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# ESC and AHA guidelines: what is new and what is different?

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## About the Reviewers

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This publication is intended as an educational resource for New Zealand health professionals managing patients with heart failure. The focus of this publication is on what is new in the 2023 focused update to the 2021 European Society of Cardiology (ESC) guidelines for the diagnosis and treatment of acute and chronic heart failure, and a comparison with the 2022 guideline for the management of heart failure from the American College of Cardiology (ACC), American Heart Association (AHA) and the Heart Failure Society of America (HFSA). This review is supported by an independent educational grant from Boehringer Ingelheim and Eli Lilly.

## Introduction

In 2021/2022 there were an estimated 68,000 adults living with heart failure in New Zealand, with a higher prevalence among Māori, the disabled and those living with high levels of deprivation.[1] Heart failure is a leading cause of hospitalisation in New Zealand, with reports of all-cause mortality after a first hospitalisation for heart failure in this country as high as 12% at 30 days, 31% at 1 year and 63% at 5 years.[2-4]

In recent years, there have been several randomized controlled trials (RCTs) published that have been practice changing in heart failure. Specifically, trials have shown significant improvements in risk of mortality and hospitalisation in patients with heart failure and these new developments have been incorporated into recent updates of both the ESC and the ACC/AHA/HFSA guidelines.[5-7] While the recommendations provided by these bodies show substantial overlap, there are some notable differences, many of which can be explained by the different timings of publication, as the ESC 2023 focused update captures more recent evidence than the 2022 ACC/AHA/HFSA guidelines. The 2023 ESC guideline update is a focused update to the 2021 ESC guidelines, addressing changes in recommendations for the treatment of heart failure evidence available up to 31 March 2023 covering only those results leading to new or changed Class I/IIa recommendations.[5, 6] In contrast, the 2022 AHA/ACC/HFSA guideline replaces previous guidelines and includes studies published through September 2021.[7]

**Table 1**. Classification of heart failure by LVEF.

| Type of HF according to LVEF | ESC 2023 guidelines[5] | ACC/AHA/HFSA 2022 guidelines[7] |
|---|---|---|
| HFrEF | LVEF ≤40% | LVEF ≤40% |
| HFimpEF | | Previous LVEF ≤40% and a follow-up measurement of LVEF >40% |
| HFmrEF | LVEF 41–49% | LVEF 41–49% and evidence of spontaneous or provokable increased LV filling pressure |
| HFpEF | LVEF ≥50% and objective evidence of cardiac structural and/or functional abnormalities consistent with the presence of LV diastolic dysfunction/ raised LV filling pressures, including raised natriuretic peptides | LVEF ≥50% and evidence of spontaneous or provokable increased LV filling pressures |



**Abbreviations used in this review**

**ACC** = American College of Cardiology
**ACE** = angiotensin-converting enzyme
**ACEI** = angiotensin-converting enzyme inhibitors
**ACEI/ARB** = angiotensin converting enzyme inhibitor/ angiotensin receptor blocker
**ADHF** = acute decompensated heart failure
**AHA** = American Heart Association
**ARB** = angiotensin receptor blockers
**ARNI** = angiotensin receptor/neprilysin inhibitors
**BB** = beta-blockers
**BNP** = B-type natriuretic peptide
**CKD** = chronic kidney disease
**COR** = class of recommendation
**CV** = cardiovascular
**EF** = ejection fraction
**ESC** = European Society of Cardiology
**GDMT** = guideline-directed medical therapy
**HF** = heart failure
**HFimpEF** = heart failure with improved ejection fraction
**HFmrEF** = heart failure with mildly reduced ejection fraction
**HFpEF** = heart failure with preserved ejection fraction
**HFrEF** = heart failure with reduced ejection fraction
**HFSA** = Heart Failure Society of America
**HR** = hazard ratio
**ICD** = implantable cardioverter defibrillator
**IV** = intravenous
**LOE** = level of evidence
**LV** = left ventricular
**LVEF** = left ventricular ejection fraction
**MDT** = multidisciplinary team
**MRA** = mineralocorticoid receptor antagonists
**NT-proBNP** = plasma N-terminal pro-B-type natriuretic peptide
**NYHA** = New York Heart Association
**RCT** = randomized controlled trial
**SGLT2** = sodium–glucose cotransporter 2
**SGLT2i** = sodium-glucose cotransporter-2 inhibitors
**SR** = sinus rhythm
**T2DM** = type 2 diabetes mellitus

## Management of HFrEF – the four pillars

Both sets of guidelines are aligned with regard to the importance of managing heart failure with reduced ejection fraction (HFrEF; **Table 1**) with the four pillars of therapy: an angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor/neprilysin inhibitor (ARNI), a beta blocker (BB), a mineralocorticoid receptor antagonist (MRA), and a sodium-glucose co-transporter 2 inhibitor (SGLT2i; **Table 2**).

This quadruple therapy has been estimated to provide a 73% reduction in all-cause mortality in this patient population,[8] and while both guidelines provide Class 1A recommendations for such therapy in all patients with HFrEF, there are some differences.[6,7] Specifically, the ESC 2023 focused update has not made any changes to the 2021 recommendation for blockade of the renin-angiotensin system, in which the use of an ARNI has a Class 1B recommendation and is only recommended as a replacement for an ACEI (Class 1A),[6] whereas in the American guidelines an ARNI is the treatment of choice for this pillar of therapy, with a Class 1A recommendation to reduce morbidity and mortality, with use of an ACEI only in case of intolerance or contraindications for an ARNI.[6]

Other drugs that are recommended by both guidelines for the treatment of patients with HFrEF are the loop diuretics in patients with signs and/or symptoms of congestion.[6, 7]

### EXPERT COMMENT, CARDIOLOGIST

Both guidelines emphasise the importance of commencing evidence-based care with the four pillars of therapy pre-discharge following an admission with acute decompensated HF (ADHF), with the aims of improving symptoms, and reducing subsequent hospitalisations and mortality. Combination therapy is important, with network meta-analysis modelling showing a dramatic reduction in mortality with benefits noted early in the post-discharge period.[9]

### EXPERT COMMENT, CLINICAL PHARMACIST

Diuretics (such as furosemide or bumetanide) are recommended in patients with evidence of fluid retention for symptomatic benefit, but their effects on morbidity and mortality are uncertain. The four pillars of HF management should be initiated in all patients with HFrEF as tolerated. Initiation and titration of these agents should be individualised based on the patient's signs and symptoms, function, tolerance, renal function, and co-morbidities. They should be titrated up to the maximum tolerated dose. Optimal benefit comes from initiating all four therapies, rather than sequentially up-titrating agents one at a time. Patients should be informed about potential side effects of these medicines and how to manage these. When patients switch from an ACEI to an ARNI, a 36-hour wash-out period is required to reduce the risk of angioedema; 48 hours may be more practical. Switching from an ARB to an ARNI does not require a washout period. The diuretic and natriuretic properties of SGLT2is may offer additional benefits in reducing congestion and may allow for a reduction in the requirements for loop diuretics.

**Table 2.** Recommendations for the management of heart failure with reduced ejection fraction.[6, 7]

| ESC 2021 guidelines | | AHA/ACC/HFSA 2022 guidelines | |
|---|---|---|---|
| **Recommendation** | **Class and LOE** | **Recommendation** | **Class and LOE** |
| **Renin-angiotensin system inhibition with ACEI or ARB or ARNI** | | **Renin-angiotensin system inhibition with ACEI or ARB or ARNI** | |
| An ACEI is recommended for patients with HFrEF to reduce the risk of HF hospitalisation and death. | 1A | In patients with HFrEF and NYHA class II to III symptoms, the use of ARNI is recommended to reduce morbidity and mortality. | 1A |
| | | In patients with previous or current symptoms of chronic HFrEF, the use of ACEI is beneficial to reduce morbidity and mortality when the use of ARNI is not feasible. | 1A |
| | | In patients with previous or current symptoms of chronic HFrEF who are intolerant to ARNI because of cough or angioedema and when the use of ARNi is not feasible, the use of ARB is recommended to reduce morbidity and mortality. | 1A |
| Sacubitril/valsartan is recommended as a replacement for an ACEI in patients with HFrEF to reduce the risk of HF hospitalisation and death. | 1B | In patients with chronic symptomatic HFrEF NYHA class II or III who tolerate an ACEI or ARB, replacement by an ARNI is recommended to further reduce morbidity and mortality. | 1B-R |
| **Beta blockers** | | **Beta blockers** | |
| A BB is recommended for patients with stable HFrEF to reduce the risk of HF hospitalisation and death. | 1A | In patients with HFrEF, with current or previous symptoms, use of 1 of the 3 BB proven to reduce mortality (eg, bisoprolol, carvedilol, sustained-release metoprolol succinate) is recommended to reduce mortality and hospitalisations. | 1A |
| **Mineralocorticoid receptor antagonist** | | **Mineralocorticoid receptor antagonist** | |
| An MRA is recommended for patients with HFrEF to reduce the risk of HF hospitalisation and death. | 1A | In patients with HFrEF and NYHA class II to IV symptoms, an MRA (spironolactone or eplerenone) is recommended to reduce morbidity and mortality, if eGFR is >30 mL/min/1.73 $m^2$ and serum potassium is <5.0 mEq/L. Careful monitoring of potassium, renal function, and diuretic dosing should be performed at initiation and closely monitored thereafter to minimize risk of hyperkalemia and renal insufficiency. | 1A |
| **Sodium-glucose co-transporter 2 inhibitors (SGLT2is)** | | **Sodium-glucose co-transporter 2 inhibitors (SGLT2is)** | |
| Dapagliflozin or empagliflozin are recommended for patients with HFrEF to reduce the risk of HF hospitalisation and death. | 1A | In patients with symptomatic chronic HFrEF, SGLT2is are recommended to reduce hospitalisation for HF and cardiovascular mortality, irrespective of the presence of type 2 diabetes. | 1A |

## Heart failure with mildly reduced or preserved ejection fraction

One of the most important new updates is the recommendation for an SGLT2i (dapagliflozin or empagliflozin) in patients with heart failure with mildly reduced ejection fraction (HFmrEF; **Table 1**) and in patients with heart failure with preserved ejection fraction (HFpEF; **Table 1**) to reduce the risk of heart failure hospitalisation or cardiovascular death (Class 1A) in the 2023 focused update to the ESC 2021 guidelines.[5]

Two particularly important trials that resulted in this new Class 1A recommendations are the EMPEROR-Preserved trial, which included patients with an LVEF >40% with raised plasma N-terminal pro-B-type natriuretic peptide (NT-proBNP) randomized to empagliflozin 10mg/day or placebo,[10] and the DELIVER trial of dapagliflozin 10mg/day vs placebo in patients with an LVEF >40% at the time of recruitment (including those who previously had an LVEF ≤ 40% that had improved to >40%), and elevated NT-proBNP.[11]

In EMPEROR-Preserved, there was a reduction in the composite primary endpoint of cardiovascular death or heart failure hospitalisation, with this reduction mainly driven by a reduction in heart failure hospitalisation, and similarly, in DELIVER, there was a reduction in the composite endpoint of cardiovascular death or worsening heart failure, largely driven by a reduction in worsening heart failure. Moreover, a subsequent meta-analysis of data from DELIVER and the DAPA-HF trial, did not find any evidence that the effect of dapagliflozin differed by ejection fraction.[12] The 2023 guidelines now include a Class 1A recommendation for dapagliflozin/empagliflozin in the treatment of patients with HF, regardless of ejection fraction (**Figure 1**).[5]

This Class 1A recommendation for SGLT2i in patients with HFmrEF and HFpEF is the most notable difference between the two guidelines and is most likely a reflection of the timing of each publication. The corresponding American guideline recommendations for patients with HFmrEF, HFimpEF and HFpEF are shown in **Table 3**.

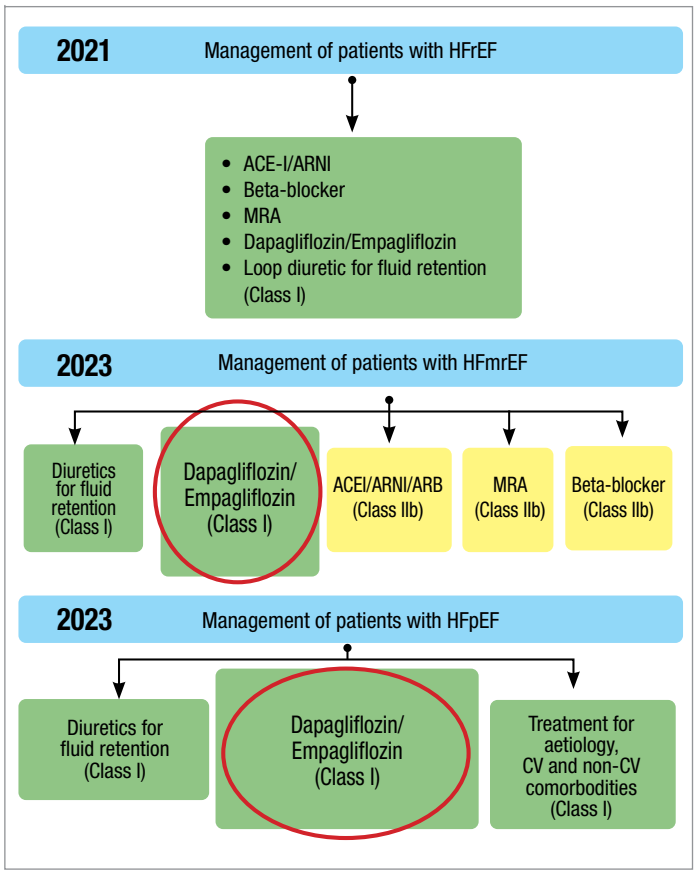


**Figure 1.** ESC treatment algorithm by LVEF.[5,6]

**Table 3**. Recommendations from the AHA/ACC/HFSA 2022 guidelines for patients with HFmrEF, HFimpEF or HFpEF.[7]

| AHA/ACC/HFSA 2022 guidelines | |
|---|---|
| **Heart failure with mildly reduced EF (HFmrEF) and improved EF (HFimpEF)** | **Class and LOE** |
| In patients with HFmrEF, SGLT2i can be beneficial in decreasing HF hospitalisations and cardiovascular mortality. | 2a B-R |
| Among patients with current or previous symptomatic HFmrEF (LVEF, 41–49%), use of evidence-based BB for HFrEF, ARNI, ACEI, or ARB, and MRAs may be considered to reduce the risk of HF hospitalisation and cardiovascular mortality, particularly among patients with LVEF on the lower end of this spectrum. | 2b B-NR |
| In patients with HFimpEF after treatment, GDMT should be continued to prevent relapse of HF and LV dysfunction, even in patients who may become asymptomatic. | 1 B-R |
| **Heart failure with preserved EF (HFpEF)** | |
| Patients with HFpEF and hypertension should have medication titrated to attain blood pressure targets in accordance with published clinical practice guidelines to prevent morbidity. | 1 C-LD |
| In patients with HFpEF, SGLT2i can be beneficial in decreasing HF hospitalisations and cardiovascular mortality. | 2a B-R |

### EXPERT COMMENT, CARDIOLOGIST

These recommendations from the ESC for the management of HFmrEF and HFpEF in the focused update were eagerly anticipated. For the first time we have a Class 1A treatment option that significantly impacts cardiovascular outcomes in patients with HFrEF and HFpEF. This extends the heart failure phenotype that will benefit from the SGLT2i with a high level of evidence.

In New Zealand, access to SGLT2i currently remains limited to individuals with poorly controlled type 2 diabetes, with further review for a heart failure indication pending from PHARMAC. Let's hope for some good news in 2024.

### EXPERT COMMENT, CLINICAL PHARMACIST

The ACC/AHA/HFSA guideline has introduced a newly defined condition, HFimpEF. This was previously known as HF with preserved ejection fraction-improved. HFimpEF is more appropriate terminology, since improvement does not necessary represent normalisation of LV function or resolution of the cardiomyopathic process, and highlights the importance of continuing treatment as per HFrEF recommendations to prevent deterioration into symptomatic status or LVEF.

## Start treatment in hospital

Historically, when patients with HFrEF were hospitalised, BB treatment was often discontinued, with such discontinuation shown to be associated with higher risk of in-hospital mortality, short-term mortality and rehospitalisation.[13, 14] Evidence now suggests that BB should only be withheld or reduced in patients with marked volume overload or marginal low cardiac output.[7] Importantly, previous studies have shown that almost half of patients with HFrEF who are hospitalised have no changes to their guideline-directed medical therapy (GDMT) in the 12 months after hospitalisation despite discharge on suboptimal doses.[15]

The 2021 ESC guidelines recommended that patients who were hospitalised with acute heart failure were started on evidence-based treatment prior to discharge, with a recommendation that they return for evaluation 1 to 2 weeks following discharge, despite a lack of randomized trials to support such a recommendation.[6] However, since the publication of the 2021 guidelines, the STRONG-HF trial was published, the results of which demonstrated that early and rapid up-titration of GDMT prior to discharge from hospital, regardless of LVEF was associated with a one-third reduction in 6-month risk for death or heart failure readmission, providing the evidence needed for an even more explicit recommendation.[16]

Subsequently, the 2023 focused update provides such a recommendation for the in-hospital optimization of GDMT before discharge, and during subsequent follow-up visits, to reduce readmission and mortality (Class IB; **Table 4**).[5] The 2022 American guidelines also recommend GDMT initiation and optimization, as well as early follow-up, although there are some differences between the two publications, as shown in **Table 4**.

### EXPERT COMMENT, CARDIOLOGIST

STRONG-HF provides Class 1B evidence, reflected in both guidelines, for rapid initiation and optimisation of GDMT following an admission with ADHF regardless of ejection fraction phenotype.[16] In STRONG-HF, 80% of patients randomised to the high-intensity arm were successfully up-titrated to full doses at the 2-week post-discharge visit.[16] Rapid up-titration of GDMT was readily accepted by patients because it reduced symptoms, improved quality of life and reduced 180-day all-cause death or heart failure readmission risk, compared with usual care. A similar safety profile was demonstrated in both the elderly and in younger patients in the high-intensity arm, with a higher proportion of acute renal injury, hyperkalaemia, and hypotension with rapid up-titration in both younger and older patients, but no significant difference in serious adverse events compared with usual care. The guidelines unfortunately do not provide a "how to" approach. However, there does appear to be a consensus that small doses of all four pillars should be commenced before dose optimisation of any single agent. Which treatment to begin with should be guided not only by congestion status but also by other comorbidities and contributing factors such as ischaemic heart disease, hypertension, and atrial fibrillation.

### EXPERT COMMENT, CLINICAL PHARMACIST

Optimising the four pillars of HFrEF treatment within 2 weeks post-discharge may prove to be a challenge. Clinical inertia is likely to be one of the largest barriers to effective and optimal HF treatment in New Zealand and worldwide, despite guideline recommendations. The key to reducing clinical inertia is to proactively optimise HF management at every opportunity and involve the multidisciplinary team (MDT) for medicines optimisation, education, and overall support. The ESC and American guidelines recognise the value of involving various healthcare professionals and emphasise the critical role of an MDT approach to HF treatment.

**Table 4.** Recommendations for management of patients during and after hospitalisation for heart failure.[5-7]

| 2023 ESC guidelines | Class and LOE | AHA/ACC/HFSA 2022 guidelines | Class and LOE |
|---|---|---|---|
| **Recommendation for pre-discharge and early post-discharge follow-up of patients hospitalised for acute heart failure** | | **Maintenance or optimisation of GDMT during hospitalisation** | |
| An intensive strategy of initiation and rapid up-titration of evidence-based treatment before discharge and during frequent and careful follow-up visits in the first 6 weeks following a HF hospitalisation is recommended to reduce the risk of HF rehospitalisation or death. | 1B | In patients with HFrEF requiring hospitalisation, preexisting GDMT should be continued and optimised to improve outcomes, unless contraindicated. | 1B-NR |
| | | In patients experiencing mild decrease of renal function or asymptomatic reduction of blood pressure during HF hospitalisation, diuresis and other GDMT should not routinely be discontinued. | 1B-NR |
| | | In patients with HFrEF, GDMT should be initiated during hospitalisation after clinical stability is achieved. | 1B-NR |
| | | In patients with HFrEF, if discontinuation of GDMT is necessary during hospitalisation, it should be reinitiated and further optimized as soon as possible. | 1B-NR |
| **ESC 2021 guidelines** | **Class and LOE** | | |
| **Recommendations for management of patients after HF hospitalisation** | | **Integration of case: transitions and team-based approaches** | |
| It is recommended that patients hospitalised for HF be carefully evaluated to exclude persistent signs of congestion before discharge and to optimize oral treatment. | 1C | In patients being discharged after hospitalisation for worsening HF, an early follow-up, generally within 7 days of hospital discharge, is reasonable to optimise care and reduce rehospitalisation. | 2aB-NR |
| It is recommended that evidence-based oral medical treatment be administered before discharge. | 1C | | |
| An early follow-up visit is recommended at 12 weeks after discharge to assess signs of congestion, drug tolerance, and start and/or uptitrate evidence-based therapy | 1C | | |

## Comorbidities

### Recommendations for the prevention of heart failure in patients with T2DM and CKD

| Recommendations | Class | Level |
|---|---|---|
| In patients with T2DM and CKD, SGLT2 inhibitors are recommended to reduce the risk of HF hospitalisation or CV death. | I | A |
| In patients with T2DM and CKD, finerenone is recommended to reduce the risk of HF hospitalisation. | I | A |

The 2021 ESC guidelines recommended treatment with an SGLT2 inhibitors (canagliflozin, dapagliflozin, empagliflozin, ertugliflozin, sotagliflozin) in patients with type 2 diabetes mellitus (T2DM) at risk of cardiovascular events, to reduce the risk of heart failure hospitalisations, major cardiovascular events, end-stage renal dysfunction, and cardiovascular death (Class 1A), as well as a recommendation in patients with T2DM and HFrEF for SGLT2is (dapagliflozin, empagliflozin, and sotagliflozin) to reduce heart failure hospitalisations and cardiovascular death (Class 1A).[6] The 2023 focused update provides new recommendations for the prevention of heart failure in patients with T2DM and chronic kidney disease:[5]

Similarly, the 2022 American guidelines recommend the use of SGLT2i for the management of hyperglycaemia and to reduce heart failure-related morbidity and mortality in patients with heart failure and T2DM (Class 1A), but no recommendations are provided specifically for patients with diabetes and chronic kidney disease, likely due to the timing of publication of the studies published that support the 2023 ESC recommendations. [17, 18]

### EXPERT COMMENT, CARDIOLOGIST

Again, the difference in the guidelines with respect to the presence of renal failure in diabetes likely reflects timing of publications that helped to inform the 2023 ESC focused update. However, both guidelines emphasize the opportunity of good risk factor management, with the ESC update including the addition of an SGLT2i or finerenone to T2DM management in the presence of renal disease, to prevent at-risk individuals (Stage A) progressing to the clinical syndrome of heart failure. This is an important message for all health professionals.

### EXPERT COMMENT, CLINICAL PHARMACIST

The multitude of benefits of SGLT2i in HF patients is clear from the trials and guidelines. SGLT2i have been shown to slow kidney function decline (empagliflozin can be used in patients with eGFR <20mL/min/1.73m$^2$) and reduce HF morbidity, mortality, and hospitalisation. Unfortunately, the current situation in New Zealand is such that empagliflozin is only funded for T2DM patient who meet the PHARMAC Special Authority criteria, thereby creating a mismatch between best practice and accessibility. The creates barriers to reducing gaps in equity.

The management of comorbidities represents a critical step in optimising treatment in HF . We are starting to see some evidence of how comorbidities increase burden and how their prognostic value changes over time in the HF population. Strategies to control comorbidities have been associated with a lower lifetime risk of developing HF, and the guidelines highlight the importance of non-pharmacological strategies such as diet and exercise, to supplement GDMT.

## Iron deficiency in heart failure

In the 2023 focused update to the ESC guidelines, the recommendation for supplementation with intravenous (IV) iron in patients with symptomatic heart failure, with either reduced or mildly reduced ejection fraction and anaemia has been upgraded from a Class IIA to a Class IA recommendation and the recommendation to provide IV iron supplementation with ferric carboxymaltose or ferric derisomaltose in such patients to reduce the risk of a heart failure hospitalisation is upgraded from Class IIaB to Class IIaA.[5, 6]

The 2022 American guidelines also recommend IV iron replacement as a reasonable intervention to improve functional status and quality of life in patients with HFrEF and iron deficiency, with or without anaemia (Class 2aB-R).[7]

### EXPERT COMMENT, CARDIOLOGIST

The Class 1A indication in the ESC focused update reflects the symptomatic benefit and improvement in quality of life achieved with IV Iron in patients with heart failure. However, the role of IV Iron in reducing morbidity and mortality in heart failure remains questionable, hence the class IIA/IIB level of evidence for reduction in hospitalisations. Neither guideline is likely to be upgraded following the Heart-FID study, which was presented at the same ESC meeting as the focused update.[19] Investigators reported that among patients with heart failure with reduced ejection fraction and iron deficiency, IV ferric carboxymaltose was associated with only a marginal improvement in cardiovascular outcomes compared with placebo. In New Zealand, consistent with the ESC focused update, despite no significant impact on mortality and morbidity I believe it remains reasonable to consider IV iron in iron-deficient patients with symptomatic heart failure to improve quality of life.

### EXPERT COMMENT, CLINICAL PHARMACIST

Studies suggest that the prevalence of iron deficiency may be as high as 30-50% in HF, even in the absence of anaemia.[20] It remains relevant to offer IV iron in the symptomatic HF patient with iron deficiency as this reduces hospitalisation and improves quality of life. Unfortunately, some HF patients face barriers to accessing IV iron infusions in New Zealand due to the limitations of the PHARMAC Special Authority criteria and/or administration fees. In contrast to IV iron, supplementation with oral iron therapy has not proven to be useful in this setting.

## CONCLUDING COMMENTS, CARDIOLOGIST

Our challenge as healthcare professionals is how to implement current best practice guidelines for the management of heart failure in a timely manner following an admission with ADHF. This requires a multidisciplinary approach across the health continuum to ensure our patients achieve early benefit with the aim not only of improving symptoms but of reducing subsequent hospitalisation and mortality.

## CONCLUDING COMMENTS, CLINICAL PHARMACIST

Both the ACC/AHA/HFSA and ESC guidelines emphasize the critical role of a MDT approach in the management of HF, recognising the value of involving various healthcare professionals, including cardiologists, nurses, pharmacist, dieticians, mental health clinicians, social workers, primary care clinicians, and additional specialists. Both guidelines assign the highest level of evidence to support the implementation of an MDT approach. The inclusion of such an approach acknowledges the role of non-pharmacological interventions (dietary modifications, fluid management, and exercise), alongside the prescription of and adherence to GDMT. A collaborative approach enables comprehensive patient care, optimised non-pharmacological strategies, and ensures appropriate implementation of GDMT in accordance with the guidelines.

## TAKE-HOME MESSAGES

- **Treatment with all four pillars of therapy, ARNI/ACEI + BB + MRA + SGLT2i, is recommended for all HFrEF patients.**
- **Treatment with a SGLT2i, is recommended for all HF patients regardless of ejection fraction.**
- **All patients hospitalised with acute heart failure should be commenced on comprehensive therapy with all four pillars of therapy (an ARNI/ACE inhibitor, BB, MRA and SGLT2i) as soon as clinically possible to reduce morbidity and mortality.**
- **Heart failure therapies should be rapidly up-titrated to the maximum tolerated dose.**
- **In patients with T2DM and chronic kidney disease, SGLT2is are recommended to reduce heart failure-related morbidity and mortality.**
- **Supplementation with IV iron is recommended in symptomatic patients with iron deficiency and either HFrEF and HFmrEF to alleviate heart failure symptoms and improve quality of life.**

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