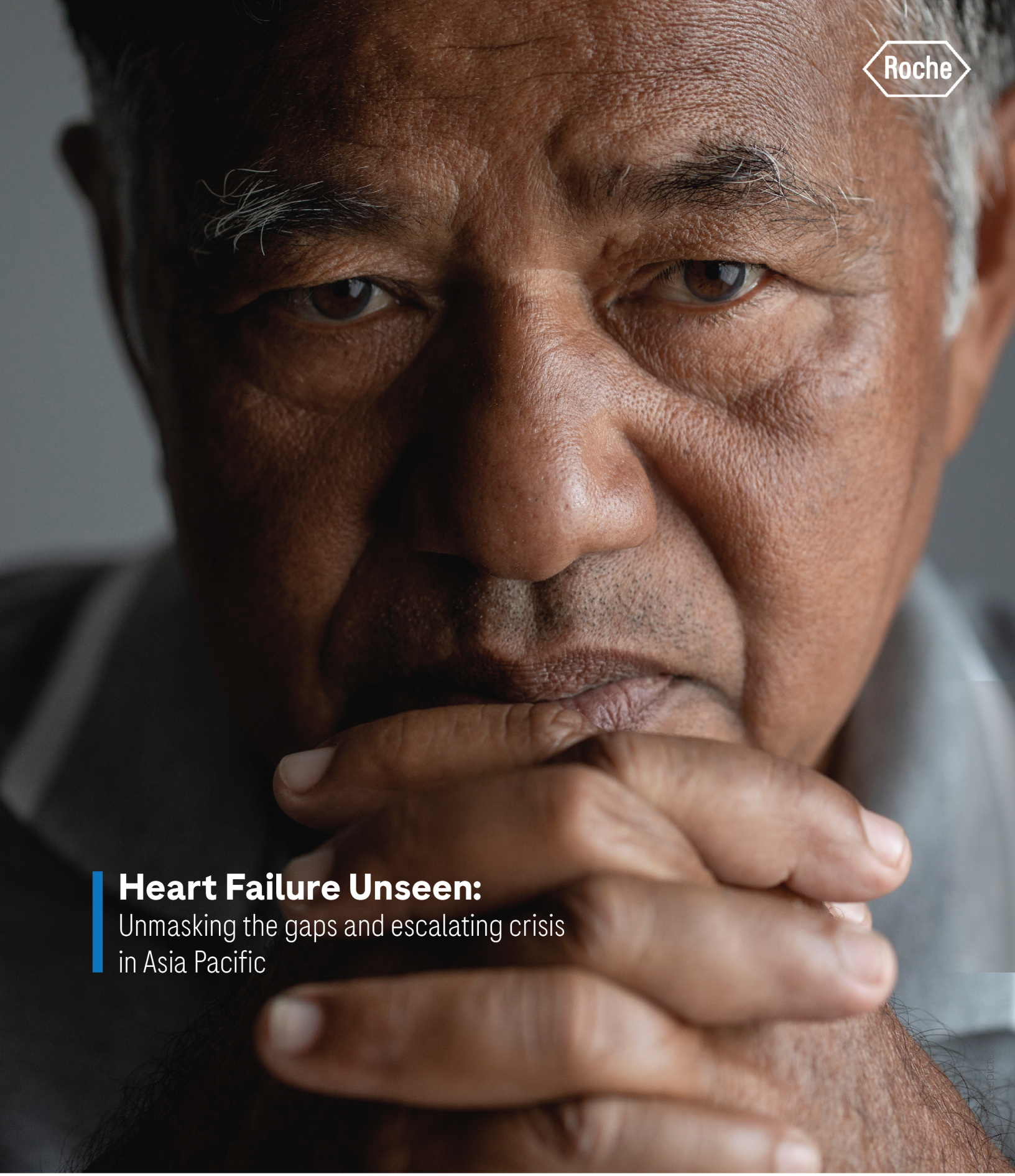


Heart Failure Unseen:
Unmasking the gaps and escalating crisis in Asia Pacific

Summary of the consensus developed by leading cardiologists within the region under the Asian Pacific Society of Cardiology

Foreword

Heart failure is a silent and growing health problem in Asia Pacific (APAC).

In just under three decades, between 1990-2019, deaths from cardiovascular disease (CVD) across APAC surged by 12%, equating to approximately 5.2 million deaths in that period.[1] Similar to other diseases, the COVID-19 pandemic has further increased the burden of CVD, and as a result has also exacerbated the outcomes for people living with cardiac disease, with data showing a 72% increase in the risk of heart failure in people who have had a COVID-19 infection.[2]

In APAC, the combination of rising population growth, urbanisation, an ageing population, and increasing rates of obesity and chronic diseases have led to a notable increase in CVDs, including heart failure.[2] This is particularly concerning given that evidence shows overall poor clinical outcomes for patients in APAC with heart failure, with Southeast Asian patients having the worst morbidity and mortality rates.[3] This not only represents a significant health burden which translates into substantial healthcare costs and loss of productivity, but also the emotional toll living with the disease takes on individuals and their carers or family members.[4]

To improve the standard of care and reduce the burden of heart failure for patients and the healthcare system, we explore and detail the clinical gaps that impact the APAC region such as low awareness and knowledge of heart failure among patients and physicians, a lack of access to advanced diagnostic tools and treatments, and a lack of funding for heart failure medications and devices.

The report also highlights potential solutions that address these gaps which include increasing public and physician awareness of heart failure, broadening the utilisation of updated and effective diagnostics which include biomarkers, ensuring funding and access to disease-modifying therapeutics, and implementing attentive discharge and follow-up procedures to reduce hospitalisations and readmissions.

There is an urgent need for concerted efforts by multiple stakeholders, from patient to physician, to close these gaps and ensure that all heart failure patients receive optimal care. Additionally, multidisciplinary efforts, involving primary care physicians and cardiologists, are critical to implementing new strategies and improving the long-term outlook for heart failure patients.

Heart failure imposes severe economic, societal and personal costs

Global economic burden of heart failure is estimated at USD$346.17 billion[5]

Heart failure is a serious condition in which the heart is unable to pump enough blood to meet the needs of the body.[4] The disease affects roughly 64 million people around the world (8.52 cases per 1,000 individuals).[5] The true prevalence of heart failure in APAC is unclear as not all countries have comprehensive surveillance data on heart failure, however it has been suggested that prevalence ranges from 1.3% to 6.7%, translating to an average of 4 cases of heart failure for every 100 people in APAC.[6]

Because symptoms are nonspecific and at early stages can go unnoticed, heart failure can be hard to diagnose.[7] Heart failure can happen suddenly or it can progress slowly over months or years.[8] This can add to a patient's physical and emotional stress.

To put this into context, patients in APAC with heart failure spend between 5 and 12.5 days in the hospital, and as many as 15% of patients are readmitted for heart failure within 30 days.[9] It is also worth noting that, unlike several European countries where heart failure care is publicly funded, in most APAC countries including South Korea, Taiwan, Thailand and Malaysia, patients bear a substantial cost for heart failure care out-of-pocket especially for hospitalisation.[10]

In general, the absence of reliable data on heart failure disease prevalence and incidence in APAC makes it challenging for healthcare providers and policymakers to accurately assess the impact of the disease on patients in the region. That said, studies published in individual countries and areas within APAC can give us a glimpse of the severity of the problem.

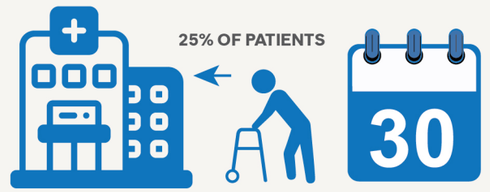
For example, in China alone, approximately 4.3 million people have heart failure and in India, heart failure was responsible for 1.8 million hospitalizations annually; in Southeast Asia, 9 million people are estimated to have heart failure.

Based on this data, this means that there are approximately 13.3 million people living with heart failure across the region. Furthermore, in Malaysia, heart failure accounts for 10% of hospital admissions.[12]

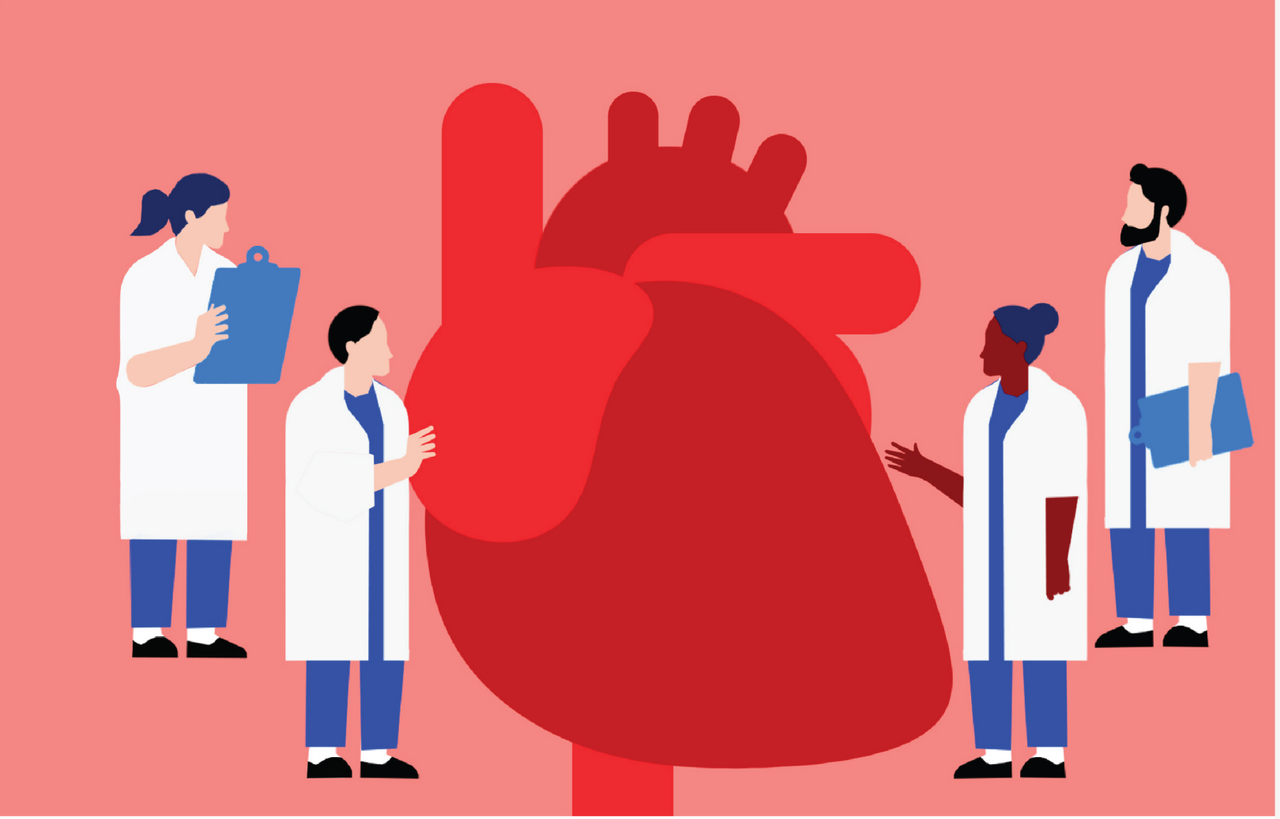
Key facts about heart failure [13,14]

Symptoms of heart failure include dyspnoea (shortness of breadth), oedema (swelling of the legs, abdomen, ankle and feet) and fatigue.[12]

Heart failure is the major cause for hospitalization for patients over 65 years old.[13]



In the US, up to 25% of patients return to hospital for worsening progression one month after leaving the hospital.[13]



Understanding the unique hurdles of heart failure diagnosis and management in APAC

Physician and public awareness of heart failure is concerningly low

In the APAC region, diagnosis and identification of heart failure is most challenging in the early stages of the disease due to the public, patient, and physician's lack of awareness and knowledge of the disease. An easy to miss sign of heart failure is shortness of breath (dyspnoea),[15] which may be overlooked as a symptom of something less serious.

Additionally, studies reported that heart failure is commonly misdiagnosed as respiratory disease, especially chronic obstructive pulmonary disease (COPD), and other comorbidities including myocardial ischemia, atrial fibrillation, obesity, and old age.[13] These conditions often cause shortness of breath and decreased exercise tolerance which are the characteristic symptoms of heart failure, leading to misdiagnosis.[13]

An added nuance in the diagnosis of heart failure is that biological differences between men and women can impact how heart failure symptoms present, leading to a further risk of misdiagnosis.[16]

Several real-world studies have reported that women tend to first show non-typical symptoms of atrial fibrillation, which are associated with an increased risk of heart failure.[17,18] This association is concerning as a high proportion of patients in China, Korea, Thailand and Japan presenting with atrial fibrillation symptoms are women.[19-21]

Leading cardiologists highlight critical gaps across the heart failure patient journey in APAC

Across APAC, heart failure patient clinical outcomes vary greatly from individual to individual, driven by many considerations including cultural and socioeconomic factors.

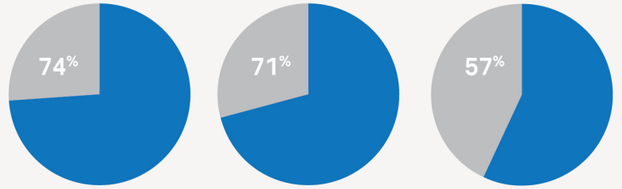
At the heart of these differences are regional disparities in standards of care, varied availability of diagnostic tools, and access to advanced medical interventions.[6,11,22] While international guidelines exist for the management of heart failure, regional differences affect the availability of tools for heart failure diagnosis and treatment in various healthcare institutions.

With this in mind, the Asian Pacific Society of Cardiologists (APSC) conducted a survey among physicians responsible for the care of heart failure across the APAC region, providing vital insights into the challenges of diagnosing and managing heart failure in their areas of practice.[15]

Key summary findings from the APSC survey

‘Unearthing Gaps in the Heart Failure Ecosystem’.[1]

1 Low disease awareness:



Suboptimal patient awareness | **Late referral for heart failure care** | **Lack of physician knowledge and awareness**

2 Diagnosis & risk assessment:

Limited availability of cardiac biomarker testing in many parts of Asia Pacific has led to untimely diagnosis and treatment.

3 Availability of treatment:

Limited access to newer disease-modifying therapies

4 Funding:

Only 17% were fully publicly funded for heart failure medications and devices | **53% received reimbursements with co-payments** | **25% of centres were not reimbursed at all.**

5 Discharge and follow-up care:

54% of the centres had discharge protocols

1/2

with dedicated outpatient heart failure centres for follow-up

Limited availability of cardiac rehabilitation

53%

of centres lacked infrastructure to follow patients long-term

1 in 2

noted patient follow-up as an obstacle to the successful disease-modifying medical therapy

54% reported the lack of multidisciplinary heart failure management teams in their institutions

1 Weiqin L, et al. Unearthing Gaps in the Heart Failure Ecosystem: An APSC Online Survey.

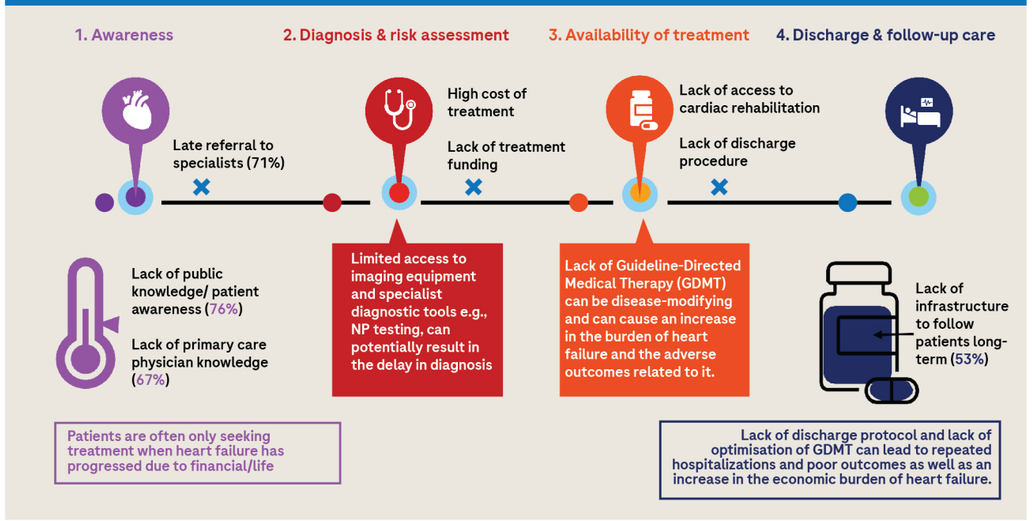
The survey revealed a lack of public and physician awareness regarding the disease, such as the signs and symptoms of heart failure. Moreover, the diagnosis of heart failure remains suboptimal in many parts of the region due to the lack of access to testing, which can lead to delays in receiving the necessary treatment. While standard treatment for heart failure was mostly available at healthcare centres in the region, access to newer and more expensive disease-modifying therapies was not always available. Gaps in post-discharge and follow-up care were also reported, including the lack of dedicated outpatient heart failure centres or clinics for follow-up and low access to cardiac rehabilitation services. Altogether, these findings suggest critical gaps throughout the entire heart failure patient journey, from diagnosis to treatment and post-discharge follow-up, with significant implications for long-term patient outcomes.

Figure 1: **Gaps in the heart failure patient journey in APAC**[15,23]

Summary:

Gaps in the heart failure patient journey in Asia Pacific

Based on a survey of cardiologists and general practitioners conducted by the Asian Pacific Society of Cardiologists



Statistics cited from:
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Ferreira JP, Kraus S, Mitchell S, Perel P, Piñeiro D, Chioncel O, Colque R, de Boer RA, Gomez-Mesa JE, Grancelli H, Lam CS. World heart federation roadmap for heart failure. Global heart. 2019 Sep 1;14(3):197- 214.

How is heart failure diagnosed?

The initial stage of a heart failure diagnosis involves evaluating the patient's medical history and conducting a physical examination. Then, further tests and procedures are performed including an electrocardiogram (ECG), a biomarker test (blood test) – natriuretic peptides (NP), and echocardiography to determine any structural and functional impairment of the heart. Depending on the results of these test, a diagnosis of heart failure will be made or ruled out.

Do you know? – Understanding biomarkers

Biomarkers are proteins that can be measured in the blood and provide clues on how the body is doing. For example, they can show if something wrong is going on, or if a treatment is working. Biomarkers can play a critical role in improving diagnosis and disease management, particularly in heart failure.

Beyond symptoms: The value of biomarkers in heart failure diagnosis and management

Overall, in APAC, heart failure is typically diagnosed based on clinical signs and symptoms, likely due to limited access to a variety of imaging techniques and cardiac biomarker testing, as revealed by the APSC survey.[15] However, given the non-specific presentation of heart failure, it is important for patients with suspected heart failure to undergo a comprehensive assessment to allow appropriate interventions and treatment.

These advances in diagnostics have provided effective assessment tools for clinicians to diagnose patients more confidently, and to also track disease progression which is key to reducing readmissions.[25] In heart failure particularly, biomarker testing for natriuretic peptides (NP) is important for the diagnosis and monitoring of patients.[25] They are considered the gold standard tool for the diagnosis, prognostication and management of heart failure.[26,25,27]

Aside from international clinical guidelines recommending the use of NT-proBNP as a diagnostic tool, studies from the APAC region also show evidence that echoes these recommendations.[28]

"The majority [of physicians surveyed] reported that most of their patients with heart failure have not undergone NP testing, an important test for the diagnosis of heart failure".

From Unearthing Gaps in the Heart Failure Ecosystem: An APSC survey

What are BNP and NT-proBNP?

BNP and NT-proBNP are part of the natriuretic peptides family and are proteins made by the heart. Normally, only small levels of BNP and NT-proBNP are found in the bloodstream. High levels can mean the heart is not pumping effectively and could lead to congestion and fluid retention in the body.

Cardiac biomarkers such as NT-proBNP, can help to provide a full clinical picture that aids in the diagnosis and management of heart failure. It can also be a useful tool in predicting a patient's long-term health risk, allowing clinicians to tailor care and treatment accordingly.

What does the future of well-managed heart failure look like for APAC?

Calling for improved awareness, diagnosis and delivery of care

Managing heart failure patients across the APAC region poses several challenges. One of the key issues is the limited availability of biomarker testing, which is essential for timely and accurate diagnosis and guiding the appropriate treatment. While the ability to engage with the healthcare providers and facilities for timely diagnosis of heart failure is determined by the availability, accessibility, and efficiency of healthcare systems and infrastructure; a patient's willingness to engage with the healthcare sector is tied to culture, trust, and beliefs. Continuous patient engagement in diagnostic care in Asia Pacific is key to address the gaps in the region as referenced in a white paper titled "Asia Pacific's Patient Engagement Dilemma". Several solutions have been proposed with the goal to optimise the care of heart failure patients in the region, including:

• Overcoming cultural and trust-related barriers.

Normalising heart failure diagnosis in APAC can be challenging, as patients may be hesitant to seek medical care due to cultural and trust-related barriers. Beliefs in traditional forms of medications, a lack of concern about one's health, and the perception that symptoms will resolve on their own contribute to this issue. Furthermore, some patients may lack trust in health authorities, clinicians and Western medicine. Addressing these barriers will require a multifaceted approach that includes community engagement, education and outreach to increase awareness about the disease, particularly with the importance of early diagnosis and treatment.

• Improve public/patient knowledge and awareness by working with relevant stakeholders.

It is essential that patients with heart failure are identified among the general public and encouraged to seek treatment. This process can be enhanced by providing the wider community with localised patient awareness campaigns, outreach programs, and educational materials, particularly for patients of lower socioeconomic statuses.[29]

At the institutional level, it is important that healthcare facilities are properly equipped with adequate diagnostics tools and staffed with experienced and knowledgeable physicians in order to conduct accurate diagnoses.[23] Addressing the lack of education or awareness of heart failure among the general public, patients and physicians will also improve treatment adherence and long-term patient outcomes.

• Improving physician awareness and education.

Physicians likely to encounter patients with heart failure should ensure that they are up to date with the latest developments in the field. Data and findings from real-world and randomised clinical trials such as the APSC survey[14] and STRONG-HF study[30] can be helpful to provide insights into the evidence and recommendations necessary to optimise outcomes for heart failure patients. Guidance is also available from local organisations, such as Singapore's Heart Failure Society[30] and the National Heart Association of Malaysia[31].

We need to have a similar urgency and approach to heart failure as we've seen with cancer. There are irreversible implications to poorly managed heart failure and as seen with the STRONG-HF trial, with rapid, simultaneous up-titration of therapies, and close follow-up, this can lead to marked improvement in patient quality of life.

Professor Alexandre Mebazaa,
primary investigator of STRONG-HF trial

- **Need for improved healthcare infrastructure, processes, and availability of care to ensure access for all patients.**

Diagnostic tools and treatments deemed necessary to control heart failure progression must be made easily accessible and available at minimal cost, as must all necessary infrastructure and processes. Ultimately, policy and key decision makers should seek to eliminate obstacles while implementing best practices and clinical measures to ensure that heart failure patients can easily and promptly obtain medical treatment. Delays in diagnosis or treatment not only risks patients being lost along the heart failure care pathway but also contribute to a significant increase in healthcare costs – which stands at an estimated USD$48 billion from heart failure admissions alone.[9,31] Institutional performance measures and outcomes reporting can also be leveraged to improve heart failure patient care while optimising resource utilisation.

- **Understanding diagnostics tools and access to medicines in APAC, and ensuring that institutions can access those which are recommended.**

Based on the APSC survey, the majority of patients with heart failure have not had biomarker testing for natriuretic peptides, it is clear that access to this critical diagnostic test remains an unmet need in APAC. Moreover, the lack of access to newer or more effective treatments that may be more expensive highlights deficiencies in healthcare financing and provision that require deeper intervention at the level of policymaking and government funding.

It is important to note that although several of the above interventions require improvements in infrastructure and funding, there are process improvements that could positively impact the heart failure patient care and experience at every stage of the pathway. Nevertheless, securing the commitment and collaboration of all stakeholders across multiple sectors, from health ministries to payers, insurers, all levels of healthcare institutions, and the community is crucial to achieving these improvements.

The 5-year mortality risk after heart failure diagnosis is 50%, which is worse than many types of cancer.[33, 34, 35]

The future of heart failure management:

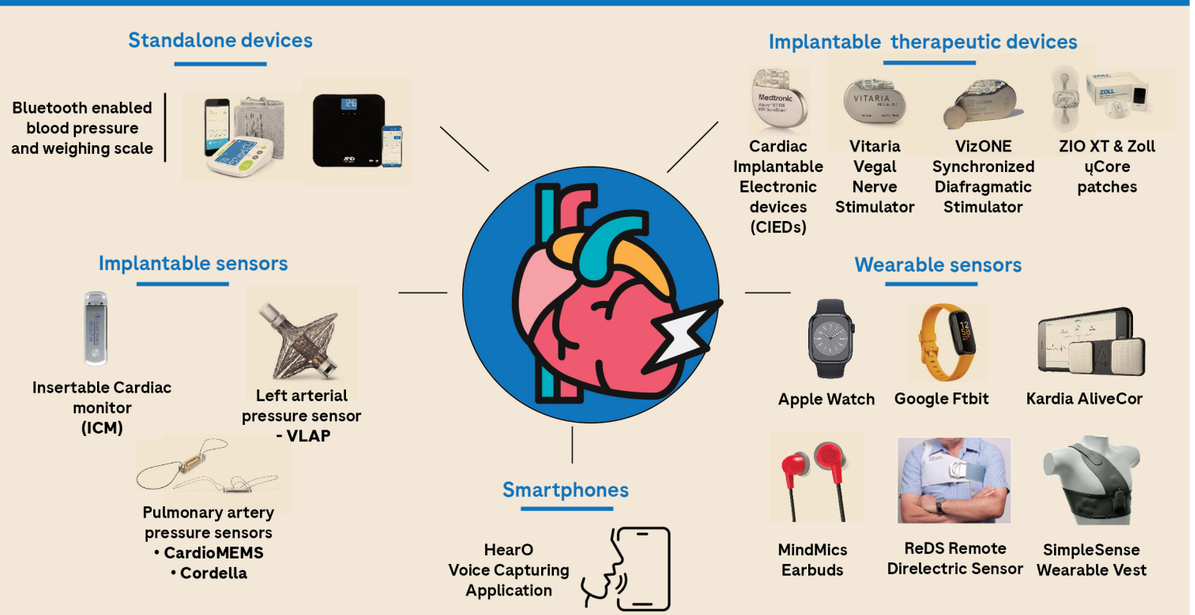
Improving proactive engagement of patients

Over recent years, the use of digital health technologies in chronic disease has been rising, accelerated by the COVID-19 pandemic.[32]

The implementation of these technologies (Figure 2) including remote monitoring and health tracking, wearable technology and smartphone-based technologies can be used to support key activities within the heart failure care pathway and improve outcomes – ensuring rapid and accurate diagnosis, risk stratification and monitoring, therapeutic decision-making and personalised education and care.[32]

On the other hand, it is worth emphasising that even as technological advancements continue to disrupt the traditional primary care model, it is crucial to maintain a holistic approach to managing heart failure patients. This approach should begin with empowering patients themselves to take an active role in their care. Patient engagement is vital to ensure that diagnostic care can improve patients' quality and length of life and lower healthcare cost long term, through early diagnosis and treatment as well as patient compliance to their treatment plan. To achieve this in APAC, healthcare providers need to shift from a traditional, paternalistic, provider-driven model that predominates in the region, towards one that fully integrates the patient's needs and perspectives. From policymakers, to the public, to patient advocacy groups, and experts on various aspects of global and public health, all stakeholders have an important role to play in this process.

Figure 2: **The range of digital technologies available to support patient management in heart failure[32]**



Disclaimer: Some of the devices listed here are not included in heart failure management guidelines and have not proven to change outcomes in heart failure.

Conclusion - The leading cardiologists in the region agreed that the management of heart failure should be individualised, comprehensive and involve a multistakeholder approach which includes strong patient engagement.

This report is brought to you by Roche Diagnostics Asia Pacific.

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