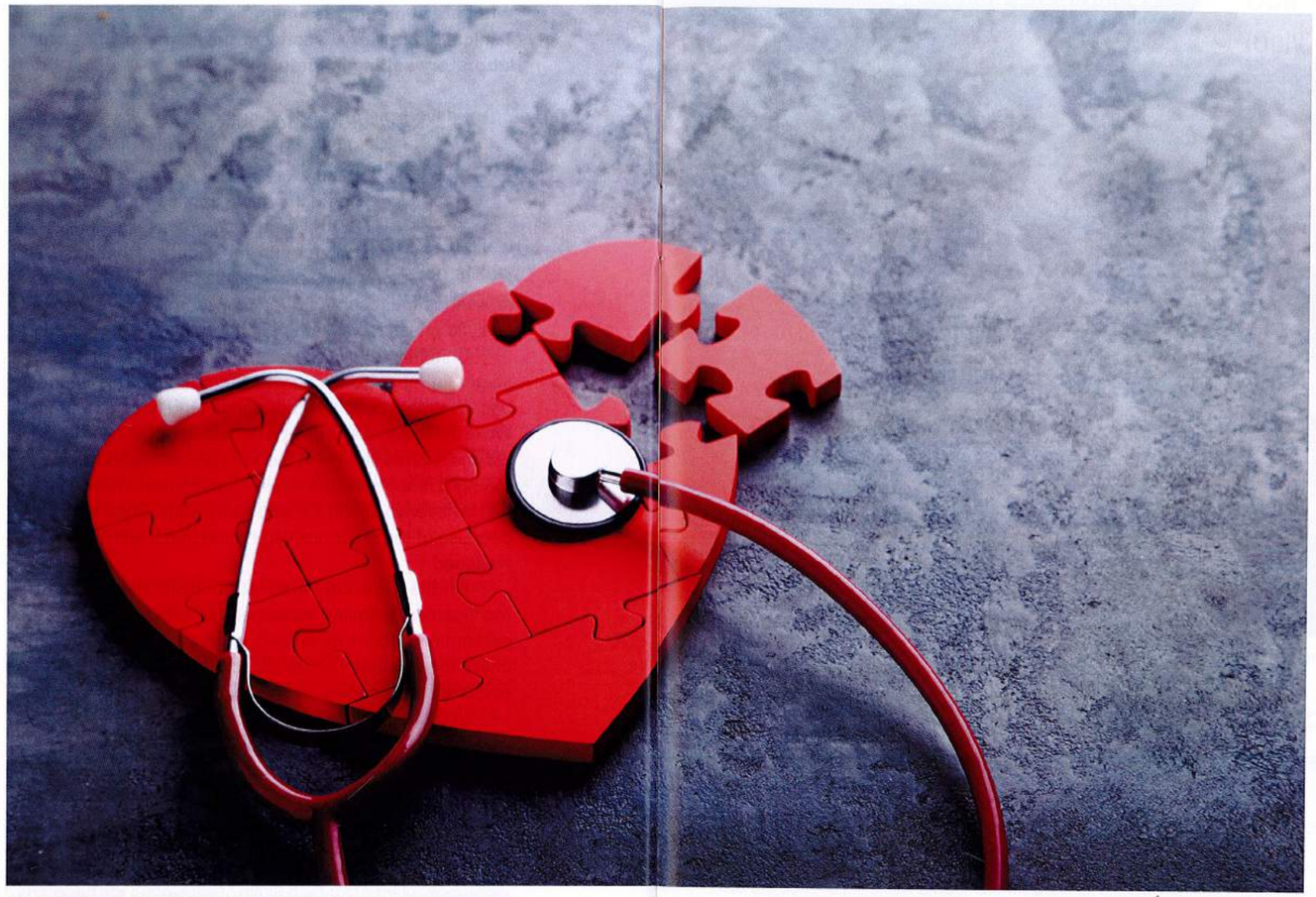
Industry and academia must work together

an interview with Prof Carolyn Lam



As one of Asia's leading clinician scientists, Professor Carolyn Lam, Senior Consultant at the National Heart Centre Singapore and Professor of Duke-NUS Medical School, has been at the forefront of this trend and an advocate for even more collaboration.

Said Prof Lam: "Medical science is advancing at such an incredible speed and to such great depth and breadth that it would be impossible for any single scientist or researcher to know it all. Gone are the days where ground-breaking discoveries are made by a single brilliant scientist working in silo. If we work in silo, it would be challenging if not impossible for us to keep abreast of the advancements in medical science and perceive possibilities that can produce better patient outcomes."

"Take for example, Viagra. It was at first developed to treat hypertension but it has been found to be able to treat erectile dysfunction; a completely different indication in a completely unrelated setting to what researchers and Viagra's developers first set out to do. If we work in silo, we would have not been able to see the full range of possibilities."

Therefore there is a need for collaborative translational research. She elaborated, "There are two parts to this; the first is 'collaborative', and the second is 'translational'. Collaborative research is one where we get to work as a team; and to me, research is a team sport. It is important that institutions, academia and the industry hold hands to do research together across regions and disciplines towards the same objective: to produce better outcomes for patients. To produce better outcomes for patients, we must exchange knowledge, share expertise and appreciate different perspectives in order to see the full picture."

The global burden of major non-communicable diseases such as heart disease has shifted to Asia in recent years, spurred on by real and rapid socio-economic growth in the region. This has driven the need to conduct more medical research in Asia and on Asian subjects which has in turn driven the need for more collaborations between industry and Asia-based academic institutions with the objective of improving patient outcomes.

"The second part is translational: to be able to bridge the gap between the bench (lab and animal model-based research) and bedside (clinic and patient-based research). It simply means applying findings from basic science to medical practice and/or patient care and improving health outcomes."

"This also means that as a clinician scientist, I am in the unique position of being able to understand the science and walk in the shoes of the doctor and the patient. It is essential to understand the doctors as well, as doctors are the ones prescribing treatments to patients and are the most immediate bridge between the patients and the treatments they are prescribed."

When asked about why more research needs to be conducted on Asian subjects in Asia, she replied, "Asia is unique in that not only are Asians biologically and culturally different from those of the frequently studied Caucasian patients, there are real and rapid socio-economic developments in Asia that are advancing the incidence of chronic diseases such as heart disease and diabetes."

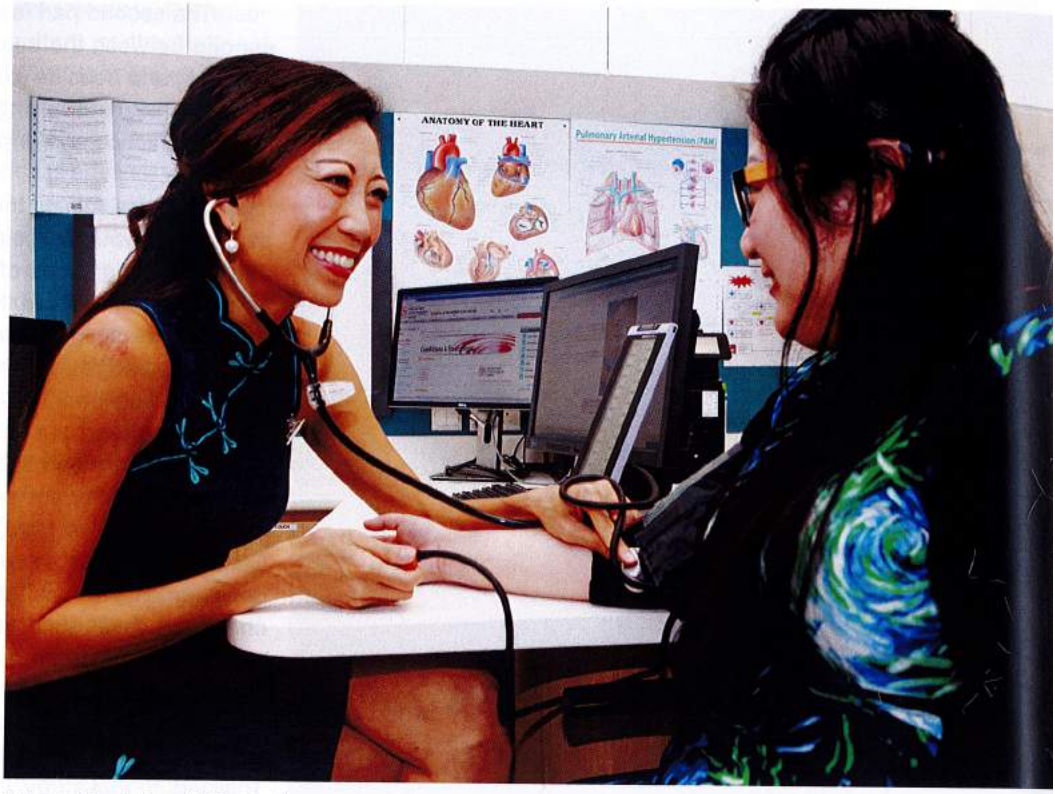
"I am leading an Asian study of heart failures (Asian Sudden Cardiac Death in Heart Failure [ASIAN-HF] study) in 11 countries: China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. In that study, I found that an Indian patient living in Singapore has a five-fold higher chance of being diabetic than an Indian patient in India. The environment, in this case, Singapore, which is a rapidly developing society, is an important factor to take into consideration when observing and measuring the incidence of diseases such as cardiovascular disease and diabetes."

"Conducting such large studies in multiple countries is possible when there is support from major pharmaceutical companies like Bayer. For ASIAN-HF we recruited over 7,000 patients – the largest prospective multinational cohort of its kind in Asia – to become a focal point to begin understanding ethnic and regional disease patterns. Such understanding is critical for a precision medicine approach."

According to Prof Lam, collaborations like these certainly did not happen overnight, due to mutual mistrust between academia and industry. "The gap between academia and industry is a longstanding one; both have been immersed in misconceptions of each other. Industry thought that academics got lost in their own theories which did not or could not have significance on a practical level. Academia on the other hand, thought of pharmaceutical companies as purely business-, rather than science-driven. These misconceptions were barriers to close partnership between academia and industry. This is a real pity, because the truth is that both are working towards a common aim – that of improved patient outcomes – and each has expertise and resources that complement the other."

"Fortunately, the gap is narrowing considerably with collaborations. At one stage of my professional life, I too considered industry as 'the dark side'. But when we actually gathered around the same table, I found that we spoke the same language, we had the same objective, and we need each other! This is a true partnership where I gain knowledge from the industry that is complementary to my practice and research and vice versa."

Bayer is a key industry partner in ASIAN-HF, and was one of the first industry players to look for Asian academic partners. They recently celebrated 10 years of partnerships with Singapore institutions in clinical and translation research in cancer and heart diseases. Bayer's entry into research partnership with Singapore institutions was facilitated by the Singapore Economic Development Board (EDB). Collaborations with renowned institutions provided access and understanding to expertise and knowledge for major diseases prevalent in Asia such as cancer, heart disease and diabetes. These partnerships also contribute to Bayer's clinical trial activities in Asia-Pacific. The number of ongoing clinical trials that Bayer has conducted has more than doubled from 21 in 2007 to 50 in Asia Pacific in 2016; 18 of them are in Singapore alone. These trials provide insights critical to addressing the unmet medical needs in the region.



Professor Carolyn Lam (left) attending to a patient *Source: National Heart Centre Singapore*

According to Prof Lam, the support offered by industry partners to generate the massive amounts of data by huge studies like ASIAN-HF is helping to drive the movement towards precision medicine. Prof Lam explained, "There is now the potential of more individualised, tailored treatment based on the individual patient's needs. We are now able to gather and analyse huge amounts of data based on numerous data points, providing insights down to the granularity of the individual patient. It only makes sense that the right medications are targeted to those most likely to benefit from it, with the least likelihood of adverse side effects, and prescribed at the optimal dose for the individual's drug metabolism profile. The days of 'one size fits all' medicine will soon be gone. The movement towards precision medicine has definitely changed the way that I think about science and my practice and will influence my plans for future research." APBN

The interview was conducted by Nanny Eliana, account director at Bridges M&C Pte Ltd, a public relations and communications agency focused on the medical and healthcare industry.