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# Closing the Gaps in Cardiovascular Disease: The Technologies and Partnerships Needed

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**"Innovative technology in ultrasound enabled by AI can help health systems and healthcare professionals manage their workload and workflow challenges while improving patient outcomes and experience, closing gaps in the fight against CVD" explains Denilson Hiraki Kuratomi, Head of Ultrasound, Philips APAC**

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Although highly preventable, cardiovascular disease (CVD) remains the leading cause of death in Asia Pacific (APAC). Diseases like rheumatic heart disease (RHD) plague children early on in life at young ages and easily go undetected without equitable access to screening. Additionally, conditions like heart failure and coronary artery disease are increasingly affecting people in the prime of their lives, imposing a significant and enduring burden as they navigate the challenges of chronic illness.

Early intervention can save lives. Without awareness of CVD, communities are unfamiliar of the implications for their health. Even with disease awareness, those inflicted with CVD need to have the means to seek treatment and early intervention to avoid their health conditions worsening. Health systems must be able to address the need for care amid staff shortages and rising demand for care due to aging.

Philips' Future of Health Index 2024 reports that 71% of APAC's healthcare leaders consider care delays due to staff shortages an issue. But the solution is on the horizon – automation will address staff shortages in healthcare by automating repetitive tasks and processes, a vast majority of healthcare leaders believe. To deal with the high volume of patients without compromising on quality, workflow prioritization is seen as the biggest opportunity for automation to improve productivity. Artificial Intelligence (AI) is also increasingly being utilized for clinical decision support across many areas of healthcare. Innovative technology in ultrasound enabled by AI can help health systems and healthcare professionals manage their workload and workflow challenges while improving patient outcomes and experience, closing gaps in the fight against CVD.

**AI enabling the next dimension in echocardiography**

Echocardiographers and cardiologists face an overwhelming amount of complexity, especially when working with an extremely complex subject – the heart. Workflows are complicated with various limitations that clinicians face. AI becomes an essential part of solving these challenges and reducing the burden on echocardiography labs. AI-enabled cardiovascular ultrasound platforms speed up cardiac ultrasound analysis with proven AI technology by automating measurements and speeding workflows to increase productivity.

Integrating AI into echocardiography solutions can also automate some steps in the diagnostic process, supporting clinicians' decision-making, allowing them to detect, diagnose, and monitor various cardiac conditions with greater confidence and efficiency much quicker. Harnessing the power of AI into echocardiography solutions empowers clinicians with enhanced diagnostic capabilities to ultimately improve patient care and outcomes in the management of coronary and valvular disease. This transforms cardiac practice by enhancing overall efficiency.

In addition to enhanced AI capabilities embedded within, there is a need to unlock the next dimension of imaging. 3D echocardiography technology is not only intuitive and validated but can increase diagnostic confidence by providing robust, reproducible ejection fraction (EF) in sheer seconds. By cutting down additional steps or time, healthcare providers can focus on what matters most and deliver quality care to patients.

Today's 3D imaging allows one to look into the heart, with photorealistic rendering that simplifies interpretation for cardiologists to reach a better overall understanding of disease. Colour, lights and shade also help to visualize flow trajectory – improving accuracy and the effectiveness of treatment.

Innovations like transoesophageal echocardiography or TEE ultrasound transducer help cardiologists by providing highly detailed images of the heart and its internal structures. On top of bringing patients improved overall comfort, TEE also has remarkably higher quality 3D images with better clarity and perspective compared to 2D alternatives. This technology provides highly detailed images of the heart and its internal structures and is poised to save lives.

This technology has adapted to serve the needs of previously unaddressed patients, such as paediatric patients who are too small, adults at risk of complications and complex cases such as ICU patients. The transducer probe for 3D TEE is too large for this group of patients. A mini version of the 3D TEE transducer allows the smallest patients to undergo complex intracardiac procedures using an essential perioperative tool that can effectively communicate with surgeons to provide good views of intracardiac structures.

**Partnerships enabling early interventions with game changing technologies:**

The advent of new technologies is only half the battle won when it comes to the fight against CVDs. The World Health Organization reports that CVDs account for 3.9 million deaths in Southeast Asia every year, with most of them being preventable. Additionally, nearly 245 million people in the region have high blood pressure and are unaware of their condition – which could lead to cardiovascular complications. Detecting these conditions early is crucial in ensuring that more people can receive better care and the right treatment, at the right time.

In this context, the Philips Foundation partnered with the World Heart Federation (WHF) to provide half a million children at risk with access to healthcare facilities equipped with trained personnel to diagnose RHD early using handheld point-of-care ultrasound device (POCUS). And we look forward to extending this initiative across APAC, where there are an estimated 22.2 million cases. Across the region, Indonesia is one of the most endemic countries with RHD, which will be another country of

focus for us, as we drive access of our technologies in underserved communities.

While new technology exists, communities must be educated on their capabilities to truly understand the potential they have in saving lives and making a difference. The adoption of new technology by healthcare providers and continuous advancement of their skills and knowledge will also go a long way in optimizing work efficiency and focus on patients. For that, the healthcare industry must remain resolved in the mission to improve access and utilization of digital health technology for early interventions, through education and engagements, and continuous exchange of knowledge and best practices.