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EDITORIAL

Translating Global Heart Failure Guidelines into the Australian Reality

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Introduction

The iCARDIO Alliance (International Cardio Alliance to improve Disease Outcomes) Global Implementation Guidelines on Heart Failure 2025 presented in this issue of *Heart, Lung and Circulation* is a pivotal step forward in unifying global, evidence-based strategies for heart failure (HF) management [1]. These guidelines integrate novel HF therapies and diagnostic approaches, providing practical resource-stratified recommendations to close implementation gaps across diverse international healthcare systems. While Australia benefits from a relatively well-resourced healthcare system, two critical challenges that hinder the full implementation of these guidelines are persistent health disparities among disadvantaged populations and the growing economic strain on our health system.

Addressing Disadvantage in Heart Failure Care

Despite Australia's healthcare system being pinned on the principles of universality and equity, outcomes for disadvantaged populations remain far from equal. HF disproportionately impacts Aboriginal and Torres Strait Islander populations, socioeconomically disadvantaged groups, and those living in rural or remote areas.

The iCARDIO Alliance guidelines emphasise the need to adapt recommendations, recognising local context, cultural influences, resource constraints, and systemic factors which affect HF care delivery. These considerations are particularly relevant for First Nations Australians who experience significantly higher HF morbidity and mortality than non-Indigenous Australians [2].

In 2021–2022, the age-standardised rate of HF-related hospitalisations among First Nations people was 1,341 per 100,000 population, which is 2.8 times higher than the rate among non-Indigenous Australians, highlighting a significant health disparity [2]. This disparity was more pronounced among Indigenous females (3.3 times higher) than males (2.3 times higher). HF-related mortality had a similar gap, with Indigenous Australians facing a 2.5 higher mortality rate non-Indigenous Australians. In 2023–2024, potentially preventable HF hospitalisations were significantly higher among Indigenous Australians, at 3.9 per 1,000 population compared to 1.7 per 1,000 for non-Indigenous Australians, reflecting a disparity of more than two-fold. The

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highest disparity was observed in Western Australia, where the rate among Indigenous Australians was more than four-fold (6.3 vs 1.5 per 1,000 population), followed by the Northern Territory (5.5 vs 1.3) and South Australia (4.5 vs 1.9), underscoring the need for culturally safe, targeted interventions to address the gap.

Social determinants such as lower socioeconomic status and remoteness are also associated with significant inequalities [2]. In 2021–2022, HF hospitalisation rates were 1.8 times higher for people in the lowest socioeconomic group compared to the highest group, with mortality 1.6 times higher. Australians living in remote and very remote areas also experienced increased risk, with HF hospitalisation and mortality rates 1.7 and 1.6 times higher, respectively, than individuals living in major cities.

These disparities reflect longstanding barriers, including poor health literacy, delays in diagnosis, higher disease severity at presentation, and restricted access to culturally appropriate models of care. The iCARDIO Alliance guidelines offer an evidence-based framework for optimising HF care, but their local impact will remain limited unless they are translated to reach Australia's most disadvantaged populations.

Emerging Australian research highlights the multifactorial nature of these disparities. A recent study by Rajamohan et al. [3] demonstrated that despite comparable use of guideline-directed medical therapy (GDMT) between Indigenous and non-Indigenous patients in Central Australia, major adverse cardiovascular events were significantly higher among Indigenous patients (54% vs 28%, $p<0.001$), underscoring the limitations of pharmacotherapy in isolation, and the need for a holistic, culturally sensitive model of care. Issues in care access and continuity has been highlighted as problematic [4], with reported higher non-attendance rates for cardiology outpatient appointments among Indigenous Australians than non-Indigenous patients (23% vs 17%, $p<0.001$). Notably, non-attendance was highest for initial appointments (30%), relative to follow-up appointments (17%), suggesting that barriers to accessing services require targeted intervention and support [4].

A retrospective cohort audit revealed that 34% of Indigenous patients with heart failure with reduced ejection fraction (HFrEF) not prescribed angiotensin-converting-enzyme inhibitors, angiotensin II receptor blockers, or beta-blockers had no identifiable contraindications, suggesting gaps in adherence to evidence-based guidelines [5]. Furthermore, McGrady et al. [6] screened 436 adults in Central Australia, identifying 13% with previously undiagnosed asymptomatic left ventricular systolic dysfunction. Among those with HF, 65% did not have a pre-existing diagnosis, highlighting missed opportunities for early detection and intervention among Indigenous populations indicating substantial gaps in screening and early detection.

According to the Australian Bureau of Statistics (2023–2024) [7], 4.6% of individuals living in the most socioeconomically disadvantaged areas delayed or avoided hospital services due to cost, compared to 1.9% in the least disadvantaged areas. Similar trends were seen in rural

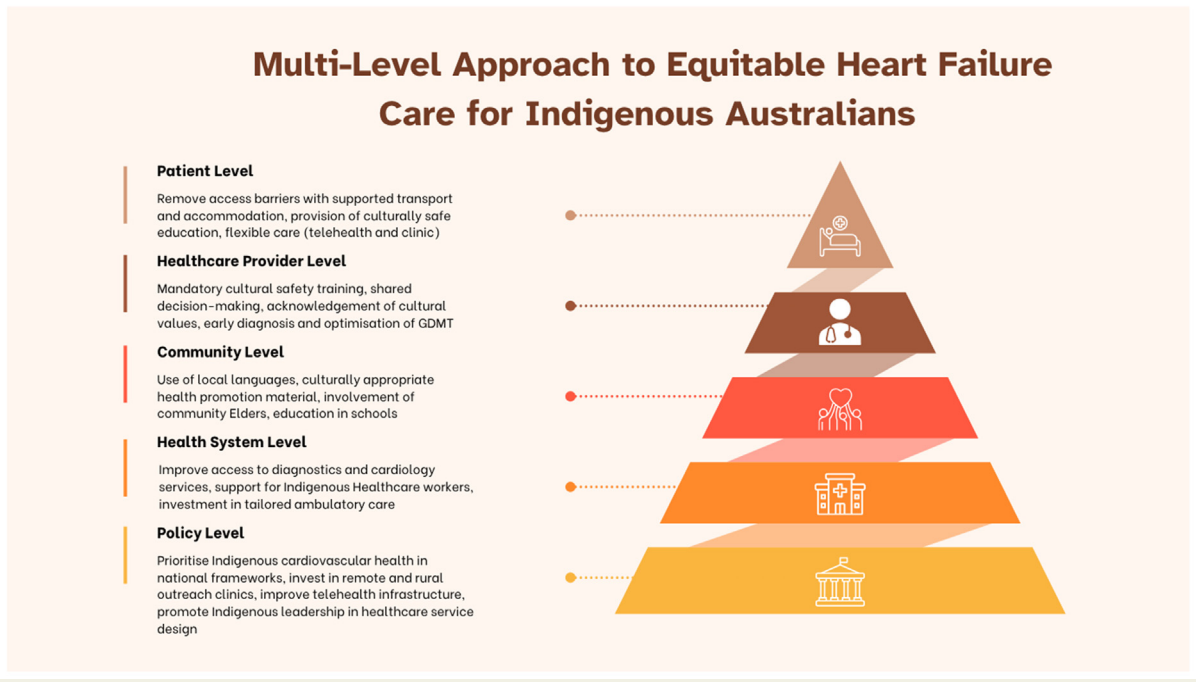


Figure 1 Proposed multi-level approach to achieving equitable heart failure care for Indigenous Australians. Created with Canva.
Abbreviation: GDMT, guideline-directed medical therapy.

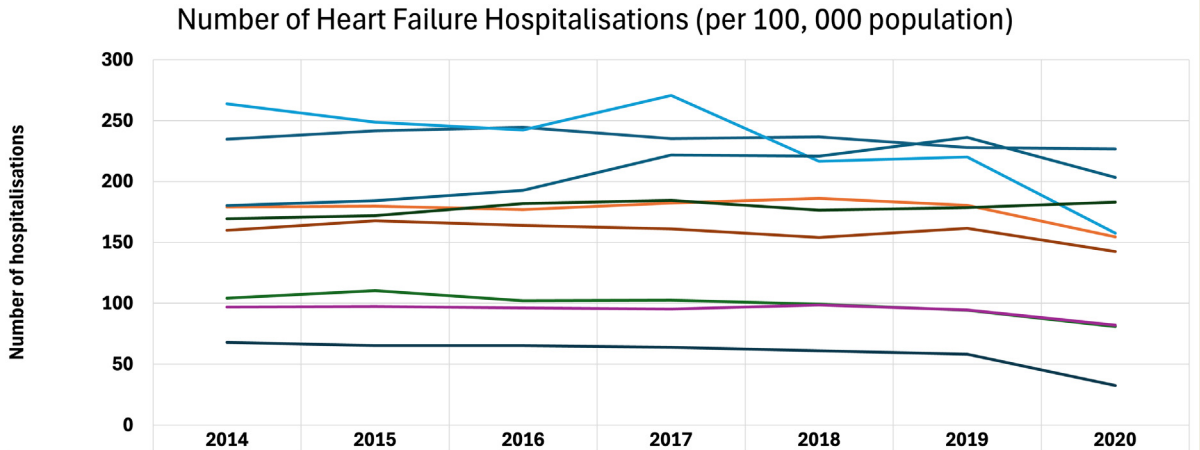
regions with 4.4% in outer regional or remote areas delaying or avoiding hospital care due to cost, compared to 2.7% in major cities. Cost-related barriers also affect access to primary care, with 1.6% in outer regional or remote areas delaying or not visiting a general practitioner due to cost, compared to 0.5% in major cities.

Access to prescription medications also reveals marked disparities, with 10.9% of people in the most disadvantaged areas delaying or not purchasing necessary due to cost, almost double the 5.9% in the least disadvantaged areas [7]. Similarly, 8.2% of individuals in outer regional and remote Australia reported similar barriers, compared to 7.9% in major cities. These persistent inequities directly impact HF management, particularly in rural and Indigenous communities where delays in diagnosis and management can contribute to higher morbidity and mortality.

Australia is uniquely positioned to drive HF transformation, with access to the up-to-date, evidence-based iCARDIO Alliance guidelines and a Pharmaceutical Benefits Scheme that subsidies many HF therapies — advantages not shared by many other countries. Practical barriers such as cost and rurality continue to delay the timely delivery of optimal HF care for disadvantaged communities. Where full implementation of the four pillars of HF therapy is not feasible, clinicians should consider prescribing generic alternatives to ensure treatment is not withheld completely, as some therapy is better than none. This is especially relevant given some brands of medications can cost up to four times more than generic versions, making them unaffordable for many Australians with HF.

Proactive measures are essential to address rising rates of preventable hospitalisations, morbidity, and mortality in Australia. In 2004, Januzzi et al. [8] proposed the use of N-terminal prohormone of brain natriuretic peptide (NT-proBNP) to assist with the exclusion of HF in clinical settings. In 2010, Tideman et al. [9] highlighted its potential to reduce the need for rural patients to travel long distances for echocardiography, advocating for point-of-care NT-proBNP testing in rural and remote health centres. Fourteen years later, NT-proBNP testing has finally been added to the Medicare Benefits Schedules for use in outpatient settings to assist with the diagnosis of HF. Australia must continue to advance alongside international colleagues to remain at the forefront of modern HF care.

A national investment in culturally sensitive, safe, and accessible HF care models, tailored to local needs, is urgently needed to address longstanding inequities. The Integrated Cardiovascular Clinical Network South Australia (iCCnet SA)'s remote monitoring service offers a compelling model that could be expanded nationally to rural, remote, and Indigenous communities [10]. The initiative provides a free, 24/7 remote monitoring for rural South Australians,



	2014	2015	2016	2017	2018	2019	2020
Australia	234.7	241.7	244.5	235.2	236.6	228	226.8
Canada	179	179.7	177	182.5	186.1	180.4	154.5
Chile	104.2	110.3	102	102.7	99.4	94.3	80.9
Italy	263.9	248.8	242.3	270.6	216.7	220.2	157.7
Korea	97	97.3	96.2	95.3	98.5	94.5	82.1
Mexico	67.9	65.3	65.2	63.9	61.1	58.2	32.5
Netherlands	160	167.7	163.9	161.1	154.1	161.7	142.6
Norway	169.5	172	182	184.6	176.4	178.7	183
Switzerland	180.3	184.2	192.8	221.7	220.9	236.3	203.4

Figure 2 International comparison of heart failure hospitalisations[a]

[a]This is an adaptation of an original work by the Organisation for Economic Co-operation and Development (OECD) [13]. The opinions expressed and arguments employed in this adaptation should not be reported as representing the official views of the OECD or of its Member countries.

enabling vital sign monitoring at home with clinical oversight by physicians and nurses. It demonstrates how coordinated equity-focused care can be successfully implemented across diverse settings. A national HF model focused on monitoring symptoms, enabling early clinical intervention, optimising HF therapy, and providing ongoing education could greatly benefit communities with limited access to HF specialists and nursing staff.

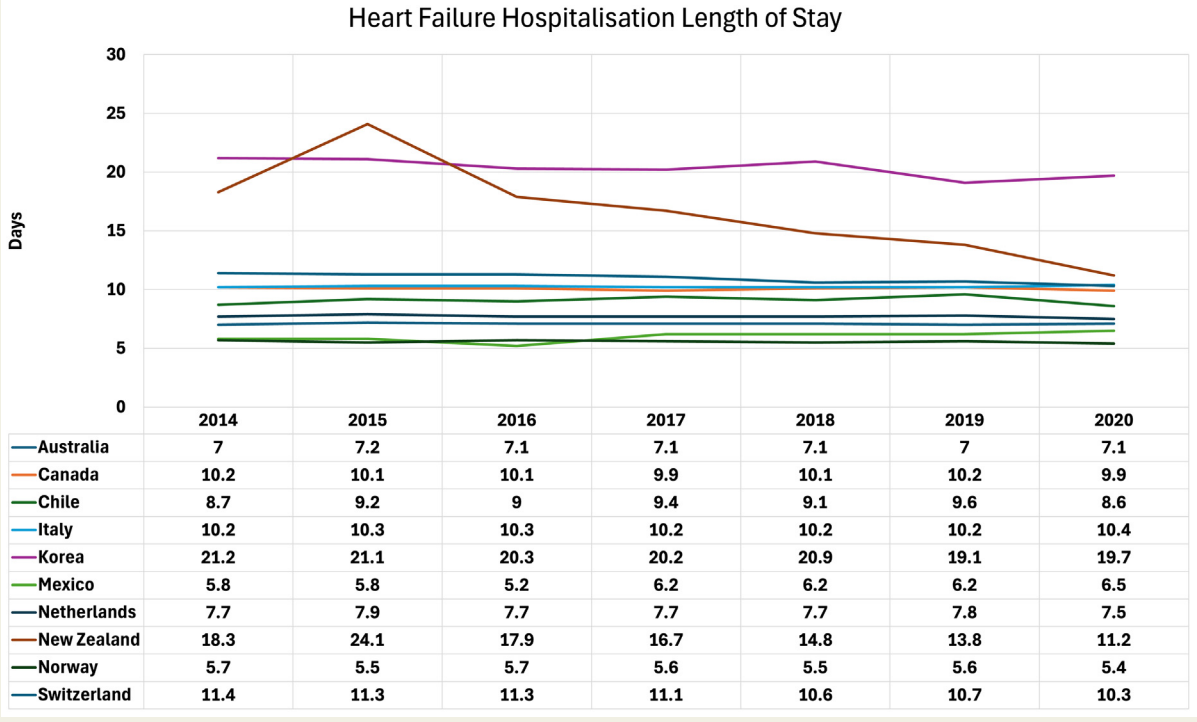
In alignment with the iCARDIO Alliance guidelines' framework for local adaptation, the following approach is proposed to ensure Australia's most vulnerable population equitably benefits from contemporary international guidelines and advances in HF management (Figure 1).

Heart Failure in a Stretched Healthcare System

Australia's healthcare system faces escalating demands with finite resources, with HF representing a significant clinical and economic burden. Self-reported data estimate 144,000 Australians are living with HF, with a disproportionate burden among older adults [2]. Of those affected, 103,000 individuals are aged ≥65 years, with higher prevalence in males (97,700) compared to females (49,400 females). However self-reported data likely underestimate the true burden of HF in Australia. In 2015, Chan et al. [11] estimated that there were 480,000 Australians with HFrEF, and an additional 496,000 Australians with heart failure with preserved ejection fraction (HFpEF), suggesting approximately 1 million are affected with HF. With an ageing population, projections indicate this number could rise to approximately 1.5 million by 2030, an alarming trend demanding urgent attention.

HF-related admissions represent 1.5% of all admissions nationwide [2]. A regional study by Al-Omary et al. [12] found that 29% of HF admissions were due to HFrEF, 37% due to HFpEF, and a further 34% remained unclassified due to the absence of a recent echocardiogram. In 2020, Australia's age-standardised HF hospitalisation rate was 226.8 per 100,000 population, significantly higher than Norway (183.0) and Mexico (32.5 per 100,000), according to The Organisation for Economic Co-operation and Development (OECD) data [13] (Figure 2). These admissions are associated with a 30-day all-cause readmission rate of 20%, a 1-year all-cause readmission rate of 56%, and all-cause mortality rates of 8% at 30 days and 25% at 1 year [14]. A Western Australian study by Weber et al. [15] reported that 15.5% of patients hospitalised with incident HF experienced unplanned 30-day readmissions, with 31.4% HF-related and 22.5% due to other cardiovascular causes.

Length of stay (LOS) for HF admissions in Australia is also longer than that of many international counterparts [13]. The average LOS in Australia is 7.1 days, shorter than 11.2 days



	2014	2015	2016	2017	2018	2019	2020
Australia	7	7.2	7.1	7.1	7.1	7	7.1
Canada	10.2	10.1	10.1	9.9	10.1	10.2	9.9
Chile	8.7	9.2	9	9.4	9.1	9.6	8.6
Italy	10.2	10.3	10.3	10.2	10.2	10.2	10.4
Korea	21.2	21.1	20.3	20.2	20.9	19.1	19.7
Mexico	5.8	5.8	5.2	6.2	6.2	6.2	6.5
Netherlands	7.7	7.9	7.7	7.7	7.7	7.8	7.5
New Zealand	18.3	24.1	17.9	16.7	14.8	13.8	11.2
Norway	5.7	5.5	5.7	5.6	5.5	5.6	5.4
Switzerland	11.4	11.3	11.3	11.1	10.6	10.7	10.3

Figure 3 International comparison of average length of stay for heart failure admissions[a]

[a]This is an adaptation of an original work by the Organisation for Economic Co-operation and Development (OECD) [13]. The opinions expressed and arguments employed in this adaptation should not be reported as representing the official views of the OECD or of its Member countries.

in New Zealand, but longer than Norway (5.1 days) and Mexico (6.5 days) (Figure 3). Within Australia, public hospitals report a mean LOS 4.0 days for low-complexity HF admissions compared to 6.7 days in private hospitals. Interstate variation is significant with Queensland recording the shortest average LOS at 3.2 days, compared to 4.3 days in New South Wales, South Australia, and Tasmania (Figure 4).

In Australian public hospitals during 2023–2024, average LOS for HF admissions without complications was most consistent in outer regional areas (2.7–4.8 days), while inner regional areas exhibited the greatest variation (2.7–11.3 days) (Figure 5A) [16]. For HF admissions with complications (Figure 5B), inner regional hospitals reported the widest range (6.3–14.5 days), compared to outer regional areas showing the narrowest range (6.6–9.4 days), potentially reflecting transfers to higher-acuity centres. These variations likely stem from differences in state-based models of care, outpatient services, and resource allocation.

Beyond its clinical impact, HF imposes a significant economic burden in Australia. In 2022–2023, HF accounted for an estimated AU$1.221 billion in healthcare costs, including $900 million attributed to hospital expenses [17]. Cardiomyopathy contributed to an additional $342 million, with $271 million related to hospital costs. These rising costs underscore the urgent need for more efficient models that can reduce hospitalisations, optimise outpatient management,

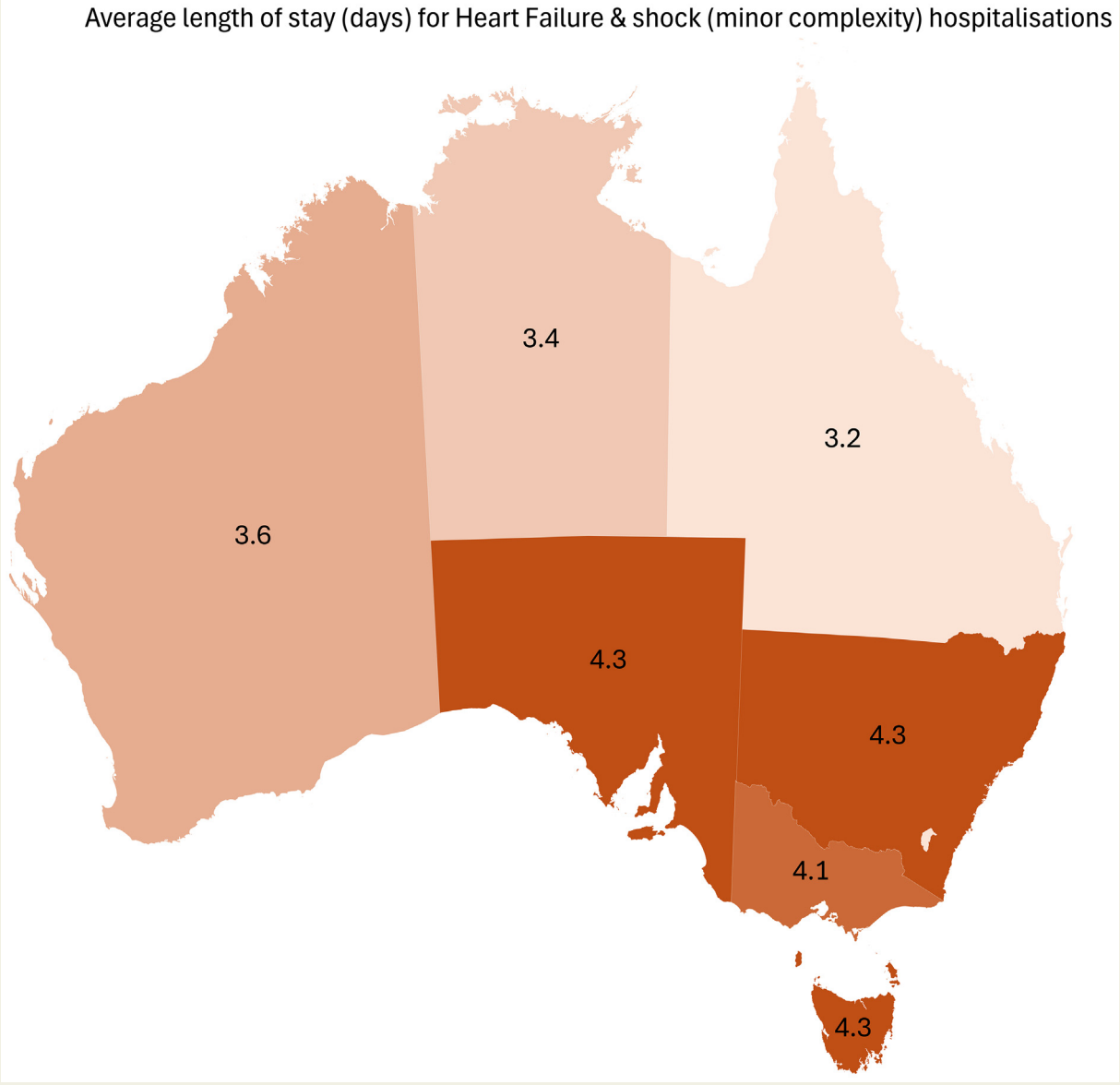


Figure 4 Variation in heart failure length of stay across Australian states and territories. Based on Australian Institute of Health and Welfare material (under CC-BY 4.0 licence) https://www.aihw.gov.au/getmedia/f6a85b77-bd8d-4c02-9c8f-d98a951afc2e/2-admitted-patient-care-2023-24-tables-activity_1.xlsx.

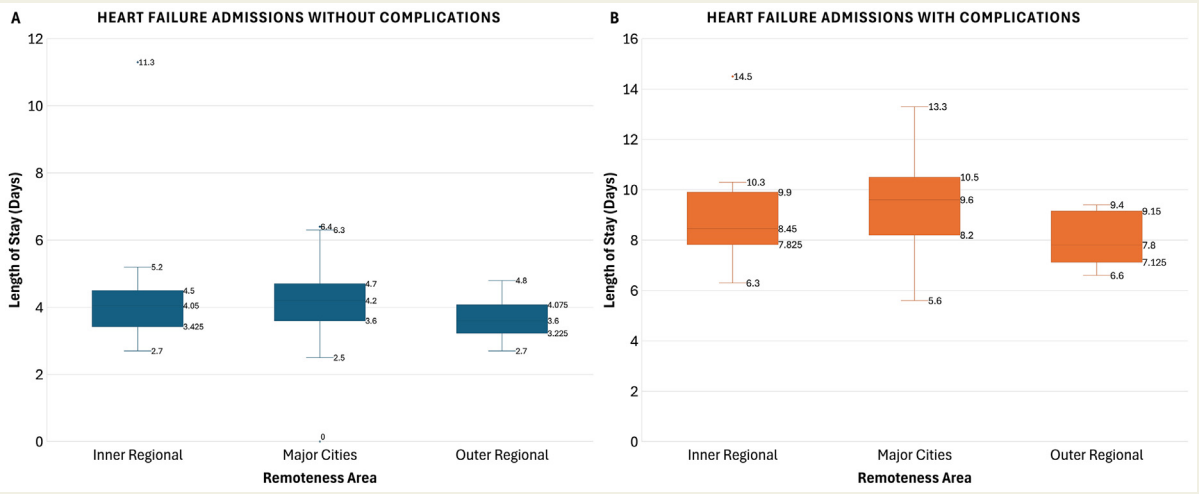


Figure 5 Variation in average length of stay by rurality [16]. Based on Australian Institute of Health and Welfare material (under CC-BY 4.0 licence).

and support sustainable healthcare delivery. Figures 3 and 4 suggest that Australia not only hospitalises more patients with HF than many countries, but also experiences longer hospital stays — a combination unsustainable in an already strained system. This calls for urgent reforms to models of care to prioritise HF prevention, early intervention, and ambulatory care.

Rethinking Models of Care for HF in Australia

To address the dual challenges of rising HF burden and mounting pressure on Australia's healthcare system, urgent action is needed to move beyond traditional inpatient-centric models. Australia must integrate global practices, including the iCARDIO Alliance guidelines, with innovative local strategies and digital health technologies to redevelop HF care delivery in Australia. A bold, nationally coordinated approach should embrace telehealth, remote monitoring, and artificial intelligence (AI) to deliver equitable, flexible and sustainable solutions, whilst maintaining cultural sensitivities.

International evidence supports this transformation. The German Telemedical Interventional Management in Heart Failure II (TIM-HF2) trial demonstrated that a web-based remote management system reduced all-cause mortality by 3.48% and reduced days lost to unplanned hospitalisations (17.8 days vs 24.2 days) [18]. Similarly, pulmonary artery pressure monitoring via the CardioMEMS device has reduced HF admissions and improved quality of life by enabling early clinical intervention prior to HF decompensation [19].

Australia is well-positioned to build upon these successes by empowering patients, particularly those in rural and remote regions, to self-monitor key parameters including blood pressure, heart rate, daily weight, and oxygen saturation using home-based devices. Data can be transmitted to clinicians securely through telehealth platforms, or coordinated through local primary care providers, facilitating early detection of deterioration and rapid remote titration of GDMT, consistent with the STRONG-HF trial [20] and iCARDIO Alliance guidelines recommendations.

AI also offers promise in improving HF care delivery. In resource-limited settings, AI decision-support tools can help standardise the implementation of GDMT and bridge service gaps where cardiology services are not available. Early clinical data show a deep-learning model achieved a 22% reduction in NT-proBNP levels and significant quality of life improvements (Kansas City Cardiomyopathy Questionnaire overall score increase from 75 to 80, p=0.04) within 12 weeks [21].

A proposed Australian ambulatory HF management model involves a multidisciplinary team including primary care providers, cardiologists, nurse practitioners, and allied health professionals collaborating to manage patients remotely (Figure 6). Community nurses and nurse practitioners can provide ongoing HF education and perform clinical assessments either at home, in clinics, or via telehealth, liaising virtually with HF specialists while keeping primary care providers aware of management plans and changes. Advice regarding dosing of oral diuretics, alongside remote GDMT initiation and up-titration via telephone or video consultations, could substantially reduce hospital admissions and in-hospital length of stays. Preliminary Australian data [22] suggest that a virtual HF unit model was associated with up to 60% reduction in mortality compared to usual care, contingent on appropriate patient selection.

In a cohort study of 876 patients receiving outpatient virtual home-based care for 10 acute conditions including HF, Banerjee et al. [23] demonstrated a significant reduction in inpatient LOS (1.3 vs 5.3 days, p<0.001). Importantly, this model was not accompanied by significant increases in

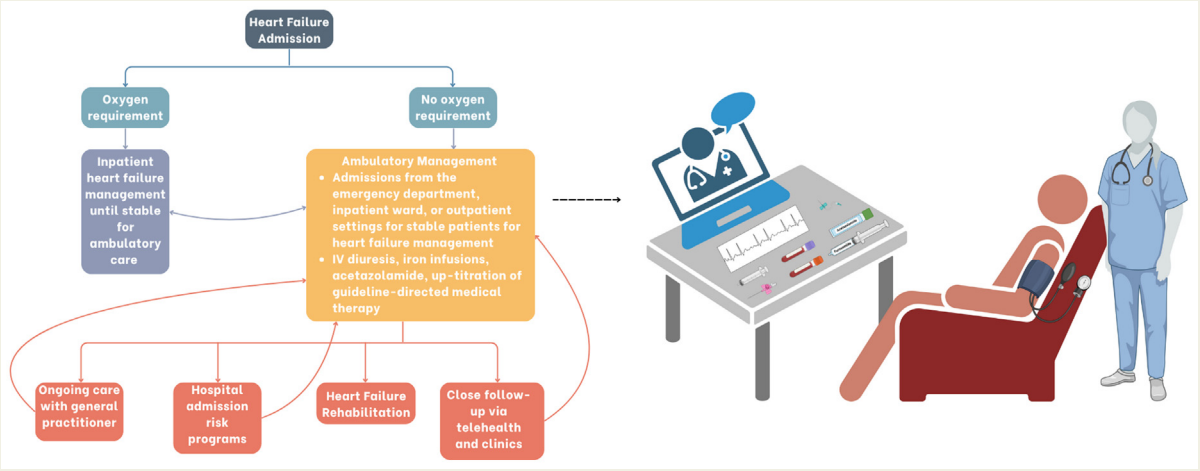


Figure 6 Proposed ambulatory heart failure management model. Created using Canva and BioRender. Narendren, A. (2025) https://BioRender.com/14cthdh.

mortality, emergency department presentations, or readmissions. These findings indicate that virtual home care is a safe and effective model with potential for broader implementation in HF management across Australia, offering a viable strategy to alleviate hospital and financial pressures.

Conclusions

The iCARDIO Alliance Global Implementation Guidelines on Heart Failure 2025 present a timely framework for improving HF care. Successful translation in Australia is dependent on our collective ability to implement strategies that are equitable, culturally safe and sensitive, as well as economically sustainable. Addressing the challenges of systemic disadvantage and economic constraints requires more than clinical consensus — it requires collaborative innovation and targeted investment. By integrating telehealth and community-driven models of care into our national strategy, Australia can deliver on the promise of better HF outcomes for all Australians, especially for those most in need.

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Declaration of Competing Interests

The authors declare no conflicts of interest.

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