Cardiology Practice Review™

Making Education Easy

Issue 36 - 2024

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Abbreviations used in this issue:

ACC = American College of Cardiology; **ACE** = angiotensin-converting enzyme; **ACRA** = Australian Cardiovascular Health and Rehabilitation Association; **AHA** = American Heart Association; **ANZSVS** = Australian and New Zealand Society for Vascular Surgery; **ARBs** = angiotensin II receptor blockers; **AS** = aortic stenosis; **BP** = blood pressure; **CHD** = congenital heart disease; **CPD** = Continuing Professional Development; **CPG** = Clinical Practice Guideline; **CR** = cardiac rehabilitation; **CSANZ** = Cardiac Society of Australia and New Zealand; **CTG** = Closing the Gap; **ECG** = electrocardiography; **ESC** = European Society of Cardiology; **ESH** = European Society of Hypertension; **HF** = heart failure; **HPOS** = Health Professional Online Services; **PBS** = Pharmaceutical Benefits Scheme; **RACP** = Royal Australasian College of Physicians; **TAVI** = transcatheter aortic valve implantation; **TTE** = transthoracic echocardiography.

Welcome to the 36th issue of Cardiology Practice Review.

This Review covers news and issues relevant to clinical practice in cardiology. It will bring you the latest updates, both locally and from around the globe, about topics such as new and updated treatment guidelines, changes to medicines reimbursement and licensing, educational, professional body news and more. Finally, on the back cover, you will find our COVID-19 resources for Cardiologists and a summary of upcoming local and international educational opportunities, including workshops, webinars, and conferences.

We hope you enjoy this Research Review publication and look forward to hearing your comments and feedback.

Kind Regards,

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Clinical Practice

CSANZ Position Statement on using transthoracic echocardiography for structural and valvular heart disease

The Cardiac Society of Australia and New Zealand (CSANZ) recently published a Position Statement providing comprehensive guidance on the indications, assessment, and monitoring of structural and valvular heart disease using transthoracic echocardiography (TTE) in adults. TTE remains the primary imaging modality for screening, diagnosing, and serial monitoring of cardiac structural and functional abnormalities. The position statement outlines recommendations for initial and follow-up TTE assessments for common cardiovascular conditions.

For left ventricular assessment, TTE is indicated to evaluate symptoms like dyspnoea, chest pain, and heart failure (HF) signs. In patients with HF, repeat TTE is recommended 3–6 months after treatment optimisation. Routine surveillance in stable patients should occur no more frequently than every two years.

Right ventricular assessment by TTE is recommended for suspected right HF, pulmonary hypertension, post-pulmonary embolism, and arrhythmogenic cardiomyopathy. Serial assessments are indicated based on clinical status changes.

TTE is also crucial for initial diagnosis, severity assessment, and monitoring valvular heart disease progression. Surveillance intervals depend on the specific valve lesion and severity. Baseline TTE is recommended post-valve intervention, with subsequent studies based on prosthesis type and clinical status.

The position statement also provides detailed guidance on TTE assessment of pericardial diseases, aortic pathology, infective endocarditis, cardiac masses, pulmonary hypertension, and cardio-oncology patients.

Comprehensive TTE should include quantitative measurements of chamber sizes, systolic and diastolic function, and valvular assessment. Advanced techniques like 3D imaging and strain analysis are encouraged when available.

Overall, the CSANZ position statement aims to standardise TTE use, improve study quality, and optimise resource use. By providing a framework for appropriate initial and serial TTE assessments, it seeks to enhance the diagnosis and management of cardiovascular conditions while avoiding unnecessary testing.

https://tinyurl.com/yuz8prs5

Earn CPD

Royal Australasian College of Physicians (RACP) MyCPD participants can claim the time spent reading and evaluating research reviews as CPD in the online MyCPD program. Please contact MyCPD@racp.edu.au for any assistance.

Australian College of Rural and Remote Medicine (ACRRM) Professional Development Program (PDP) participants can claim Educational Activity hours in the self-directed learning category for reading Research Reviews. More info.

GP members of the **Royal Australian College of General Practitioners (RACGP)** are able to include Research Reviews as part of the self-record unaccredited category 2 QI&CPD points by logging onto the RACGP website.

Standardising paediatric echocardiography reporting

The European cardiology societies have published a consensus statement providing guidance on standardising paediatric echocardiography reporting and interpreting measurements in congenital heart disease (CHD).

The consensus statement advocates for structured reporting using a segmental approach and standardised nomenclature. Reports should be consistent yet flexible, complete yet concise, and evolve with new technologies. Essential elements include patient demographics, image quality, critical anatomical details, and a brief conclusion answering the clinical question.

Quantitative assessment is recommended over qualitative evaluation, especially for suspected CHD. Basic quantification should include left ventricular size and function, atrial size, aortic dimensions, right ventricular size and function, and flow velocities. Z-scores adjusted for body size should be used, with awareness of limitations in certain populations.

Challenges remain in assessing diastolic function, valvular disease severity, and shunt size in children. Adult parameters are often not validated or applicable. The consensus statement reviews current evidence and highlights knowledge gaps.

For complex CHD, the use of risk prediction scores for outcomes like biventricular repair is discussed, noting their limitations. 3D and strain imaging show promise but require further validation in children.

Digital reporting systems are encouraged to improve efficiency and standardisation. Disease-specific reporting templates are provided for major CHDs to guide comprehensive assessment.

The consensus statement emphasises the need for further research to establish paediatric-specific criteria for classifying disease severity across various conditions. Moreover, large prospective studies are needed to develop more accurate risk prediction models.

https://tinyurl.com/3rhjvhaz

Clinical practice guidelines for managing arterial hypertension

The 2024 European Society of Hypertension (ESH) clinical practice guidelines provide a concise update on hypertension management, focusing on practical implementation. The guidelines introduce the ESH MASTERplan, a streamlined approach to hypertension care encompassing five key steps: Measure blood pressure (BP), Assess the patient, Select therapy, Target BP, and Evaluate response.

Accurate BP measurement remains fundamental, with the guidelines emphasising the importance of proper technique and validated devices. Office, home, and ambulatory BP monitoring are valuable tools, each with specific indications.

Patient assessment should be comprehensive yet tailored to individual circumstances. The guidelines recommend a basic evaluation including personal and medical history, physical examination, laboratory tests, and ECG. Extended assessments and specialist referrals are advised based on clinical need and suspicion of secondary hypertension.

The guidelines advocate a risk-stratified approach to treatment selection. Lifestyle interventions are emphasised as foundational for all patients and potentially sufficient for some with mild hypertension and low cardiovascular risk. However, most patients will require pharmacological therapy in addition to lifestyle changes.

The guidelines recommend initiating treatment with combination therapy for most patients, preferably as a single-pill combination. The main drug classes remain ACE inhibitors, ARBs, calcium channel blockers, beta-blockers, and thiazide/thiazide-like diuretics. Treatment algorithms are provided for various comorbidities, including resistant hypertension, heart failure, and chronic kidney disease.

BP targets have been refined, with a general goal of <140/90 mmHg for most patients, followed by individualised targets based on age and comorbidities. The guidelines emphasise the importance of achieving BP control within three months of treatment initiation.

Older patients are given special consideration, and treatment strategies are tailored to functional capacity and autonomy status. The guidelines also address the management of hypertension in specific populations and clinical scenarios.

Regular follow-up and treatment evaluation are stressed, focusing not only on BP control but also on tolerability, safety, and overall cardiovascular risk profile.

https://tinyurl.com/549pb9uj

Aortic stenosis: Update in monitoring and management

Aortic stenosis (AS) is a common valvular heart disease characterised by the narrowing of the aortic valve orifice, primarily caused by degenerative calcification in elderly individuals. With an ageing population, the prevalence of AS is expected to increase, with an estimated 3.5% of people over 75 years affected in Australia.

Early detection and management of AS are crucial, as untreated severe AS has a two-year mortality rate of 30–50%. The cardinal symptoms of AS include dyspnoea, angina, and syncope. These symptoms arise from increased myocardial oxygen demand, reduced coronary perfusion, and inadequate cardiac output during exertion.

Echocardiography remains the cornerstone for diagnosing and assessing AS severity. Four categories of AS can be defined based on echocardiographic parameters: high-gradient AS, low-flow low-gradient AS with reduced ejection fraction, low-flow low-gradient AS with preserved ejection fraction, and normal-flow low-gradient AS with preserved ejection fraction. In cases of low-flow states, additional testing such as dobutamine stress echocardiography or CT calcium scoring may be necessary to determine AS severity accurately.

For asymptomatic patients with severe AS, watchful waiting with regular echocardiographic follow-up is generally recommended. Exercise testing can provide valuable prognostic information in these patients but should be avoided in symptomatic individuals due to the risk of adverse outcomes.

Aortic valve replacement is the only treatment that improves mortality in symptomatic severe AS. The decision between surgical aortic valve replacement and transcatheter aortic valve implantation (TAVI) should be based on a comprehensive evaluation of clinical, anatomical, and procedural factors, typically discussed in a multidisciplinary "heart team" meeting. TAVI is often preferred for older patients (>75 years) or those at high surgical risk.

Management of concomitant conditions such as hypertension and hyperlipidaemia is important. ACE inhibitors are safe and well-tolerated in patients with severe AS, improving haemodynamic parameters and effort tolerance.

For patients with AS undergoing non-cardiac surgery, the level of perioperative risk depends on stenosis severity, symptom presence, and coexisting cardiac disease. Symptomatic patients with severe AS scheduled for elective intermediate- or high-risk non-cardiac surgery should undergo aortic valve replacement first.

https://tinyurl.com/43kr2dy4

Cardiac murmurs in children

A recently published comprehensive review provides an update on cardiac murmurs in children for clinicians. Approximately 50% of children experience a cardiac murmur at some point, but less than 1% are attributed to CHD. Despite this, cardiac murmurs may be the first clinical sign of significant CHD, and about 50% of CHD cases can remain unrecognised at birth despite routine examinations.

The article emphasises the importance of thorough history-taking and physical examination in evaluating cardiac murmurs. Key red flags in the history include feeding difficulties, respiratory distress, fatigue, and syncope. Physical examination red flags encompass failure to thrive, cyanosis, abnormal heart sounds, and signs of heart failure. The review also highlights the association between certain genetic syndromes and specific congenital heart defects.

Differentiating between innocent and pathological murmurs is crucial. Innocent murmurs are typically soft, short, systolic, and unrelated to other abnormal cardiac signs. Pathological murmurs are often louder and more prolonged, may occur in diastole or throughout the cardiac cycle, and are frequently accompanied by other cardiovascular symptoms or signs.

The article provides detailed information on the auscultatory findings of common congenital and acquired heart diseases in children, including atrial and ventricular septal defects, patent ductus arteriosus, and tetralogy of Fallot. It also offers guidance on when to refer children to paediatric cardiology services, such as for any murmur in infants under three months, suspected acute rheumatic fever or rheumatic heart disease, or when a pathological murmur cannot be ruled out.

While echocardiography is valuable for diagnosing pathological murmurs, it is not usually necessary for most innocent murmurs. The review notes that chest radiography and electrocardiography have limited value in initially diagnosing asymptomatic children with murmurs but may provide useful information in some cases.

The authors conclude by emphasising the need for significant skill and knowledge in identifying critical murmurs and associated cardiovascular problems. Ongoing education for medical practitioners is recommended to improve diagnostic skills, reduce parental anxiety, and enhance patient outcomes. The review is a valuable resource for clinicians in primary care settings to effectively evaluate and manage cardiac murmurs in children.

https://tinyurl.com/3rpahxe8

Regulatory News

Changes to the prescription process from 1 July 2024

The Australian Department of Health and Aged Care has reviewed and updated several key legislative instruments governing the Pharmaceutical Benefits Scheme (PBS). These changes will impact the processes for submitting and processing PBS Authority Required applications submitted via post. Services Australia will no longer require the original prescription to assess Authority Required requests submitted via post from April 1, 2024. Authority Approval Numbers will no longer be recorded on prescriptions or forwarded to patients. A transition period will be in place until July 1, 2024.

From July 1, 2024, Services Australia will only accept a legible photocopy or PDF of the original PBS authority prescription when submitted via post. Original prescriptions received via post on or after July 1, 2024, will be immediately returned to the prescriber. Services Australia will retain a copy of the prescription for processing. Prescribers must endorse the original PBS authority prescription with the PBS Approval Number and PBS item code for approved requests. PBS Authority prescription pads will be updated to remove the 'Tick for patient return' checkbox. Existing prescription pad stock can continue to be used as it will remain valid. Healthcare professionals are advised to familiarise themselves with these changes to ensure smooth transitions in their PBS Authority Required application processes.

https://tinyurl.com/yeytzrj3

Expansion of the Closing the Gap PBS Co-Payment Program

The Closing the Gap (CTG) PBS Co-payment Program has been expanded to improve access to affordable medicines for First Nations people living with or at risk of chronic disease. From July 1, 2024, the program includes section 100 PBS medicines, in addition to section 85 medicines when dispensed by community pharmacies, approved medical practitioners, or private hospitals. Further expansion to public hospitals is planned for January 1, 2025.

This initiative addresses the significant medical cost barrier for First Nations people. Eligible patients registered in the program pay reduced co-payments or receive medicines for free, depending on their usual payment status. The program is available to First Nations people of any age who are registered with Medicare and, in the opinion of a prescriber or Aboriginal Health Practitioner, would experience setbacks in managing their condition without this assistance. Registration is a one-off process completed via the Services Australia HPOS portal.

https://tinyurl.com/2mknrx6n

PBS updates in June 2024

Inclisiran (Leqvio®; 284 mg/1.5 mL injection, 1.5 mL prefilled syringe) has had a change to the restrictions for the treatment of familial heterozygous hypercholesterolaemia & non-familial hypercholesterolaemia. Authority applications for initial and grandfather treatments can be made either in real-time using the Online PBS Authorities system or by telephone. Prescriptions for continuing treatment are Authority Required (STREAMLINED).

Riociguat (Adempas®; 500 mcg tablet, 1 mg tablet, 1.5 mg tablet, 2 mg tablet, 2.5 mg tablet) has had a change in authority level for initial and continuing treatment for CTEPH. Authority applications for initial treatment can be made either in writing or in real time using the Online PBS Authorities system. Authority applications for continuing treatment can be made either in real time using the Online PBS Authorities system or by telephone.

https://tinyurl.com/bdf38hut

PBS updates in July 2024

Bivalirudin (250 mg injection, 1 vial) and new brands of rosuvastatin (APO-ROSUVASTATIN, TX), amlodipine (APX-AMLODIPINE, TW), and lercanidipine (ARX-LERCANIDIPINE, TX) have added to the PBS.

Alfuzosin and silodosin have been added to the Repatriation PBS.

Some brands of atorvastatin, ezetimibe, metoprolol, and several brands of candesartan have been deleted from the PBS.

Alirocumab (Praluent®; 75 mg/mL injection, 2 x 1 mL pen devices; 150 mg/mL injection, 2 x 1 mL pen devices) has had a change to the restrictions for the treatment of familial heterozygous hypercholesterolaemia & non-familial hypercholesterolaemia. Authority applications for initial treatment can be made either in real-time using the Online PBS Authorities system or by telephone. Prescriptions for continuing treatment are Authority required (STREAMLINED).

Evolocumab (Repatha®; 140 mg/mL injection, 1 mL pen device; 420 mg/3.5 mL injection, 3.5 mL cartridge) has had a change to the restrictions and a change in authority level for the treatment of familial heterozygous hypercholesterolaemia, non-familial hypercholesterolaemia & familial homozygous hypercholesterolaemia. Prescriptions for initial and continuing treatments are now both Authority required (STREAMLINED).

https://tinyurl.com/46ac3v5k

News in Brief

Innovative business model to deliver cardiac rehabilitation

A recent publication proposes a business model for integrating cardiac rehabilitation (CR) into primary care using existing Medicare items. The model centres on general practitioners conducting four clinical assessments over 12 months post-discharge, potentially yielding a net benefit of up to $505 per patient in Phase II CR and $543 in Phase III CR. Implementation in rural South Australia has shown promise, though access to allied health services remains challenging.

https://tinyurl.com/3whve9xt

The RACP Member Wellbeing Framework is now available

The RACP Member Health and Wellbeing Committee have developed the Member Wellbeing Framework to promote physician wellbeing. The Framework outlines wellbeing domains, provides resources and includes a self-assessment tool. It aims to raise awareness about prioritising personal health for optimal patient care.

https://tinyurl.com/3abby6d6

Radiation exposure in interventional echocardiography

This EACVI survey reveals significant variability in radiation protection practices for interventional echocardiographers. Key findings include underuse of personal protective equipment, limited availability of architectural shielding, and insufficient radiation safety training. Many respondents expressed concerns about reproductive health impacts. The survey highlights the need for improved radiation protection measures, standardised training, and dedicated shielding for interventional echocardiographers to ensure their safety during structural heart procedures.

https://tinyurl.com/ydec8yp8

Earn CPD

Nursing and Midwifery Board of Australia (NMBA) Journal reading and watching videos (including Research Reviews') may be considered a self-directed activity set out in the NMBA Registration Standard: Continuing Professional Development. One hour of active learning will equal one hour of CPD. Details at NMBA CPD page.

Follow us at:

COVID-19 Resources for Cardiologists

CSANZ https://tinyurl.com/y3xp2729

ACC https://tinyurl.com/y68aud3a

ESC https://tinyurl.com/wn3fsts

Conferences, Workshops, and CPD

Please click on the links below for upcoming local and international cardiology meetings, workshops, and CPD.

ACRA https://tinyurl.com/y4yj8xb5

CSANZ https://tinyurl.com/3mwt5ttr

Cardiac Skills Australia https://tinyurl.com/7hx6zmdt

Heart Foundation https://tinyurl.com/2wfmd3f3

Australian Centre for Heart Health https://tinyurl.com/e2yjcreu

ACC https://tinyurl.com/y2khytpz

AHA https://tinyurl.com/zajc9a7

ESC Congresses and Events https://tinyurl.com/y6ko68yf

ESC Education https://tinyurl.com/y3zkjp3o

Research Review Publications

Dapagliflozin treatment effect in patients with chronic kidney disease, heart failure

Dapagliflozin across the range of ejection fraction in heart failure and type 2 diabetes

Acute Coronary Syndrome Research Review with Professor John French

Atrial Fibrillation Research Review with Dr Andre Catanchin

Cardiology Research Review with Associate Professor John Amerena

Heart Failure Research Review with Professor Andrew Coats, and Dr Mark Nolan

Interventional Cardiology Research Review with Conjoint Professor Craig Juergens

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