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Editorial

Heart Failure in Indonesia: A Growing Burden Beyond Conventional Care

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Heart failure (HF) has emerged as one of the most pressing cardiovascular challenges worldwide. Despite major therapeutic advances over the last two decades, HF continues to carry substantial mortality, recurrent hospitalization, impaired quality of life, and economic burden.[1] Globally, more than 64 million people are currently living with HF, and the burden continues to rise alongside population aging, urbanization, and the growing prevalence of cardiometabolic disease.[2] Importantly, the epidemiology of HF in Asia differs significantly from that of Western countries. Patients in Southeast Asia tend to develop HF at a younger age, possess heavier cardiometabolic burdens, and experience worse clinical outcomes despite shorter hospitalization duration.[2-3]

Indonesia reflects this concerning regional pattern. Earlier Indonesian registry data demonstrated that hospitalized HF patients had a mean age of approximately 60 years, substantially younger than many Western HF cohorts, with in-hospital mortality ranging from 6% to 12% and rehospitalization rates approaching 29%.[4] Although national HF registries in Indonesia remain limited in participating centers and patient numbers, available data consistently demonstrate younger HF populations with substantial morbidity and mortality burdens.[4-5] More recent findings from the CORE-HF registry continue to show a high prevalence of hypertension, coronary artery disease, diabetes mellitus, and smoking among Indonesian HF patients, alongside persistent mortality despite implementation of Guideline-Directed Medical Therapy (GDMT).[5]

These observations suggest that Indonesia is no longer facing merely a conventional HF problem, but rather a progressively complex HF epidemic shaped by cardiometabolic disease, recurrent hospitalization, and evolving healthcare system challenges. The growing prevalence of HF with preserved Ejection Fraction (HFpEF), aging populations, chronic kidney disease, obesity, and cardiometabolic syndrome further complicates this landscape, as

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HF management increasingly requires phenotype-based approaches, multimorbidity integration, and multidisciplinary coordination.[1-2]

At the same time, HF management itself has evolved dramatically. Contemporary HF care extends far beyond diuretic therapy and neurohormonal blockade. The modern era of HF encompasses precision phenotyping, multimodality imaging, cardiomyopathy genetics, pulmonary hemodynamics, multidisciplinary transitional care, palliative HF programs, and advanced therapies including cardiac resynchronization therapy, transcatheter interventions, temporary mechanical circulatory support, and Left Ventricular Assist Devices (LVADs).[1] Consequently, advanced HF and transplant cardiology have become recognized competency-based subspecialties in many countries, supported by structured fellowship programs and dedicated multidisciplinary HF systems.[6-7]

Interestingly, Indonesia has already begun entering this era clinically, even if not yet systematically. Dedicated HF clinics are increasingly being established across tertiary centers, cardiomyopathy awareness is improving, and advanced HF discussions are becoming more integrated into routine cardiovascular practice. The emergence of advanced HF services, including the first LVAD implantation in Indonesia, reflects important progress in national cardiovascular care. However, these developments remain concentrated in selected tertiary centers and have yet to translate into an integrated nationwide HF ecosystem.

The major challenge in Indonesia may therefore no longer be whether HF is becoming more advanced, but whether healthcare systems are adequately prepared for it. A growing mismatch appears to exist between the increasing complexity of HF and the readiness of workforce development, healthcare systems, and regulatory support to manage it effectively.

One of the most important barriers lies in workforce development and training. HF care increasingly requires dedicated expertise involving advanced pharmacotherapy, cardiomyopathy evaluation, pulmonary hypertension, device management, mechanical circulatory support, and multidisciplinary coordination. The complexity of modern HF care increasingly exceeds the traditional boundaries of conventional cardiology practice. However, structured, advanced HF training pathways, specialized HF nurses, multidisciplinary HF programs, and integrated transitional HF care remain variably available across institutions, resulting in substantial heterogeneity in HF care delivery. Contemporary HF management increasingly requires competencies that extend beyond conventional cardiology training, including advanced pharmacotherapy, evaluation of cardiomyopathy, pulmonary hemodynamics, and multidisciplinary HF coordination.

Therapeutic inertia further compounds this issue. Although GDMT implementation has improved globally, Southeast Asia continues to demonstrate lower utilization and lower achievement of target-dose HF therapies compared with higher-income regions.[2-3] Delayed optimization of GDMT, concerns regarding tolerability, fragmented follow-up systems, and insufficient multidisciplinary support contribute to persistent gaps between guideline recommendations and real-world practice. In many settings, HF management still focuses predominantly on acute decongestion rather than longitudinal disease modification and vulnerable-phase optimization.

Patient-related barriers also play a substantial role in Indonesia. As the world's largest archipelagic country, Indonesia faces unique geographic disparities in healthcare access. Specialized cardiovascular services remain concentrated in major urban centers, while many patients experience delayed referral, fragmented continuity of care, and limited access to advanced diagnostics or specialist consultation. Additionally, delayed symptom recognition, prolonged exposure to asymptomatic cardiometabolic risk factors, and under-recognition of early HF manifestations may contribute to late presentation and delayed comprehensive evaluation. Low social support, misconceptions regarding polypharmacy, and early symptom improvement after hospitalization may further reduce long-term adherence to HF therapies. In many patients, symptomatic improvement following decongestion may create the perception of recovery, leading to premature discontinuation of long-term disease-modifying therapies. Cultural perceptions toward chronic disease, low health literacy, socioeconomic limitations, and high out-of-pocket healthcare expenditures may further complicate long-term management strategies.[2-3]

Regulatory and healthcare system barriers represent another critical challenge. Although Indonesia has made major progress through the expansion of national universal health coverage, disparities in healthcare resources and access to advanced cardiovascular

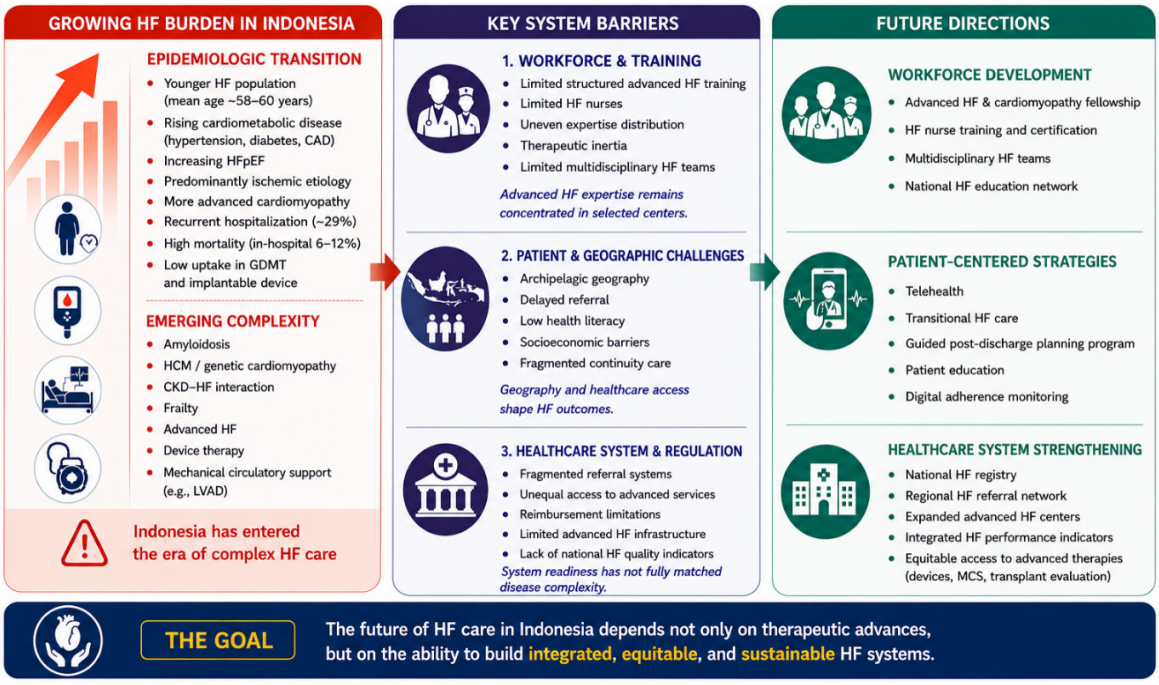

Figure 1. Central Illustration. Toward Integrated and Future-Ready Heart Failure Care in Indonesia.

services remain substantial across regions.[9] Access to advanced HF diagnostics, cardiomyopathy work-up, rehabilitation services, telemonitoring systems, mechanical circulatory support, and structured transitional care remains limited outside selected tertiary centers. Furthermore, HF care pathways are often fragmented, with inconsistent referral systems between primary care, secondary hospitals, and tertiary cardiovascular centers. National HF registries and quality performance indicators also remain underdeveloped, limiting the ability to comprehensively evaluate nationwide HF outcomes.

Importantly, these challenges should not be interpreted as evidence of failure, but rather as signs that Indonesia has entered a new phase of cardiovascular medicine. The epidemiologic transition toward increasingly complex HF inevitably requires evolution in healthcare systems, workforce competency, and policy direction. In many ways, Indonesia is currently experiencing the same transition that previously occurred in developed countries, albeit within different healthcare realities and resource limitations.

Future strategies, therefore, require movement beyond conventional HF care models toward integrated HF systems strengthening. Workforce development should become a major priority, including structured advanced HF and cardiomyopathy training pathways, HF nurse education programs, multidisciplinary HF teams, and broader dissemination of contemporary HF knowledge across healthcare levels. Simultaneously, patient-centered strategies such as telehealth, transitional care programs, digital adherence monitoring, and improved HF education may help bridge geographic and literacy barriers.

Healthcare systems and regulatory frameworks must also continue evolving. Strengthening national HF registries, establishing regional HF referral networks, improving equitable access to advanced therapies, and integrating performance-based HF quality indicators may substantially improve long-term outcomes. Importantly, advanced HF care should not be viewed merely as the provision of sophisticated devices or highly specialized procedures. Rather, advanced HF care fundamentally represents system preparedness: the ability to identify high-risk patients early, optimize evidence-based therapies, coordinate multidisciplinary care, and provide continuity throughout the HF journey.

The burden of HF in Indonesia will continue to rise regardless of healthcare system readiness. As Indonesia's founding President, Soekarno, once encouraged the nation to "dream as high as the sky.

If you fall, you will fall among the stars," the future of HF care in Indonesia may similarly depend on the courage to envision healthcare systems beyond current limitations. Ultimately, the future of HF care in Indonesia will depend not only on therapeutic innovation but also on the ability to build equitable, integrated, and sustainable HF systems capable of serving patients across the continuum of care.

List of Abbreviations

GDMT Guideline-Directed Medical Therapy
HF Heart Failure
HFpEF Heart Failure with Preserved Ejection Fraction
LVAD Left Ventricular Assist Devices

Generative AI and AI-Assisted Technologies in the Writing Process

Authors acknowledge that Artificial Intelligence (AI) tools were only used to assist in language editing and did not generate or alter the scientific content, analysis, or conclusions presented in this manuscript

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