

Heart Failure Practice Review™



Making Education Easy

Issue 3 - 2024

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Abbreviations used in this issue:

ACC = American College of Cardiology;
ACRA = Australian Cardiovascular Health and Rehabilitation Association;
AF = atrial fibrillation; AHA = American Heart Association;
AI = artificial intelligence;
ANZSVS = Australian and New Zealand Society for Vascular Surgery;
ARNI = angiotensin II receptor/neprilysin inhibitors;
ATAGI = Australian Technical Advisory Group on Immunisation;
AUROC = area under the receiver operating characteristic curve;
BI = Boehringer Ingelheim ANZ; CPD = continuing professional development;
CSANZ = Cardiac Society of Australia and New Zealand;
CVD = cardiovascular disease; ECG = electrocardiogram; EF = ejection fraction;
EOL = end-of-life; ESC = European Society of Cardiology;
ESHF = end-stage heart failure; GDMT = guideline-directed medical therapy;
HFrEF = heart failure with reduced ejection fraction;
HRS = Heart Rhythm Society;
JACC = Journal of the American College of Cardiology;
PBS = Pharmaceutical Benefits Scheme; PC = palliative care;
QoL = quality of life; SGLT2 = sodium-glucose cotransporter.

Welcome to the 3rd issue of Heart Failure Practice Review.

This Review covers news and issues relevant to clinical practice in heart failure. It will bring you the latest updates, both locally and from around the globe, in relation to 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,

Dr Janette Tenne
Editor

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Clinical Practice

2024 ACC Expert Consensus Decision Pathway: Treating heart failure with reduced ejection fraction

The 2024 ACC Expert Consensus Decision Pathway provides comprehensive guidance on managing patients with heart failure with reduced ejection fraction (HFrEF). Key points include initiating and titrating guideline-directed medical therapy (GDMT), clinical assessment and monitoring, and strategies to improve adherence and address cost considerations.

For patients with new-onset HFrEF, therapies should be initiated to reach target or maximally tolerated doses of the four key medication classes (i.e., ARNI, beta-blocker, mineralocorticoid antagonist, SGLT2 inhibitors) as soon as possible, ideally within three months. There is no optimal order of initiation and titration, so clinicians should approach each patient individually. Rapid up-titration of GDMT with close follow-up is safe and effective.

Patients with chronic HFrEF should be evaluated regularly, typically every 3–6 months, to monitor clinical stability and identify opportunities for further GDMT titration. High-risk features should trigger consideration for referral to an advanced heart failure specialist. Repeat echocardiography can be helpful after 3–6 months of optimal GDMT to guide decisions about device therapy or advanced therapies.

The consensus pathway emphasises the importance of using patient-centred approaches to improve adherence, such as simplifying medication regimens, addressing costs and access, and utilising patient education and adherence tools. Clinicians are also advised to communicate with other healthcare providers involved in the patient's care.

Strategies to improve adherence and address cost considerations are crucial, as newer therapies can have high out-of-pocket costs for patients. Cost-effective approaches to GDMT initiation and titration are essential to ensure access and optimise outcomes for patients with HFrEF.

<https://tinyurl.com/3bzv7j4>

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REFERENCES: 1. FORXIGA[®] Approved Product Information.

2. The Pharmaceutical Benefits Scheme (PBS). PBS website. <https://www.pbs.gov.au>. Last accessed March 2024.

AstraZeneca Pty. Ltd. Macquarie Park, NSW 2113. AU-18666. March 2024. For PBS and Product Information refer to primary advertisement on page 3.

Implications of atrial fibrillation for guideline-directed medical therapy in patients with heart failure

The prevalence of atrial fibrillation (AF) and HF is increasing globally, with over 50% of HF patients also having AF. This coexistence of conditions is associated with greater symptom burden, more frequent hospitalisations, and worse prognosis compared with having either condition alone.

The document outlines several mechanisms by which HF can lead to the development of AF, including chronically elevated left atrial pressures causing atrial fibrosis and scarring, activation of the renin-angiotensin-aldosterone system, and increased sympathetic activity. Conversely, AF can also directly result in HF through tachycardia-induced cardiomyopathy and impaired ventricular filling.

Notably, the *JACC State-of-the-Art Review* highlights that many components of GDMT for HF, such as angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, and mineralocorticoid receptor antagonists, can help prevent the development of AF. However, once AF is present, it may influence the efficacy of some GDMT. For example, beta-blockers appear to reduce mortality in HF patients in sinus rhythm, but this benefit may be attenuated in those with concomitant AF.

The authors also discuss emerging therapies, such as sacubitril/valsartan and SGT2 inhibitors, which have shown promise in reducing the incidence of AF and maintaining their beneficial effects on morbidity and mortality regardless of AF status. Additionally, rhythm control strategies, including catheter ablation and antiarrhythmic drugs, are highlighted as a new form of GDMT that can improve outcomes in patients with both HF and AF.

Clinicians should be aware of the complex interplay between these conditions and the nuanced effects of various GDMT approaches.

<https://tinyurl.com/mewhua8k>

AHA Scientific Statement: Implementation science to achieve equity in heart failure care

Patients with HF benefit from GDMT and nonpharmacological interventions. Yet, significant disparities persist in treatment, primarily affecting women and underrepresented racial and ethnic groups. Implementation science offers evidence-based strategies to enhance the uptake of therapies and improve health outcomes.

A scientific statement from the American Heart Association (AHA) evaluates implementation trials in HF, focusing on their use of conceptual frameworks and health equity principles, and offers pragmatic guidance for promoting equity in HF care. While behavioural nudges, multidisciplinary care, and digital health strategies have effectively increased therapy uptake, equity considerations are often lacking. Few studies have specifically addressed equity in HF by engaging stakeholders, identifying barriers and facilitators to therapy adherence, or evaluating measures for equitable implementation.

Among the limited HF equity studies, various educational strategies have shown promise in promoting organisational change and delivering equitable care. Ongoing randomised controlled trials aim to address HF equity issues, highlighting the pressing need for additional implementation trials designed to ensure the equitable delivery of GDMT.

Clinicians can adopt implementation science principles to address equity gaps in HF care immediately. This involves assessing social determinants of health and implementing targeted interventions to mitigate disparities, particularly among underrepresented groups. Standardised tools to evaluate social determinants should be integrated into electronic health records, with identified needs addressed by a multidisciplinary HF team. This team, comprising various stakeholders such as care coordinators and social workers, is crucial in addressing unmet social needs, especially in resource-limited settings.

As health care evolves, clinicians must cautiously navigate using artificial intelligence (AI) to ensure it enhances rather than exacerbates disparities. Culturally sensitive and linguistically appropriate care is essential, with continued training on evidence-based bias reduction and cultural sensitivity crucial for delivering patient-centred HF care through an equity lens.

<https://tinyurl.com/5hee2aur>

Earn CPD

Nursing and Midwifery Board of Australia (NMBA) Journal reading and watching videos (including Research Reviews¹) 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](#).



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HF_rEF
LVEF ≤40%



HF_pEF
LVEF >40%

REFERENCES: 1. FORXIGA[®] Approved Product Information. 2. The Pharmaceutical Benefits Scheme (PBS). PBS website. <https://www.pbs.gov.au>. Last accessed March 2024. AstraZeneca Pty. Ltd. Macquarie Park, NSW 2113. AU-18666. March 2024.



New insights in acute heart failure

A recent review provides valuable insights into the latest developments in managing and treating acute HF. One of the key findings is the central role of systemic venous congestion in the pathophysiology of acute HF. Systemic venous congestion, often caused by underlying structural and functional cardiac conditions, leads to symptoms and organ dysfunction and is associated with poor prognosis.

The mainstay of decongestive therapy in acute HF is the use of diuretics, particularly intravenous loop diuretics combined with other diuretics like thiazides, when necessary, along with non-invasive ventilation. The review highlights the importance of maintaining adequate plasma levels of loop diuretics, as their bioavailability can be variable, especially when administered orally. Additionally, the combination of diuretics requires careful monitoring of serum electrolytes and renal function.

The review also discusses the potential benefits of oral GDMT, such as mineralocorticoid receptor antagonists and selective SGLT2 inhibitors, which are currently being investigated in ongoing trials. These therapies aim to improve long-term outcomes and reduce the risk of HF-related rehospitalisations, which remain high despite advancements in acute HF management.

Furthermore, the importance of careful follow-up, especially during the "vulnerable phase" in the months following discharge, is emphasised. Unresolved congestion at discharge can lead to HF-related rehospitalisations.

Finally, the potential role of emerging technologies, such as implantable systems for continuous monitoring of intracardiac and pulmonary artery pressures, in reducing HF-related hospitalisations has also been highlighted.

<https://tinyurl.com/98fdvh2h>

End-of-life care for patients with end-stage heart failure

As HF progresses to the end stage, the focus of care shifts from prolonging life to controlling symptoms and improving quality of life (QoL) through palliative care (PC). This is crucial, as patients with end-stage HF (ESHF) who are not candidates for advanced therapies will continue to decline despite standard medical treatment. A recent publication provides a comprehensive narrative review of international guidelines on end-of-life (EOL) care for patients with ESHF.

The review highlights the significant morbidity, mortality, and socioeconomic burden associated with HF, emphasising the necessity of early discussions on EOL issues during HF management. These discussions should include advance directives, do-not-resuscitate orders, and policies on device therapy and discontinuation as part of advance care planning.

The authors underscore the high symptom burden experienced by ESHF patients who are not candidates for advanced therapies or those who opt not to pursue options like left ventricular assist devices or heart transplants. Despite adequate medical management, these patients often suffer from pain, dyspnoea, nausea, depression, and anxiety, which may be underdiagnosed and undertreated. The review calls for correctly identifying and assessing these symptoms, alongside providing psychological support and spiritual care, to enhance the QoL during EOL.

Furthermore, the review provides an overview of the current recommendations and practices in international guidelines on EOL and PC for patients with ESHF. It highlights the importance of a multidisciplinary approach in managing EOL issues, ensuring patient and family expectations are met through high-quality communication and shared decision-making. The critical role of caregivers in the EOL care process is also emphasised, highlighting the need for supportive care to prevent compassion fatigue and improve resilience in patient care.

This narrative review calls for cultural shifts and ongoing education for healthcare providers to overcome barriers to PC, ensuring that all subsets of patients with HF receive the care they need.

<https://tinyurl.com/bdfs9uuu>

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.

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ARR=absolute risk reduction; CI=confidence interval; CV=cardiovascular; HF=heart failure; HF_{pEF}=heart failure with preserved ejection fraction; HF_{rEF}=heart failure with reduced ejection fraction; HR=hazard ratio; LVEF=left ventricular ejection fraction; NYHA=New York Heart Association; RRR=relative risk reduction; †In DAPA-HF worsening HF was defined as either an unplanned hospitalisation or an urgent visit resulting in intravenous therapy for HF; in DELIVER worsening HF was defined as either an unplanned hHF or an urgent visit for HF;^{2,3} [†]HF_{rEF} defined as NYHA class II-IV HF and ejection fraction of $\leq 40\%$; ^{**}HF_{pEF} defined as NYHA class II-IV HF and ejection fraction of $>40\%$.³

REFERENCES: 1. FORXIGA® Approved Product Information. 2. The Pharmaceutical Benefits Scheme (PBS). PBS website. <https://www.pbs.gov.au>. Last accessed March 2024. 3. McMurray JJV *et al.* *N Engl J Med.* 2019;381(21):1995–2008. 4. Solomon SD *et al.* *N Engl J Med.* 2022;387(12):1089–1098.

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AstraZeneca

Regulatory News

Change of restriction to riociguat (Adempas®)

Riociguat (Adempas®; 500 mg, 1 mg, 1.5 mg, 2 mg, 2.5 mg tablet) has had a change of restriction for treating pulmonary arterial hypertension. Authority applications for the initial treatment can be made in writing. Authority applications for the initial two and continuing treatments can be made either in real-time using the Online PBS Authorities system or by telephone.

<https://tinyurl.com/4r4azjx2>

Metalyse (tenecteplase) 40 mg powder for injection to be discontinued

Metalyse is indicated for the thrombolytic treatment of the acute phase of myocardial infarction. Boehringer Ingelheim ANZ (BI) will discontinue metalyse (tenecteplase) 40 mg powder for injection, effective early September 2024. BI projects that the stock of this formulation will be exhausted in Australia by the end of January 2025. This decision stems from the pharmaceutical company's observation of low and declining demand for this product in the Australian market.

However, metalyse 50 mg will remain available without interruption, and there are no anticipated changes to the supply volumes for 2024. The existing allocation agreements with states and territories will remain unchanged. BI has indicated that ceasing the production of metalyse 40 mg will facilitate a more efficient manufacturing process for the 50 mg formulation. Consequently, the supply of metalyse 50 mg is expected to normalise by early 2025.

<https://tinyurl.com/2s49zxuy>

FDA clears AI-based algorithm to detect heart failure during physical exam

Eko Health, in collaboration with Mayo Clinic, has developed an AI-powered low ejection fraction (EF) detection tool that can be used with an Eko stethoscope during routine physical examinations. This breakthrough technology marks a significant advancement in the early detection of HF.

The Low EF AI was trained on a dataset of over 100,000 ECGs and echocardiograms and achieved strong performance in clinical validation studies. The AI demonstrated an AUROC of 0.835 for detecting left ventricle ejection fraction <40%, with 74.7% sensitivity and 77.5% specificity. An independent validation by Imperial College London reported an AUROC of 0.85, 84.8% sensitivity, and 69.5% specificity. The technology also showed high accuracy in detecting pregnancy-related cardiomyopathy, with an AUROC of 0.98, 100.0% sensitivity, and 79.4% specificity. These results highlight the potential of this innovation to significantly improve early detection and management of HF, especially in primary care settings where access to advanced diagnostic tools is often limited.

Integrating low EF detection into a familiar tool like the stethoscope can enable healthcare providers to rapidly assess heart function during routine check-ups, leading to earlier diagnosis and timely referral to cardiology for further evaluation and treatment. This innovation can help address the significant burden of undiagnosed HF, which often leads to worse patient outcomes and increased healthcare costs. By improving access to early detection, the low EF AI has the potential to positively impact the lives of millions of patients at risk of heart failure.

<https://tinyurl.com/mrxcbfhr>

News in Brief

Heart Health Check Toolkit: Streamline CVD risk assessment and management in general practice

The Heart Health Check Toolkit provides a streamlined approach to assessing and managing cardiovascular disease (CVD) risk in general practice. It highlights the importance of routine preventative heart health checks, as CVD remains a leading cause of mortality and morbidity in Australia, with modifiable risk factors accounting for a significant proportion of risk. The Toolkit offers practical resources and templates to help integrate Heart Health Checks into routine patient care.

<https://tinyurl.com/46t5vhmb>

Therapeutic inertia

Therapeutic inertia, the failure to initiate or intensify therapy when treatment goals are not met, can contribute to chronic conditions like HF. Factors contributing to therapeutic inertia include clinician, patient, and health system barriers. Strategies to address inertia include clinical decision support, patient empowerment, and team-based care.

<https://tinyurl.com/4x8y2sv8>

ATAGI advice on seasonal influenza vaccines in 2024

The Australian Technical Advisory Group on Immunisation (ATAGI) has released advice regarding the administration of 2024 seasonal influenza vaccines for immunisation providers in Australia. The document covers available vaccines by age, virus strains included, vaccination timing, immunisation for pregnant women, National Immunisation Program-funded eligibility, and medical conditions increasing influenza complication risks.

<https://tinyurl.com/akdwe97j>

COVID-19 Resources for Cardiologists

CSANZ <https://tinyurl.com/y3xp2729>

ACC <https://tinyurl.com/y68aud3a>

ESC <https://tinyurl.com/wn3fst>

Conferences, Workshops, and CPD

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

[ACRA, CSANZ, Cardiac Skills Australia, Heart Foundation](#)

[Australian Centre for Heart Health, ACC, AHA](#)

[ESC Congresses and Events, ESC Education.](#)

Research Review Publications

[Cardiology Research Review](#) with Associate Professor John Amerena

[Heart Failure Research Review](#) with Professor Andrew Coats, and Dr Mark Nolan



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