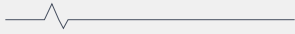




HEART VALVE DISEASE: Harnessing Innovation to Save Lives, Mitigate Costs, and Advance the Healthy Aging Agenda

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Solving for Heart Valve Disease is Solving for Healthy Aging

On December 7, 2022, the Global Coalition on Aging and the Global Heart Hub convened a cross-sector roundtable of global, multi-disciplinary experts from healthcare, patient advocacy, policy organizations, and the private sector to discuss the challenge of heart valve disease in the context of aging societies and their evolving needs.

As population aging accelerates, heart valve disease is growing as both a life-threatening health challenge and a costly drain on health systems and public budgets.¹ Yet the disease remains widely under-recognized due, at least in part, to ageist biases, despite increasing innovation for detection, intervention, care models, and technologies. There is a clear necessity for better utilization of the tools already available to improve diagnosis and treatment, streamline care pathways, and, ultimately, save lives.

In light of this opportunity, and aligned with the UN Decade of Healthy Ageing, the experts at the roundtable call on policy-makers; health system leaders; patients, caregivers, and their advocates; healthcare providers; and other stakeholders to prioritize and strengthen responses to heart valve disease. Together, a multi-sector coalition of leaders and organizations can combat ageist stereotypes that constrain care, improve early detection and diagnosis, and ensure increased and widespread access to life-saving interventions.



The roundtable's global stakeholders identified combatting ageism as central to unlocking progress against heart valve disease. Ageism influences everything from daily societal engagement and health care to health policy and budget allocation. Today, as we experience the mega-trend of global aging – with lives to a hundred as a matter of course and more old than young – heart valve disease stands out as both a victim of the holdover ageist culture and as a near-perfect example of how we might change the dynamic of treatment and spending options for healthy and active aging in the 21st century.

As Christopher Mikton, Alana Officer, Vânia de la Fuente-Núñez and Etienne Kru have written: “Ageism is an important social determinant of health that has been largely neglected until now. The social determinants of health are the non-medical factors that influence health outcomes and include the conditions in which people are born, grow up, and live and the wider set of forces and systems that shape the conditions of daily life.”²

Heart valve disease demonstrates the consequences of an ageist culture – and what's possible if we can change that culture. This report, building upon the December roundtable, examines how behavior and policy change can best address heart valve disease in our 21st century.



INTRODUCTION

Healthy Aging, Ageism & Heart Valve Disease

Our world has entered a period of unprecedented population aging. Today, there are more than 1 billion people over the age of 60, and this number will reach more than 2 billion by 2050.³ Scientific and medical advances have enabled the modern miracle of longevity, significantly increasing the average lifespan in countries around the world.⁴ Yet these seismic shifts have also raised health and economic challenges, as societies must adapt expectations and systems for an emerging world of more old than young.

In the past decade, a growing global movement has called attention to these dynamics and pushed for solutions to enable healthy aging. The UN Decade of Healthy Ageing, overseen by the World Health Organization, represents an important milestone, calling on countries to prioritize healthy aging at scale by embracing four pillars: Combatting Ageism, Age-Friendly Environments, Long-term Care, and Integrated Care.

“Addressing heart valve disease can be a clear success story for the healthy aging agenda. There has been impressive innovation, but societies must overcome the widespread ageism that still delays diagnosis, limits care, and ultimately leads to avoidable costs and impacts on people’s lives.”

John Beard, MBBS, PhD, Director, Global Centre for Modern Ageing

As stakeholders consider the path ahead, heart valve disease represents a critical area where these pillars can unlock rapid progress. In fact, heart valve disease is – in many ways – an example of what’s possible when scientific innovation is brought to bear on age-related health challenges.

While treatments were once limited to open heart surgery, patients can now also access and benefit from a range of lower-risk interventions to alleviate disease progression and reduce the risk of mortality.⁵

Yet we are not taking full advantage of these solutions. Public awareness and health system responses still trail behind the science – in large part because of ageism. As outlined in the WHO’s *Global report on ageism*, one-in-two people hold ageist stereotypes against older people – impacting health, quality of life, and healthcare.⁶

For heart valve disease, symptoms like shortness of breath, fatigue, dizziness, and chest pain are too often dismissed as “just a normal part of getting old.” This ageist assumption impedes detection, slows the path to diagnosis, and limits a person’s ability to access interventions. These delays can have tragic consequences. When untreated, severe, symptomatic aortic stenosis (the most common type of heart valve disease) has a mortality rate between 25 and 50 percent per year.^{7,8} New data suggests that mild and moderate aortic stenosis are also associated with a higher mortality risk than previously suspected, underlining the necessity of early diagnosis and treatment.⁹

However, there are important reasons for hope. The growing focus on healthy aging provides momentum to better address heart valve disease and provide people with cost-efficient, life-saving interventions as early as possible in disease progression.

**CHALLENGE:**

Scaling Solutions for a “Silent Epidemic”

Understanding the Global Burden of Heart Valve Disease

As populations age, the burden of heart valve disease is growing. The risk of heart valve disease increases significantly after age 65 and reaches 12.5 percent after the age of 75.¹⁰ This makes heart valve disease an important challenge globally:

- › In Europe, national estimates project prevalence to double by 2040 and triple by 2060.¹¹
- › In the United States, prevalence has grown from just 5 million in 2000 to as many as 11.6 million in 2018.¹²
- › In Asia, while broad population data is limited, initial studies suggest similar rates of increase in prevalence with population aging.¹³

Yet lack of recognition effectively makes heart valve disease “a silent epidemic.”¹⁴ In a recent survey, nearly 70 percent of people over 60 said the symptoms of heart valve disease would prevent them from doing daily activities like working, volunteering, or hobbies.¹⁵ If left untreated, the disease is deadly. Age-specific mortality from heart valve disease rises exponentially at older ages, peaking at age 85.¹⁶

These impacts lead to high direct and indirect costs. In the US alone, heart valve disease costs \$23.5 billion each year in direct health expenditures.¹⁷ Over a ten-year period, without timely access to treatment, it’s estimated that \$10 billion would be lost from contributions like volunteering and family caregiving.¹⁸

Overall, the challenge of heart valve disease is much larger than has been previously recognized, with impacts that reach into all aspects of patients’ lives. In an aging society, these impacts lead to cascading effects across generations and communities.

“Given the scale of undiagnosed heart valve disease, there are tremendous levels of economic cost and unnecessary death. In fact, aging societies can both help people and save money by strengthening their responses.”

Nicholas Eberstadt, PhD, Henry Wendt Chair in Political Economy, American Enterprise Institute

“In the clinic, I see that people with heart valve disease are getting sicker, younger. We must implement solutions to engage people faster, detect and diagnose the disease earlier, and make patients aware of all available treatments.”

Ariane Vieira Scarlatelli Macedo, MD, MHS, PhD, Clinical Cardiologist, Santa Casa de São Paulo; Director, Galen Academy; Member, Scientific Committee, Instituto Lado a Lado pela Vida



Understanding Current Interventions – And Where Care Can Fall Short

However, unlike many age-related health challenges, we have the tools to effectively address heart valve disease and mitigate impacts, costs, and deaths:

Early detection with a stethoscope check.

Physicians can detect heart valve disease at the primary care level by using a stethoscope to check for a heart murmur. Yet this procedure, called auscultation, has not been systematically implemented at scale.

Diagnosis with an echocardiogram.

Once symptoms are detected, a diagnosis can be made based on imaging of the heart, called an echocardiogram. However, referrals for an echocardiogram are often delayed or not made at all.

A growing set of treatment options.

Today, people with heart valve disease have more treatment options than ever before. In addition to traditional surgical aortic valve replacement (SAVR), there are minimally invasive surgical options and transcatheter options, including transcatheter aortic valve implantation (TAVI) and transcatheter edge-to-edge repair (TEER), which have been shown to improve quality of life and survival.

The challenge is one of policy action, health system mobilization, and public awareness to overcome the biases of ageism and ensure care early in disease progression.

“The options are totally different than they used to be. Previously, surgeons wouldn’t consider certain older patients because treatment meant open-heart surgery – but now there are far more interventions available for all four heart valves and that do not require opening the chest, but still greatly improve quality of life.”

Matthew Henry, MD, Cardiothoracic Surgeon, St Francis Hospital and Heart Center



The Impacts of COVID-19 on Care for Heart Valve Disease

The COVID-19 pandemic has profoundly impacted health systems and care pathways, including detection and treatment for heart valve disease. In addition to delayed or deferred routine visits, some experts have raised concerns about stethoscope usage and the potential for COVID-19 contamination, which could further constrain systematic early detection.¹⁹

There is also evidence the pandemic has led to delays for surgical procedures to address heart valve disease. A study from the U.K. reports a “rapid and significant drop in TAVI and SAVR activity during the COVID-19 pandemic, especially for elective cases.”²⁰ In the U.S., a study found cardiac events and mortality occurred for patients with severe aortic stenosis when TAVI was delayed due to COVID-19, with 35 percent of patients in the study experiencing a cardiac event within three months.²¹ Action is needed to address the potential backlog of undiagnosed cases or delayed procedures, especially given the importance of prompt intervention earlier in disease progression.

**BARRIERS:**

Addressing Key Issues & Gaps in the Patient Journey

“We need to transform the relationship between people with heart valve disease and their care teams. This should be a true partnership, empowering people to understand the disease, their treatment options, and long-term care plans.”

Susan Strong, Founding President, Director of Patient Engagement, Heart Valve Voice US and Heart Valve Disease Patient

How can we scale the solutions already available to accelerate progress against heart valve disease? What are the barriers – and how can we address them?

The roundtable’s experts identified several areas of need. Global health organizations, countries, health systems, and civil society must address these gaps to speed progress:

Ageism and low public awareness.

Currently, there is little awareness of heart valve disease and its symptoms, even among those most at-risk. In Europe, just 5 percent of people over 60 say they are concerned about the disease. Further, ageist assumptions about “normal” aging can lead patients and providers to dismiss early signs like shortness of breath, fatigue, faintness, and others.^{22,23}

Lack of systematic detection and screening.

While auscultation is an inexpensive and noninvasive detection tool, in many countries less than one-quarter of general practitioners regularly provide this simple check to people over the age of 60.²⁴ Overall, more than 40 percent of heart murmurs detectable on a physical exam are missed by primary care providers.²⁵



Delayed referrals for echocardiograms and diagnosis.

Even when a heart murmur is detected, some patients still do not receive a prompt referral for an echocardiogram, either because of knowledge gaps or the lack of clear guidance for when a referral is appropriate.²⁶ After an echocardiogram, a patient may still not be referred to a cardiologist for further follow-up.²⁷

Gaps in treatment and care.

Even with a diagnosis of severe aortic stenosis and indication for treatment, 25 percent of patients do not receive the recommended referral to treatment, and older age, gender, ethnicity, and socioeconomic status further reduce this likelihood.^{28,29,30} The complexity and lack of integration of health systems can generate conflicting recommendations from providers, leading to confusion, uncertainty, and reluctance to seek care.

Inequities in access to diagnosis and treatment.

Research indicates significant disparities in access to heart valve disease diagnosis and care. Globally, low- and middle-income countries (LMICs) have low levels of cardiac surgical capacity.³¹ Reimbursement policy is a particular barrier in Asia and Latin America.^{32,33} There are also disparities within countries. For example, in the U.S., Black patients with aortic valve disease are half as likely to be referred to a cardiologist as white patients and less likely to undergo valve replacement.^{34,35}

“Watchful waiting” and inequitable reimbursement policies.

While a “watchful waiting” approach is common, experts described this as simply deferred treatment with unacceptable impacts. The root cause is often payers’ hesitancy to fund prompt treatment for older adults, due to ageist assumptions built into traditional cost-effectiveness analyses (CEAs) and quality-adjusted life years (QALYs).

These analyses do not account for the economic benefit that comes from increasing lifespan and functional ability in older adults, nor do they recognize the profound longevity shift and its positive economic consequences—remaining active and engaged for longer.^{36,37} In fact, a recent analysis of TAVI for older American patients with severe aortic stenosis found more than \$200,000 in monetary benefits per patient from a payer perspective, and more than \$50,000 per patient from a societal perspective.³⁸



People with heart valve disease are falling through the gaps in our health systems. Low public awareness, uneven rates of screening and diagnosis, and lack of access to treatments lead to avoidable deaths, impacts, and costs.

“We must practice ‘narrative medicine,’ empowering patients and working hand in hand with them to help them understand the full picture of their heart disease to better manage their care. Each patient is an individual.”

Paolo Magni, MD, PhD, Professor, Università degli Studi di Milano; Clinical Researcher, IRCCS MultiMedica Hospital; Coordinator, Scientific Committee, Italian Heart Foundation

“In critical care, age doesn’t matter – when you’re 90 and you have a heart attack, or a cardiac event related to heart valve disease, you’re on my table in the ER. Doctors have been watching, but not doing anything until they’re on my table because they’re 90. They don’t realize how much older people have, how much they can contribute. Screening and getting people upfront saves our public health care system money.”

Janine Eckstein, MD, Interventional Cardiologist; Assistant Professor, University of Saskatchewan



CALL TO ACTION:

Focus Areas to Drive Progress Against Heart Valve Disease

“The impacts of heart valve disease are all the more tragic because they are largely avoidable. It’s past time for societies and health systems to unleash the medical innovations that are now available and those still to come in future.”

Michael Hodin, PhD, CEO, The Global Coalition on Aging

The roundtable’s multi-disciplinary, multi-sector participants built consensus on the need to change the narrative and shift the care paradigm for heart valve disease. Several action areas are essential:

Healthy Aging & Public Awareness

Empower people to understand, recognize, and address heart valve disease:

Include heart valve disease within the healthy aging agenda.

As a growing set of stakeholders embrace the opportunities of healthy aging, policy, civil society, and private-sector leaders can collaborate to strengthen responses to heart valve disease, which corresponds to the pillars of the healthy aging agenda overall.

Combat ageism and increase public awareness of risk, symptoms, and available treatments.

Awareness campaigns should aim to dispel ageist assumptions about early signs and symptoms, as well as inform older adults about the availability of effective, evidence-based interventions.



Care Pathways

Multi-disciplinary care teams will enable better care with greater continuity:

Increase rates of early detection with systematic auscultation at the primary care level.

Updated guidelines should support systematic auscultation for people over the age of 60 or 65, and provider engagement can help to even disparities in screening. Primary care providers should also receive specific training on heart valve disease symptoms and progression.

Ensure access to rapid, high-quality echocardiograms.

When a heart murmur is detected, symptomatic patients should receive an echocardiogram within 2 weeks, and asymptomatic within 6 weeks. This can be further supported with accreditation and other mechanisms to ensure quality of echocardiograms.

Support patients for shared decision-making about the full range of evidence-based treatment options.

Patients and their multi-disciplinary heart team should make a joint decision about their treatment. As described in *Heart Valve Disease in Europe: Creating A Better Patient Journey*, multi-disciplinary care teams can help to “ensure that clinicians do not miss opportunities for effective interventions.”³⁹ This multi-disciplinary care team may include heart surgeons; cardiologists trained in interventions for structural heart disease, imaging and heart failure; anaesthesiologists; and specialist nurses. Resources, such as *Shared Decision-Making for People with Heart Valve Disease: A Patient Guide*, can help to guide this process, “with doctors and patients working together to choose the most suitable treatment, based on the patient’s preferences and goals as well as clinical evidence and the doctor’s expertise.”⁴⁰

Improve coordination across primary care and specialist providers to support high-quality care, follow-up, and ongoing management.

This may include additional technological implementation, such as programs to review patient files and flag follow-up candidates for referral to specialized heart valve care centers, or for repeat echocardiograms after two or five years. Echocardiogram reports should clearly show a recommended follow up period and be easier for patients to understand. Further, considerations should be made to support patients with the psychological aspect of treatment and follow-up.



Deploy innovative thinking and technologies for the patient journey.

Beyond innovations in treatment, novel thinking can streamline care pathways and better utilize technologies, such as improving access to digital communications tools. The use of AI can support earlier diagnosis, referral, and optimal treatment, while digital stethoscopes can decrease the amount of clinical training and experience required to detect abnormal heart sounds.^{41,42} Digital stethoscopes also enable remote auscultation, allowing greater access to care in remote areas.⁴³

Quality Metrics & Incentives

Evolving success metrics, assessments, and incentives can improve patient care, drive urgency to treat, and support positive, long-term health and economic outcomes:

Focus on functional ability as a key metric.

Current metrics attempt to assess quality of life, which is often nebulous and not easily quantifiable. Data must also be region- or country-specific and targeted to be effective. New and surrogate metrics will better enable providers to determine who needs immediate care; increasing focus on functional ability will provide a more concrete, quantifiable data point for patient assessment.

Prioritize prompt intervention and consider long-term costs savings.

Watchful waiting is *not* “benign neglect”. Systematic success metrics should value early, successful interventions and consider the cost savings of avoidable emergency and acute care. Few other diseases are treated only when it becomes severe – for example, cancer patients are not told to wait until stage II or III to receive treatment, when it may be too late for successful intervention. Even mild and moderate aortic stenosis are associated with increased mortality risk if untreated, suggesting watchful waiting puts patients at risk.⁴⁴

Shift focus to long-term care management and outcomes.

Typically, the “success” of TAVI interventions has been measured by the success of the procedure itself and the doctor’s specific care. Instead, metrics should focus on long-term care management and long-term patient outcomes, rather than the immediate outcome of surgery.



Update guidelines
and incentives
to support
implementation.

Current care guidelines are a place to start, but there is a need for incentives and other mechanisms to support widespread implementation. Earlier detection and treatment will increase the sustainability of health systems, reducing long-term costs for public and private payers and supporting economic growth. Incentives should reflect these benefits and cost savings.

“Now is the time to act against heart valve disease. A sense of urgency can speed proven, evidence-based care that mitigates long-term costs, improves outcomes, and better serves patients and their families.”

Neil Johnson, Executive Director, Global Heart Hub; Chief Executive, Croí, the West of Ireland Cardiac & Stroke Foundation & National Institute for Prevention and Cardiovascular Health

CONCLUSION:

Building Global Collaboration & Shared Urgency

Our response to heart valve disease can show what's possible for innovation in healthy aging – but we must drive implementation at scale. Medical advances and health innovations have significantly expanded earlier detection and diagnosis as well as treatment options, offering effective interventions to address this debilitating, life-threatening disease.

However, greater urgency is needed to ensure that patients and families, health systems, and societies reap the full benefits of these innovations. This will happen only if:

- › There is greater awareness globally and across stakeholder disciplines.
- › Health systems respond with equitable access, reimbursement, and encouragement for the use of innovations.
- › Heart valve disease is recognized globally as a central element of the Decade of Healthy Aging.

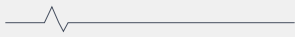
Progress will require greater collaboration and commitment across disciplines, sectors, and countries. A coalition of patients, caregivers, general practitioners, cardiologists, cardiac surgeons, and advocates can lead these efforts – working with governments, health systems, and payers to ensure people are receiving the care they deserve.



As population aging accelerates, the global community and national healthcare systems must mitigate the growing burden of heart valve disease. Thankfully, many of the necessary tools are already available. Now, we just need the collaboration, dedication, and political will to put them into action.

Solving for heart valve disease is solving for healthy and active aging.

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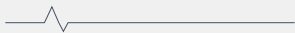


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The **Global Heart Hub** is the first global non-profit organization established to provide a voice for those living with or affected by cardiovascular disease. We are an alliance of heart patient organizations, aiming to create a unified global voice for those living with or affected by heart disease.

Our aim is to unite patient groups from every country in the world under the umbrella of the Global Heart Hub. Our combined mission is to raise awareness of heart disease and the challenges it presents in everyday life. The Global Heart Hub is a platform for heart patient organizations to share their views, learn from each other's best practice, unite on common advocacy goals, and share resources. We aim to increase awareness and understanding of the many heart conditions that exist, improve patient outcomes, enhance quality of life, and optimize longevity and healthy aging.

GCOA represents a cross-section of global business including technology, pharmaceuticals, healthcare, home care, financial, transportation, and consumer sectors. We engage global institutions, policymakers, and the public to drive debate on, create, and promote innovative policies and actions to transform challenges associated with the aging of the global population into opportunities for social engagement, productivity and fiscal sustainability.

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