLD*



PiCSA would like to extend our sincere thanks to our affiliate partners for their generous support of the 2025 Trivia Night.

Cardiac Physiology in Practice www.cardiacphysinpractice kindly donated a full licence to the ECG in Practice (Program 1 & 2) as part of the first-place prize for our winning team.

Congratulations to Coronary Crust from Royal Adelaide Hospital—we're sure you'll gain immense value from this comprehensive program.

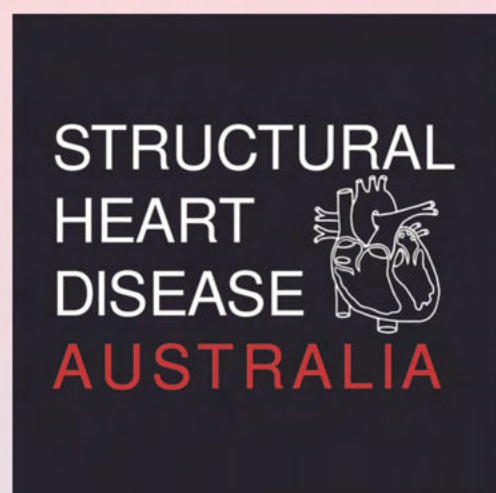
We're also incredibly grateful to **Structural Heart Disease Australia (SHDA)** www.shda.org.au for donating this year's Lucky Door Prize:

- 6 tickets to the upcoming Left Ventricular Symposium
- Plus a \$300 travel voucher

And the lucky door prize winners are:

- Monash Health – 2 tickets + \$300 travel voucher
- Global Cardiology Perth – 2 tickets
- Macquarie Health – 2 tickets

Thank you once again to our partners for helping us make the event both educational and rewarding. Your contributions continue to support and celebrate the cardiac physiology community across Australia.



Inaugural Clinical Physiology Education Hub—Registrations Now Open!

We are excited to share that registrations are now open for the first-ever Clinical Physiology Education Hub—a collaborative, cross-disciplinary event bringing together professionals from cardiac, neurophysiological, respiratory, and sleep sciences.

Jointly hosted by ASNA, ANZSSA, ANZSRS, and PiCSA, this full-day event is designed to foster shared learning, strengthen professional networks, and explore innovation across the allied health physiology space. See event details below, and on the next page.

To get the discounted rate, PiCSA members can use their PiCSA username or most recent membership receipt number in the “membership number” field.

Note, you can choose any discipline for the afternoon sessions. Check out the program overleaf.

Introduction to Electrocardiography Course – at the Education Hub event

A practical, hands-on course delivered by PiCSA over two 90-minute sessions.

Ideal for beginners or those needing a refresher, the course covers accurate lead placement, step-by-step interpretation, and common arrhythmias.



Connect and learn with colleagues across all disciplines in this catered event at Melbourne's historic library.

WHEN?

Saturday, August 2nd 2025
8:30 AM - 4:30 PM
optional drinks/dinner afterward

WHERE?

The State Library of Victoria
Melbourne

PRICING?

Members only early bird: \$199
Members non-early bird: \$249
Non-member: \$349



Early bird close:
13/06/25

Registrations close:
11/07/25

Limited spots!

↓ SCAN QR TO REGISTER ↓



OR VISIT YOUR PROFESSIONAL
ASSOCIATION'S WEBSITE FOR LINK

Developed by Realityworks and supported by Australian distributor Virtual Know-How, the **Intro to ECG** course features simulation tools, interactive content, and expert instruction.

Includes pre- and post-course assessments and a certificate of completion. **Places are limited.**

To complete the introduction to Electrocardiography course - please select **both** cardiac afternoon sessions in order to be eligible for the certificate.

For more information and to register, visit the PiCSA website or
<https://www.trybooking.com/events/landing/1392356>



Provisional Program



Clinical
Physiology
Education Hub



PROFESSIONALS in
CARDIAC SCIENCES
AUSTRALIA INC



Australia and New Zealand
SLEEP SCIENCE
ASSOCIATION

A joint initiative of:

Professionals in Cardiac Sciences Australia
The Australia and New Zealand Sleep Science Association
The Australian and New Zealand Society of Respiratory Science
The Association of Neurophysiology Scientists of Australia



ANZSRS

Australian and New Zealand Society of Respiratory Science Ltd
www.anzsrs.org.au



8:30am Saturday 2nd August 2025

State Library of Victoria

Generously sponsored by the



7:30 AM Delegate check-in (NB pre-registration required - see ticket link below)

8:30 AM Gather & seating

9:00 AM Opening Plenary

From breath to brain: physiological consequences of obesity & hypoxia

Brigitte Borg

Miriam Norman

Brad Edwards

Luke Slingsby

Respiratory: Obesity & Pulmonary Function

Cardiac: Obesity & the Heart

Sleep: Obesity & Sleep Physiology

Neuro: Responses to Hypoxia

10:30 AM Morning Tea

11:00 AM Session 2 - Separate cardiac, neuro, respiratory, & sleep streams

12:30 PM Lunch

1:30 PM Session 3 - Separate cardiac, neuro, respiratory, & sleep streams

3:00 PM Afternoon Tea

3:30 PM Session 4 - Closing plenary

Recent highlights - Cardiac, Neuro, Respiratory, Sleep

4:30 PM Event close

4:45 PM onward - Optional drinks/dinner - please indicate interest during registration

All times in AEST - Limited places - Tickets available [here](#) or scan QR code



**See over
for
details**



Cardiac, Respiratory, Neurophysiology, and Sleep Streams

Sessions 2 and 3 each include four concurrent streams - see previous page for full program overview.

Session 2 – 11:00 AM to 12:30 PM

Cardiac Stream - An Introduction to Electrocardiography (Part 1 of 2)

Hands-on ECG course. For beginners and those needing a refresher. Covers lead placement, ECG interpretation, and common arrhythmias. Features interactive tools from Realityworks.

Generously supported by Virtual Know-How.

Includes assessments and certificate. *Note: Certificate requires attendance at both cardiac sessions.*

Neurophysiology Stream - Epilepsy to Stroke: Neurophysiology in Focus

Managing Epilepsy with Ketogenic Diet – *Chris Farrell*

Neurophysiology for Prognostication in Cardiac Arrest and Stroke – *Luke Slingsby*

Respiratory Stream - Physiology Principles

Masterclass in Respiratory Physiology: Revisiting First Principles

Ideal for CRFS candidates and early-career physiologists, or those wishing to refresh or consolidate knowledge. Covers key topics aligned with the CRFS Study Guide: Pharmacology, Diagnostic Procedures, Lung Volumes, and Interpretation Essentials.

Concludes with Q&A and panel discussion.

Sleep Stream - Sleep Science Masterclass

Designed to support knowledge consolidation and CSS exam preparation.

Normal/disordered sleep – *Kerri Melehan* | Performing studies – *Brett Duce*

Study analysis – *Tom Churchward* | Paediatrics – *Nicole Verginis*

Concludes with Q&A and panel discussion

Session 3 – 1:30 PM to 3:00 PM

Cardiac Stream - An Introduction to Electrocardiography (Part 2 of 2)

Hands-on ECG course. Continued from Session 2. *See above for course details.*

Neurophysiology Stream - Neurophysiology in Obesity

Obesity and Peripheral Neuropathy

Obesity and effects on neurophysiology in surgery – *Tom Verhellen*

Respiratory Stream - Pulmonary Function Testing in Neuromuscular Disease

Case study of multidisciplinary care

Respiratory muscle testing – *Emma Smith*

How physiologic testing impacts discussions, decisions, and prognosis.

Concludes with Q&A and panel discussion.

Sleep Stream - Sleep and Vigilance Insights

Sleep EEG Insights into Neurological Function – *Anna Mullins*

Explore EEG changes, slow-wave oscillations, memory, and CPAP comparisons.

Where to Draw the Line? Sleep Latency and Vigilance Testing – *Denise O'Driscoll*

Discuss MSLT/MWT interpretation challenges: frequent arousals, unconsolidated sleep, and test reliability. A practical and provocative session.

Generously sponsored by the



Coronary Artery Stent Implantation in an Infant- A Case Presentation

Justin Gordon, Queensland Children's Hospital, Qld

This case describes the use of commercially available adult coronary artery stents in an off-label and unaltered fashion for the palliative treatment of cyanotic congenital heart disease in infants. With limited product investment from manufacturers, a reduced catalogue of dedicated paediatric interventional products means that innovative paediatric cardiologists are utilising endoprostheses designed specifically for adult based interventions in a variety of native and surgically created vessels.

Baby B was born with transposition of the great arteries (TGA), large VSD and a dysplastic pulmonary valve with moderate to severe pulmonary stenosis. To improve her immediate post birth oxygen saturation level (SaO_2) she underwent a balloon atrial septostomy, but, with ongoing ductus arteriosus closure, she continued to desaturate with a SaO_2 of only 60%. With ongoing obstruction to pulmonary blood flow (PS), the decision was made to perform a modified Blalock-Taussing shunt (mBTS) to improve her saturations before the definitive operation was to be done. A 4mm right mBTS was created through a right thoracotomy on day 11 of life. The mBTS is a surgically placed systemic to pulmonary Gore-Tex conduit which aims to relieve cyanosis by improving blood flow to the pulmonary artery. A full review of the mBTS is given in the Spring 2023 edition of the Rhythm Strip.

Baby B was discharged home at 4 weeks of age with monthly cardiology outpatient appointments which included transthoracic echocardiography. Over this time, Baby B continued to gain weight with some work of breathing noted during feeds and a SaO_2 measured in clinics between 75% and 84%.

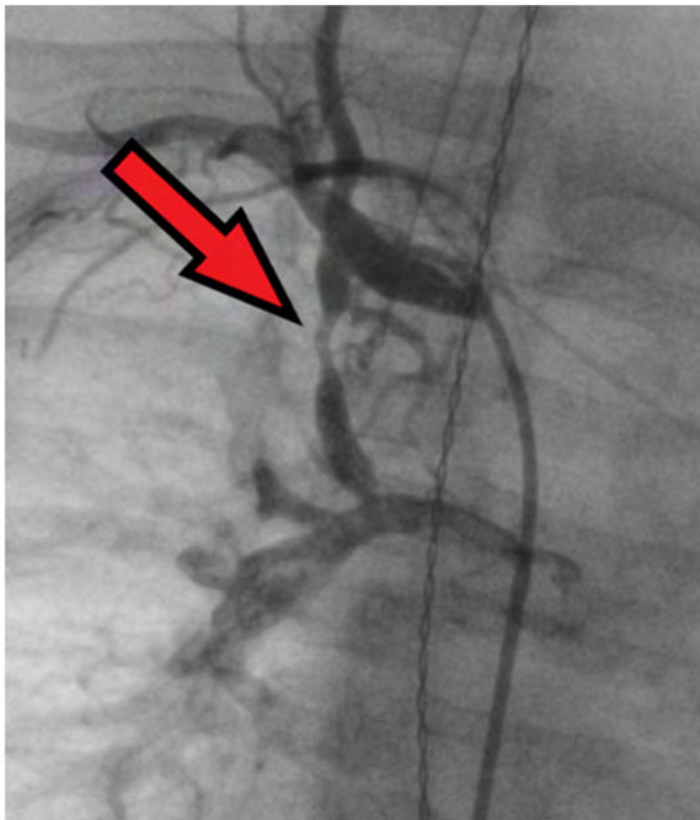


Figure 1: Angiography showing a stenosed right mBTS.

At 9 months of age Baby B presented to her routine Cardiology OPD clinic with a SaO_2 of 60% and she was subsequently found on echocardiography to have no flow through the mBTS. Baby B was admitted to the cardiac ward for commencement of heparinisation and supplemental oxygen therapy. Later that evening the decision was made to take her to the cardiac catheterisation lab for percutaneous balloon dilation and stent implantation of the mBTS.

Hand injection angiography was performed at the origin of the mBTS using a 4F C2 Glide catheter via a femoral artery approach. This demonstrated a significant narrowing of the mBTS to 1.2mm in the mid section (figure 1).



Stenting of the mBTS was undertaken using a 4mm x 26mm Resolute Onxy coronary artery stent, with a good result evident on the post intervention angiography injection (figure 2).

A diagnostic catheter performed following stent implantation showed reasonable haemodynamics and improved oximetry results (figure 3).



Figure 2: Angiography following coronary stent implantation into the right mBTS.

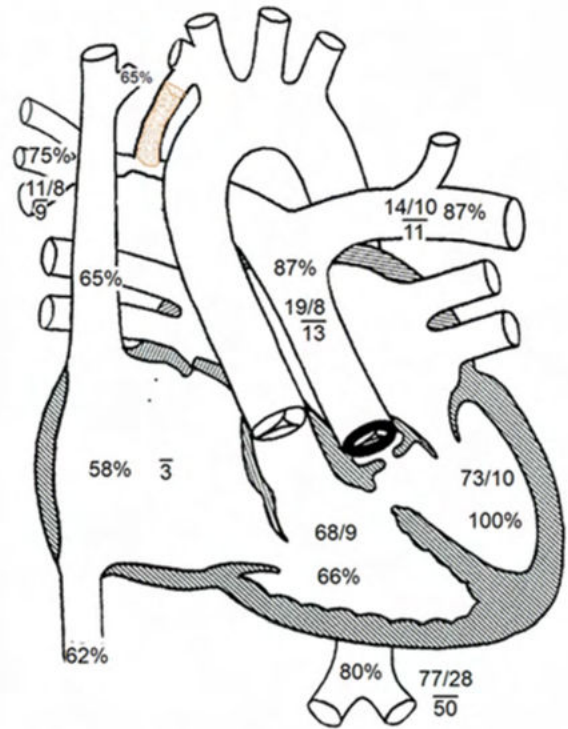


Figure 3: Diagnostic catheter haemodynamic measurements following stenting of the mBTS.

Conclusion

Coronary artery stent use in an occluded mBTS was first performed in 1997. Over the decades, clinical reports have found good procedural success rates with low morbidity and mortality events and significant improvements in oxygen saturations. Urgent thrombosed mBTS revascularisation with drug eluting coronary stents, as in the case of Baby B, also continue to show good results on long term follow-up.

Transcatheter percutaneous use of adult type coronary artery stents are an evolving treatment and alternative to surgery in several congenital heart conditions. It is especially appealing in challenging and high-risk paediatric patients who are not good candidates for redo surgeries. Interventionalists within paediatric cardiology continue to seek alternative uses for high quality adult percutaneous equipment in providing the best care for patients with complex pre- and post-surgical congenital heart disease.



References and Further Readings

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OCT vs. IVUS: A Beginner's Guide to Intravascular Imaging

Jordan Jago- Cardiac Physiologist Educator, The Victorian Heart Hospital

Looking at a coronary angiogram, you know that it only gives us a two-dimensional outline of the arteries. What can we do if we need more detail; how much plaque is inside, or whether a stent has been properly placed? Well, that is when intravascular imaging comes in handy!

Two of the most commonly used techniques are Optical Coherence Tomography (OCT) and Intravascular Ultrasound (IVUS). They allow us to get inside coronary arteries and inspect them, with far greater clarity than angiography alone. However, each has its own strengths and weaknesses.

What is IVUS?

Intravascular Ultrasound, works by using high-frequency sound waves (echo) to create cross-sectional images of the coronary arteries. A small catheter with an ultrasound probe is threaded into the artery, when activated it sends out sound waves that bounce off the vessel walls. The returning echoes build a grayscale image that shows us how much plaque is present, how thick the artery walls are, and whether a stent is properly expanded.

Why do we use IVUS?

- It penetrates deep into the artery wall, so we can see not just the surface, but the deeper plaque as well.
- No contrast dye required, which makes it a safer option for people with kidney disease.
- It's great for large or calcified vessels, like the left main where contrast clearance might be an issue

What are the downsides?

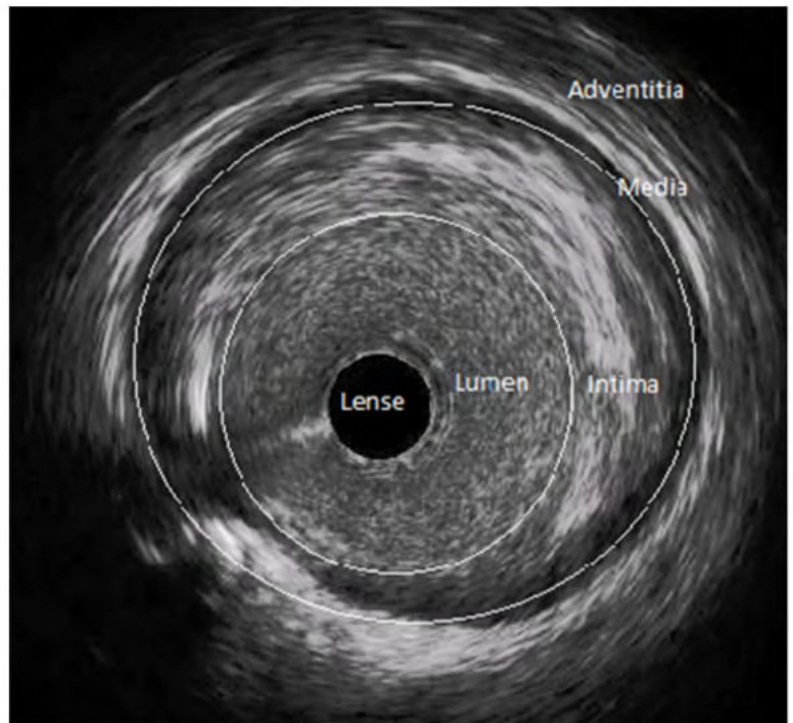
- The image is not quite as sharp, smaller details like thin fibrous caps or subtle stent malposition can be harder to visualise.
- You're working with Grayscale and it takes experience to interpret well.

(References: Mintz et al., 2001; Shlofmitz et al., 2021)

What is OCT?

Optical Coherence Tomography works differently to IVUS, instead of sound waves, it uses near-infrared light to create incredibly detailed images. A special catheter emits light that reflects off the artery walls, and these reflections are turned into a high-resolution image.

Because blood scatters light, we need to inject a small amount of contrast dye to clear the field of view while capturing images. This is why OCT isn't always suitable for patients who need to avoid contrast.



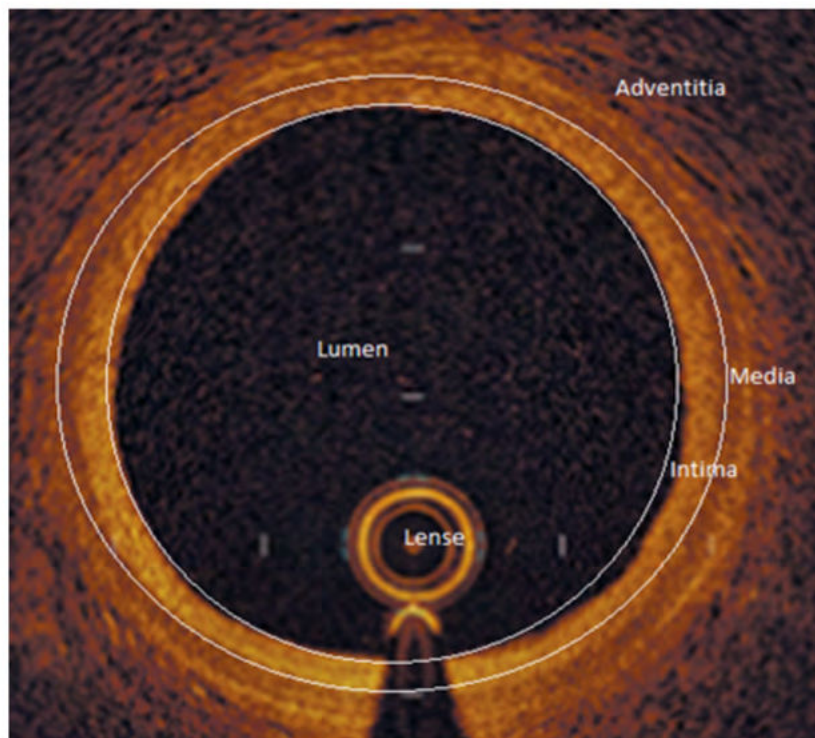
Why do we use OCT?

- The resolution is unique to OCT and can pick up details as small as 10-20 micrometers! This is roughly 10 times finer than IVUS.
- Excellent for stent optimisation, helping us check if the stent is fully expanded, well-apposed, and free from blood clots.
- It provides clear plaque interpretation, allowing us to clearly see between the morphologies of plaque.

What are the downsides?

- It doesn't penetrate as deeply as IVUS, so we can't see deeper plaque structures as well.
- It requires contrast dye, making it less suitable for some patients.

(References: Tearney et al., 2012; Bouma & Tearney, 2021)



How Does IVUS and OCT Compare?

Feature	IVUS	OCT
Imaging Method	Ultrasound (sound waves)	Near-infrared light
Resolution	100-150 microns (lower)	10-20 microns (higher)
Tissue Penetration	Deep (good for large plaques)	Shallow (best for surface details)
Contrast Requirement	Not required	Required
Best for	Large vessels, deep plaques, patients with kidney disease	Stent optimisation, small details, plaque characterisation
Limitations	Lower resolution, grayscale images	Limited penetration, requires contrast

We already know that there is no “one-size-fits-all” when it comes down to the patient. It all depends on their anatomy and clinical situation.

- We use IVUS if you need to assess large plaques, deep vessel structures, or if the patient can't tolerate contrast dye.
- We use OCT if you need high-resolution details for stent optimisation, detecting thin fibrous caps, or distinguishing between different types of plaques.

(References: Zanchin et al., 2020; Jang et al., 2021)

Both IVUS and OCT have changed how we treat coronary artery disease. IVUS gives us a deep look into the vessel walls, while OCT provides clarity for stent placement and plaque characterisation. Understanding the strengths and limitations of each tool helps us choose the best imaging method for every patient, ensuring better outcomes in the interventional cardiology workspace.

If you're new to these imaging techniques, it takes time to develop an eye for interpreting the images. But once you do, they become invaluable tools for improving patient care.

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Lying for a living

Megan Brydon - director, Canadian Association of Medical Radiation Technologists

I am a professional liar. I make my trade out of a poker face and pretending all is well.

I will talk to you about parking, the weather, the news, the housing market, or Taylor Swift, but I won't tell you what I know.

I will care for you, explain the procedure you're about to have to whatever level of detail you require to understand.

I will tell you about radiation, and how you can't see it, or feel it, or taste it, but it will let us see what you're made of.

We will share a few chuckles, even though you're nervous, because I am kind and confident, and put you at ease.

I will explain that everything feels a bit sci-fi like, and space-age, but that I will be here with you, by your side.

I will hold your hand, tell you stories, and even sing songs if that helps to ease your fears.

What I won't do is tell you what I know.

I know what is causing that pain in your back.

I know your kidneys aren't doing what they're meant to.

I know your heart isn't pumping like it is supposed to.

I know your loved one's brain is no longer active.

I know the cancer is everywhere.

I know this may be the end.

I am the first to see the truth, the facts, the indisputable evidence.

I am the first to know that you are about to receive life altering news.

I am a sleuth, a detective, and a liar.

I will be attentive,

and nice,

and look you in the eye,

and give nothing away.

I will buy you a few more minutes of your life "before".

Soon, you will learn the truth.

And you will learn that in between the niceties, the small talk, the care; I lied.

Knowing is a burden; lying for a living is malignant.

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Beyond the Poker Face: Reflections on "Lying for a Living"



By Miriam Norman, Royal Hobart Hospital

In the powerful article *Lying for a Living*¹, published in the *Journal of Medical Imaging and Radiation Sciences*, Megan Brydon explores the emotional challenges faced by medical imaging professionals who must maintain a neutral demeanour while scanning—even when confronted with serious or distressing findings. Often, this occurs in the face of pleading patients (or parents) desperate for answers.

The practice of withholding findings, while intended to protect patients from premature or unverified information, can take a heavy emotional toll. Brydon's reflections resonated with me—I've felt that same discomfort. I suspect many of us across the profession have. We've all been there.

Her article prompted me to reflect on my own experiences and ask: "Do I still feel the same way?" In this response, I'll share how I've (mostly) come to terms with the communication limits of our role, and how certain experiences have shaped my thinking.

Lingering emotional and psychological discomfort arises when we feel unable to do the right thing or are forced to act against our values. Even when we follow protocol, maintain professionalism, and say the "right" thing—the experience can still linger. Over time, repeated situations that generate moral residue can lead to moral injury and burnout. If this is an occupational hazard, then we need strategies to avoid or manage it.

In the world of echo physiology/cardiac sonography we regularly spend 45 minutes or more with patients, eyes glued to a screen, carefully analysing pathology while maintaining a calm, unreadable exterior. We often say, "Sorry, I can't give you your test result," and try to move the conversation elsewhere. This is easier said than done when we are focusing intensely on image details, and the patient knows that we are withholding information. It can be tough on them and tough on us.

Three Moments That Shaped My Approach

- 1. Parental distress:** I once watched my supervisor navigate a scan on a newborn with minor cardiac abnormalities. The mother, understandably anxious, knew something was up. My supervisor was trying to teach me whilst not disclosing results to the mother. At the end of the study a doctor came in, stated the findings using a dismissive tone and technical language, and left. No one really connected with the mother, explained things properly, or addressed her concerns with compassion. It stayed with me – and it changed how I now respond.

Now when something similar happens, I grab a post-it-note, write down the term the doctor used, and hand it to the patient/parent, suggesting which websites might be helpful. If there is time, I use plain language to explain: "This is the term the doctor used – here it is written down for you – and this is what it means..."

- 2. Myxoma disclosure:** One Friday afternoon, I was scanning a patient (with student nurses observing) and discovered a large atrial myxoma—a perfect "Instagram-worthy" textbook case. I kept my face neutral, advised the patient I'd be back in a minute, stepped out and notified the responsible cardiologist before he left for the weekend. He walked in, took one look, visibly startled, and exclaimed loudly: "Oh my God!" That's how the patient found out something was seriously wrong.



What I took from this experience was that doctors are human too, and that, all too often, time and space for proper patient communication are lacking. Sometimes I can help fill these gaps (more on this later).

3. Bad or Good LV dysfunction: I completed a scan thinking “that is a truly terrible left ventricle”, but kept my mouth shut. The doctor came in, saw my images and said to the patient, “This is a good result.”

My first (internal) reaction was “you’ve got to be kidding”—until I realised that the doctor (who knew more of the patient’s story than I did) had expected the heart to look much worse. It really WAS a good result for my patient. Had I spoken too soon, they would have received contradictory advice and not known who to believe.

That moment reminded me that I don’t hold the full picture. It’s not just about what I see—it’s about clinical context, history, and a bigger treatment plan. That result really was good, given the circumstances. If I had spoken too soon, I could have confused the patient and undermined the doctor’s communication.

But even with these boundaries, we still have a valuable communication role to play

Before we even begin scanning, the way we introduce ourselves can set the tone and help manage expectations². I always start with: “Hi, my name is Miriam. I’m the Cardiac Physiologist who will be performing your scan today.” (Note: I sometimes rephrase this using the term Sonographer, which is equally appropriate.)³

Throughout the interaction my aim is to:

- Ensure the patient feels respected and supported
- Promote conversation (when conditions permit) that:
 - Empowers, validates, and supports
 - Improves health literacy
 - Sets the stage for effective follow-up conversations with their medical team

Simple, open questions like, “Do you know why you’re here today?” or “What do you understand about your diagnosis so far?” can invite trust and initiate meaningful dialogue.

If a diagnosis has already been given—say, “atrial fibrillation”—it’s not stepping outside of our scope to check that they have a basic understanding, see if they want to talk about it, and explain it for them in plain English if they’d like us to. We can also have handouts and website references on hand to share – even handing them a sticky note that lists the key words their doctor used can be extremely helpful. It is absolutely appropriate to explain **why the test has been requested** and how it might help to guide therapy — these conversations can generate human connection, provide clarity, reduce overwhelm, and empower patients to fully engage in the next steps of their care.

Actively establish patient expectations

Be upfront about **when** patients will receive their results—and explain **why** there may be a delay. We’re not being deliberately cruel! – there are good reasons for the policy and most patients appreciate an explanation. Sometimes I share the above LV dysfunction story with patients to provide context.

Over time, I’ve developed a handful of **go-to phrases** that help me set expectations clearly and compassionately. These can be easily adapted depending on the setting and the patient’s personality.

For example:

- *"Results are best delivered when you're clothed and upright, and by someone who has seen all your test results and is able to give you the full story."*
- *"I can tell you what I'm looking at, and why, but I'm not allowed to tell you whether it looks good or bad."*
- *"I don't have a conclusion yet. After you leave, I'll go over the footage, take more measurements and compare them with your prior scan."*
- *"Our doctors will check the images to make sure nothing has been missed."*
- *"I never tell anyone their heart is 'normal,' because ultrasound doesn't show everything. I can't see your heart's electrical system or the coronary arteries."*
- *"If something looked really dangerous, I'd find a doctor to speak with you so you wouldn't be left waiting."*
- *"Would you like to practice asking your questions for the doctor? I can help you prepare."*
- *"I think your doctor will be pretty happy with this scan."*
- *"It's probably not as good as when you were 20, but I'll leave it to the doctors to say whether it's what they were expecting."*
- *"I can't give results, but I've made sure the important things are documented for your doctor to review. I think this scan is going to be really helpful."*
- *"Your concerns will be addressed, and things will be explained properly—by someone who has the full picture."*

Not Silent, Not Overstepping

I strongly believe that Cardiac Physiologists are a wasted resource if we keep our mouths completely shut. We can:

- Improve patient understanding of known conditions
- Clarify the purpose of the scan
- Reinforce key messages from the care team—such as first aid action plans, medication adherence, or when to seek medical help
- Encourage and support lifestyle change, including smoking cessation
- Help set clear expectations
- Reinforce trust in their treating team

We're also in a unique position to **counteract the growing wave of distrust in medicine**. Patients often ask questions during a scan that reflect their uncertainty or fear about the system. By being appropriately personable, empathetic, and trustworthy, we can play a quiet but powerful role in restoring confidence. Conversely, if we're insensitive—or don't explain why we're not giving results—patients may feel mistreated and become more vulnerable to anti-science or anti-medicine rhetoric.

While these conversations can be valuable, it's important to remember that our primary role is to perform a diagnostically excellent scan—efficiently, accurately, and thoroughly. Communication is important, but not at the expense of image quality or diagnostic value. We shouldn't allow ourselves to get so caught up in conversation that we compromise the scan itself, and at times we may need to shut conversation down altogether.

It is worth reflecting on **who** sets the expectations around what we can and can't say. Many of us say, "I'm not allowed to tell you your results," but **have we confirmed exactly what our employers expect?** What if the scan appears entirely normal—are we still required to say nothing? Are there scenarios where we're encouraged to provide more information or support as part of a broader scope of practice? To what degree are we permitted to use our discretion and professional judgement?

These are questions worth discussing within our teams and with our consultants. **The issue isn't just legal – it is cultural**, and authority may be delegated or adapted to modern interdisciplinary realities. Clarifying (and documenting) local expectations can help ensure we're not being overly cautious to the detriment of our patients, our doctors, or ourselves.

For those wanting more practical ideas on communicating with cardiac patients, I'd encourage a look at *The Art of Explaining Things* (Norman, 2022)⁴, published in the Rhythm Strip newsletter by Professionals in Cardiac Sciences Australia (www.picsa.org.au).

Communication with Integrity

I've come to feel more comfortable in these complex moments because I see myself as part of a bigger team—and I trust that team. It may not be my role to disclose new findings, but there are plenty of appropriate ways to reassure, inform, and support both the patient and the care team.

I don't need to sit silently or employ deceitful deflection. I can offer genuinely supportive communication that openly defers to the right person, at the right time, in the right context.

By focusing more on what I CAN do rather than what I can't, I shift my situation from one of restriction to one of empowerment. There is almost always something meaningful I can offer—something that helps the patient feel safe, respected, and heard, while keeping me within my scope and professional boundaries.

If I can make someone's experience of modern medicine just a little more positive, a little more human, then I've done something that matters. I'm not here to lie to patients—I'm here to help them understand the process, feel supported, and leave with trust in the people caring for them. That's something I can be proud of.

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CEPIA EGM series #12

By Harley Cross (BAppSc (HMS), Grad Dip Cardiac EP, CEPLA)

This month, we review a series of telemetry and intracardiac electrogram strips from a patient who underwent an elective electrophysiology study (EPS) +/- radiofrequency ablation (RFA) for the potential curative treatment of long-standing palpitations.

Having a documented tachycardia prior to EPS can be extremely beneficial to EP lab staff. Careful assessment of the arrhythmia informs the differential diagnosis and may allow exclusion of certain mechanisms altogether.

Figure 1 shows a long RP narrow complex tachycardia at ~150bpm. The P wave axis is superiorly directed compared to sinus rhythm. The tachycardia terminates in the ventricle, with no P wave observed following the final QRS complex. Based on the RP interval and P wave morphology, the differential diagnosis includes atypical AVNRT, focal atrial tachycardia (FAT), or orthodromic AVRT via a concealed accessory pathway (as there is no pre-excitation during sinus rhythm). While a long RP interval of this duration is uncommon in orthodromic AVRT, it remains a possibility.

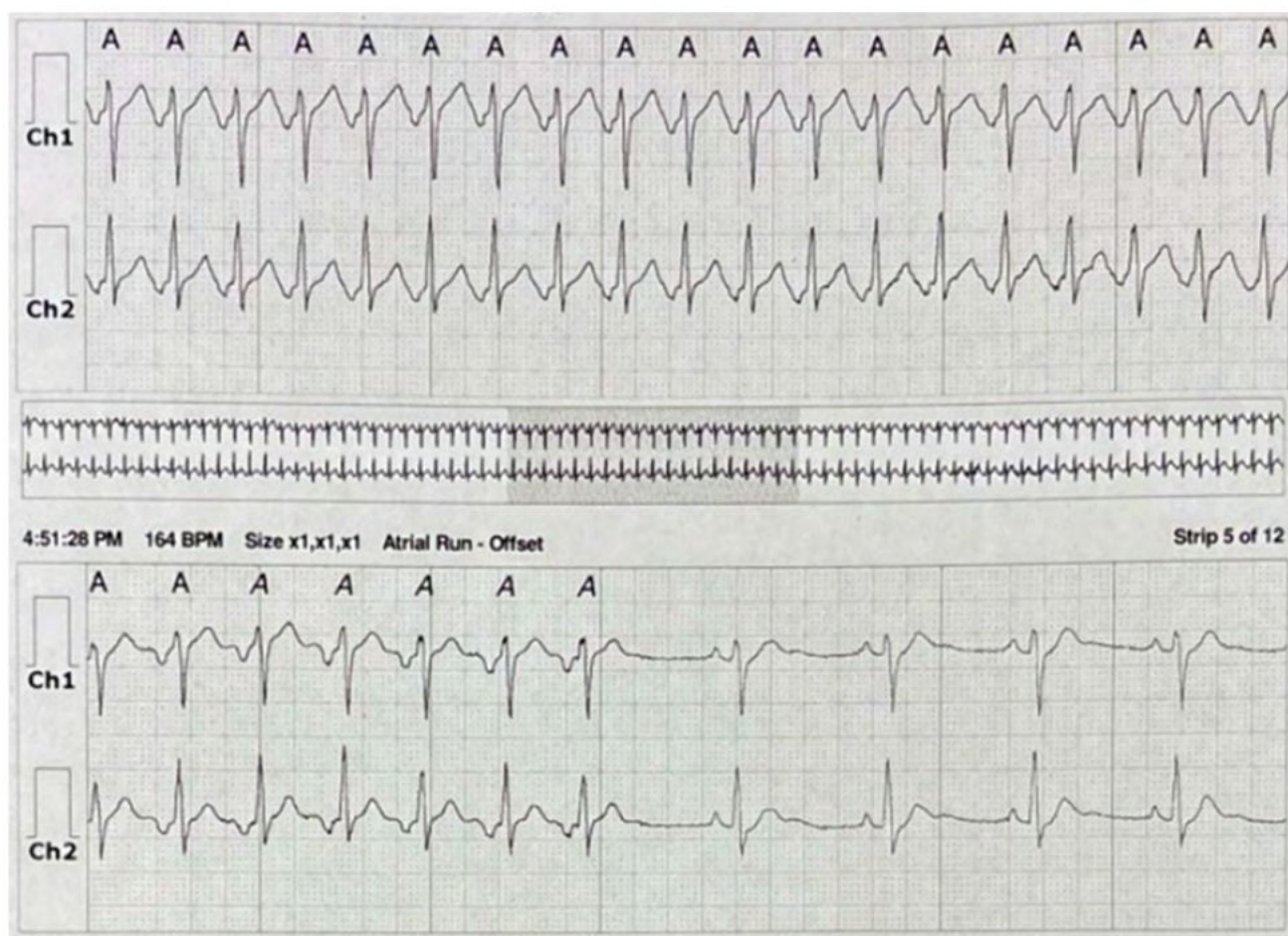


Figure 1: Top strip: Narrow complex long RP tachycardia at ~150bpm.

Middle strip: Sudden termination of tachycardia with return to sinus rhythm. Tachycardia terminates in the ventricle.

It is not uncommon for patients with atypical (fast/slow) AVNRT to show no evidence of dual AV nodal physiology. This is because antegrade conduction occurs via the fast pathway both at baseline and during tachycardia. Therefore, greater emphasis may be placed on ventricular incremental and extra-stimulus pacing protocols to induce retrograde fast pathway block and unmask retrograde slow pathway conduction.

The baseline EPS revealed no evidence of dual AV nodal physiology or accessory pathway conduction. During ventricular incremental pacing, a long VA time was observed. Programmed ventricular stimulation at 600/320ms induced a long RP tachycardia, shown in Figure 2, with characteristics resembling the clinical tachycardia. Measured intervals were VA = 314ms, AV = 152ms, and atrial cycle length (ACL) = 468ms. Induction from the ventricle makes an atrial tachycardia unlikely; however, further diagnostic pacing manoeuvres are required to determine the mechanism definitively.

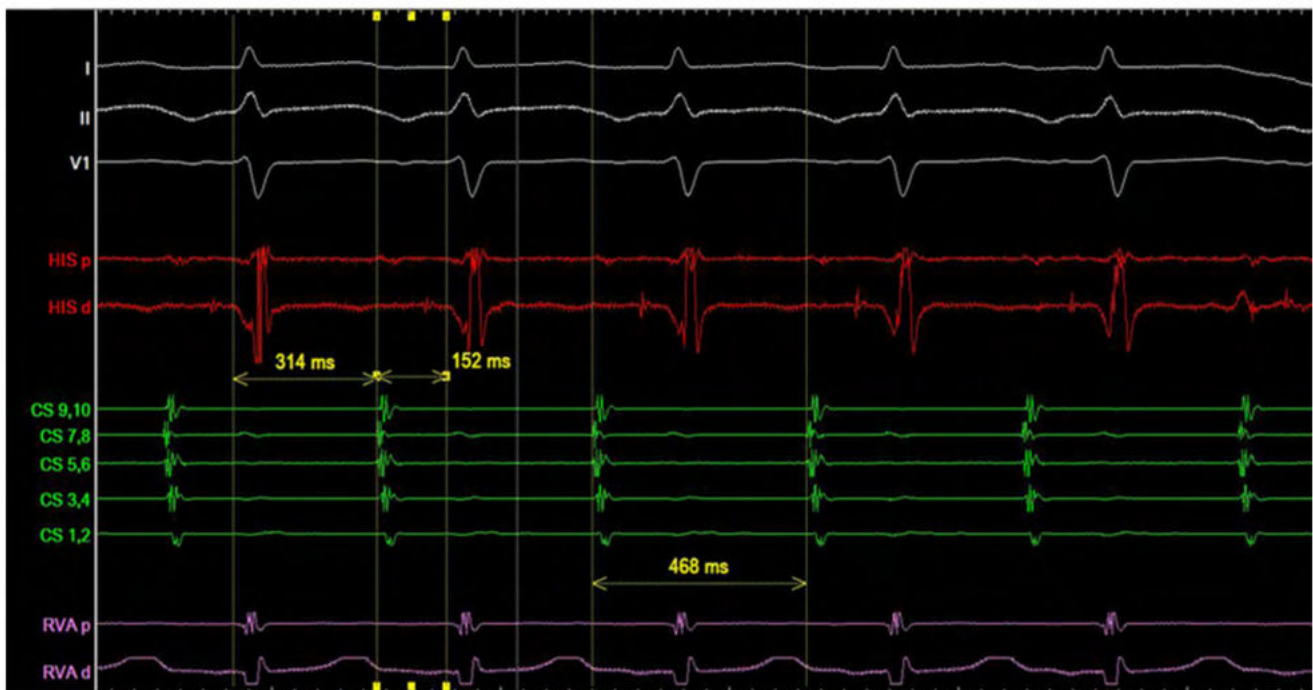


Figure 2: Narrow complex tachycardia at ~125–130bpm. AV = 152ms, VA = 314ms. Atrial activation sequence shows CS 7–8 earliest, preceding the His A.

Several manoeuvres could be employed during this SVT, and none would be incorrect; in this case, atrial extra-stimulus (AES) pacing was performed first. When diagnostic, AES can effectively differentiate FAT from re-entrant tachycardias such as AVRT and AVNRT with high sensitivity and specificity.

A diagnostic response in this setting involves advancement of the immediate R wave following the AES beat—distinct from typical AVNRT, where the subsequent R wave is assessed. Figure 3 illustrates that the tachycardia was reset, with the R-R interval shortened from 460ms to 430ms. The post-AES VA interval (338ms) was then compared to the VA interval during SVT (300ms). The retrograde limb in a re-entrant circuit is generally unaffected by the AES and the VA interval should remain the same whereas a difference in VA interval supports a diagnosis of FAT.

Or does it....?

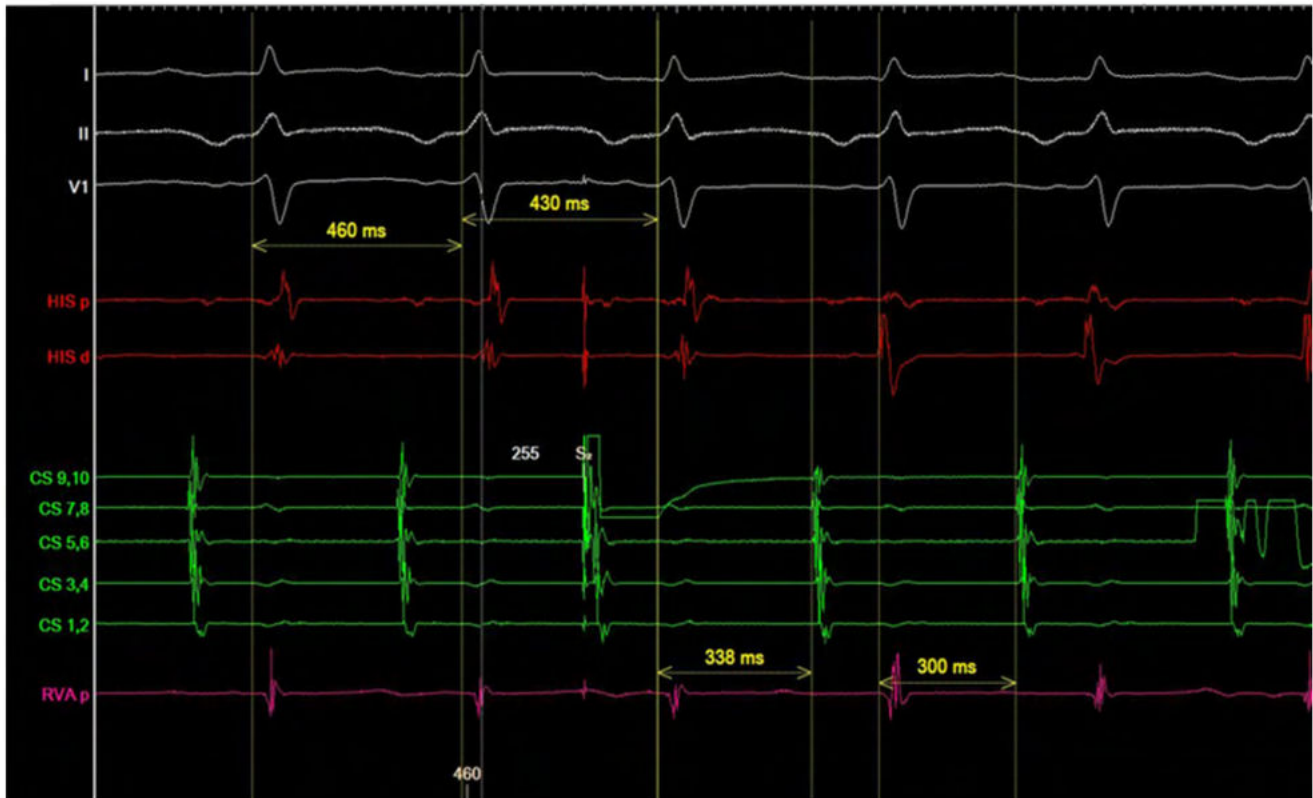


Figure 3: During tachycardia, AES advances the immediate R wave, resetting the tachycardia from 460ms to 430ms. The return VA interval is 338ms vs. 300ms during SVT.

A different VA interval post-AES is observed in FAT approximately 95% of the time. But is 95% certainty sufficient for a conclusive diagnosis? What about the remaining 5%?

Given this ambiguity, ventricular overdrive pacing (VODP) was performed. At first glance (Figure 4), the response appears to be AAV, which would support FAT. However, precise measurement using calipers revealed a pseudo-AAV response. The fourth atrial electrogram was the final entrained beat at 430ms, representing a true AV response.

The PPI – TCL exceeded 115ms, effectively excluding AVRT. Of note a pseudo-AAV response is commonly seen in atypical form of AVNRT when retrograde conduction occurs via the slow AV nodal pathway, analogous to antegrade crossover seen during atrial pacing that may occur in patients with the typical form of AVNRT.

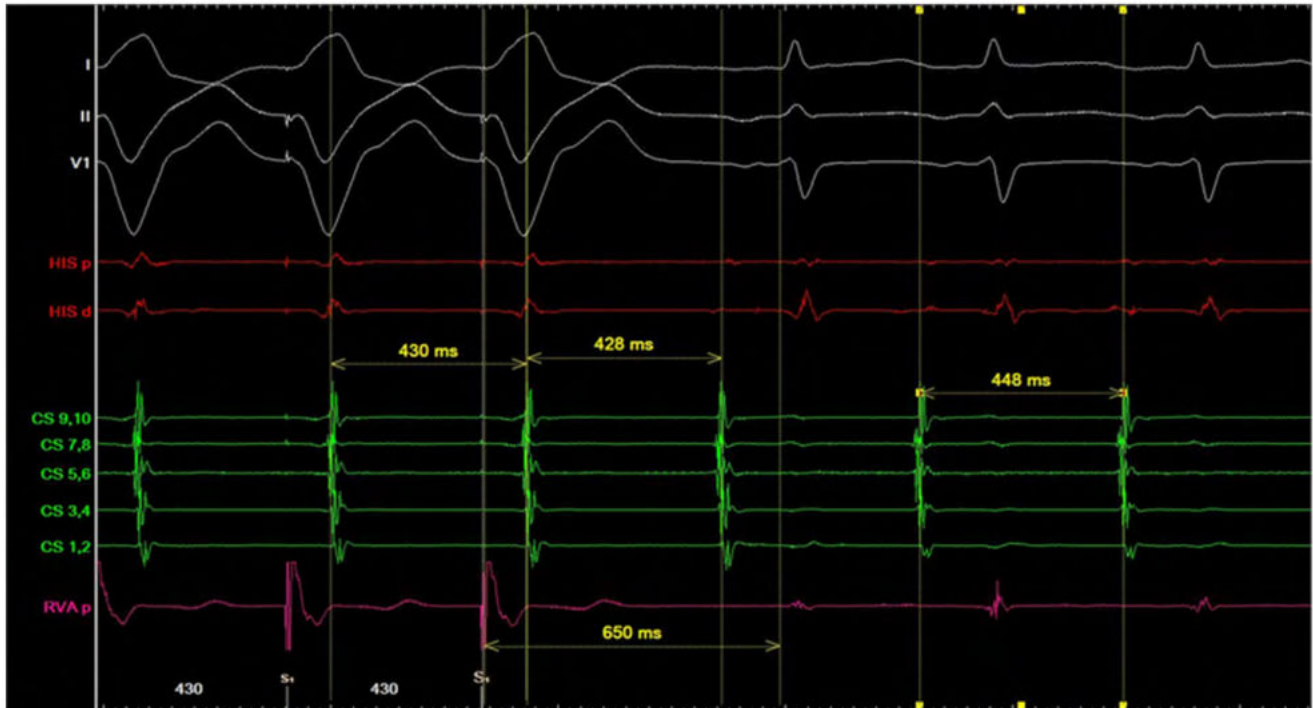


Figure 4: Response following VODP at 430ms. Apparent AAV response is actually a pseudo-AAV. The fourth atrial EGM is the last entrained beat. PPI – TCL >115ms excludes AVRT.

We are now left with conflicting results: AES supports FAT, while VODP favours atypical AVNRT.

In the world of EP reproducibility is key. Studies consistently demonstrate that a different VA interval post-AES occurs in FAT ~95% of the time, while an AV response post-VODP is observed in AVNRT ~100% of the time. Thus, the VODP findings carry more diagnostic weight. The final diagnosis was atypical AVNRT, and the patient underwent successful slow pathway modification with no further inducible tachycardia.

It is important to note that a different VA interval post-AES can occasionally be seen in atypical (fast/slow) AVNRT. This may be due to concealed antegrade penetration of the retrograde slow pathway by the AES wavefront. As a result, when the impulse returns retrogradely via this same slow pathway, it encounters partially refractory tissue, leading to slowed conduction and a longer VA interval compared to that seen during SVT. This phenomenon is unlikely in AVRT due to the non-decremental properties of accessory pathways and in typical AVNRT, where antegrade slow pathway conduction allows full recovery of the fast pathway.

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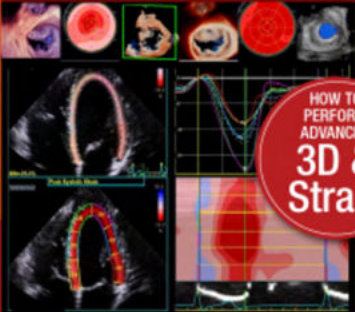
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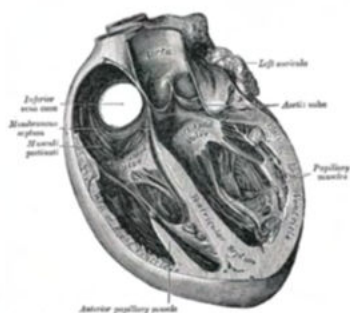


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Cardiac Physiologist

Boosting Visibility: Small Wins, Big Impact for Cardiac Physiologists

One of the easiest—and most powerful—ways to lift the profile of our profession is to simply introduce yourself using the correct title: **Cardiac Physiologist**.

It may seem like a small change, but saying:

“Hello, my name is ... and I’m a **Cardiac Physiologist**” helps raise awareness, builds trust with patients, and strengthens recognition of our role.

Even if your job title or award hasn’t caught up yet, using your professional title proudly can shift perceptions and spark change.

Want to go further? Try these simple visibility boosters:

- **Use your title:** Add Cardiac Physiologist to your name badge, email signature, reports, and business cards. Be specific if needed—Echo Physiologist, Cath Lab Physiologist, etc.
- **Be the example:** Prompt others to use the correct title. It shows pride, unity, and professionalism.
- **Be seen online:** Post about your work using #CardiacPhysiologist, or both #EchoPhysiologist and #CardiacSonographer where relevant.
- **Speak up:** Volunteer to speak at local events, contribute to webinars, or share insights at conferences.
- **Build bridges:** Mention your role clearly in team meetings and interdisciplinary settings. It helps others understand and appreciate what we do.

It starts with how we introduce ourselves—but it doesn’t end there.

More information can be found in on this page located on our website <https://picsa.org.au/about/#core-documents>



Conferences and Resources

PiCSA Online Education Portal (members only)

<https://www.picsa.org.au>

Cardiac Electrophysiology Institute of Australia (CEPIA)

Grad dip of Cardiac Electrophysiology - now delivered 100% online

<https://www.cepia.com.au/>

Cardiac Physiology in Practice

Online ECG course

<https://cardiacphysinpractice.com/>

Echo Ed online education

<https://echoedonline.com.au>

Structural Heart Disease Australia

<https://shda.org.au>

Australasian Sonographers Association (ASA)

www.sonography.org

ASA 2024 Annual International Conference

13-15 June 2025

Melbourne Convention and Exhibition Centre

In person and virtual registrations available

CSANZ 4th Indigenous Cardiovascular Health Conference 2025

17-19 June 2025

Mercure Sydney

Clinical Physiology Education Hub

02 August 2025

The State Library of Victoria, Melbourne

Registrations now open

CSANZ 2025

73rd Annual Scientific Meeting

14-17 August 2025

Brisbane Convention and Exhibition Centre

ASUM25

10-12 October 2025

Takina- Wellington Convention & Exhibition Centre

Proposed 2025 PiCSA Education Calendar

January	- ECG
February	- Echo
March	- Cath Lab
April	- EP
May	- Trivia Night & Prof Issues
June	- Pacing
July	- ECG
August	- Echo
September	- Cath Lab
October	- EP
November	- Pacing

Call for Volunteers!

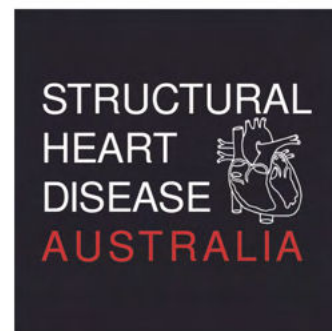
There are many ways to volunteer within the PiCSA organisation.

Interested? Get in touch!

secretary@picsa.org.au



Affiliated Partners:



For PiCSA affiliation enquiries, please email:
membership@picsa.org.au



There are a range of ways you can get information and find out what's happening with PiCSA, connect now!



Professionals in Cardiac Sciences Australia (PiCSA)



@picsa_au



@PiCSA_au



www.picsa.org.au

Thank you for reading