

# ACEINSIGHTS

Driving better decision-making in healthcare

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## INVOLVING PATIENTS IN HEALTHCARE DECISION-MAKING

ACE's new Consumer Engagement and Education workstream seeks patient testimonials to inform ACE's technical evaluations and co-develops educational resources with patient organisations to encourage shared decision-making between patients and their doctors.

Patient and public involvement has been increasingly incorporated into health technology assessment (HTA) processes globally over the last two decades to increase the legitimacy and acceptance of funding recommendations for drugs and medical devices. To encourage patient input in ACE's evaluations, the Consumer Engagement and Education (CEE) workstream was established in 2021 to build relationships between ACE and healthcare consumers (patients, carers and members of the public) and develop processes to enable them to contribute to ACE's work.

Starting this year, members from local patient and voluntary organisations have been invited to provide their perspectives about different treatments and conditions to inform ACE's evaluations of drugs which are being considered for government funding.

To help patients and their carers understand what ACE does and how they can help inform funding decisions by the MOH Drug Advisory Committee (DAC), a brief process and methods guide, and a series of tip sheets have been developed in consultation with local patient organisations.

CEE has also begun co-developing factsheets with local clinicians and patient organisations to improve patients' understanding of different conditions and help them make informed treatment decisions with

**There is no one-size-fits-all for everyone, and we must continue to put patients in the centre as we try to plan what is good for them."**

ASSOCIATE PROFESSOR LAU TANG CHING,  
Chair, ACE Consumer Panel



their doctors. The factsheets use plain English, numbers and infographics to describe the health condition, common signs and symptoms, local epidemiology and available treatments in Singapore, highlighting subsidised treatment options. Educational resources for patients are available on ACE's website and are also sent to patient organisations and public healthcare institutions for dissemination.

This year, the ACE Consumer Panel was also formed to represent the collective voice of healthcare consumers and provide strategic advice on ACE's consumer engagement and education initiatives. The panel currently comprises 14 individuals from local patient and voluntary organisations who represent a broad range of health conditions and have extensive lived experiences engaging with the Singapore healthcare system. At their inaugural meeting in June 2022, the panel discussed how to ensure that patients have a meaningful voice in ACE's work, and that funding decisions are relevant, evidence-based and humanistic.

Chair of the ACE Consumer Panel Associate Professor Lau Tang Ching said, "There is no one-size-fits-all for everyone, and we must continue to put patients in the centre as we try to plan what is good for them."

In the first half of 2022, ACE received responses from 82 patients from 10 different patient organisations, which informed seven evaluations of treatments for cancer, kidney disease, diabetes and other conditions. These valuable insights have helped the DAC understand patients' lived experiences and ensure that funding decisions consider what matters most to patients and their carers.

Local patient groups can find out how they can get involved in ACE's work by referring to [ACE's website](https://www.ace.gov.sg) or writing to us at [ACE\\_CEE@moh.gov.sg](mailto:ACE_CEE@moh.gov.sg).

FIND OUT MORE ABOUT:



Educational resources and opportunities for patient involvement

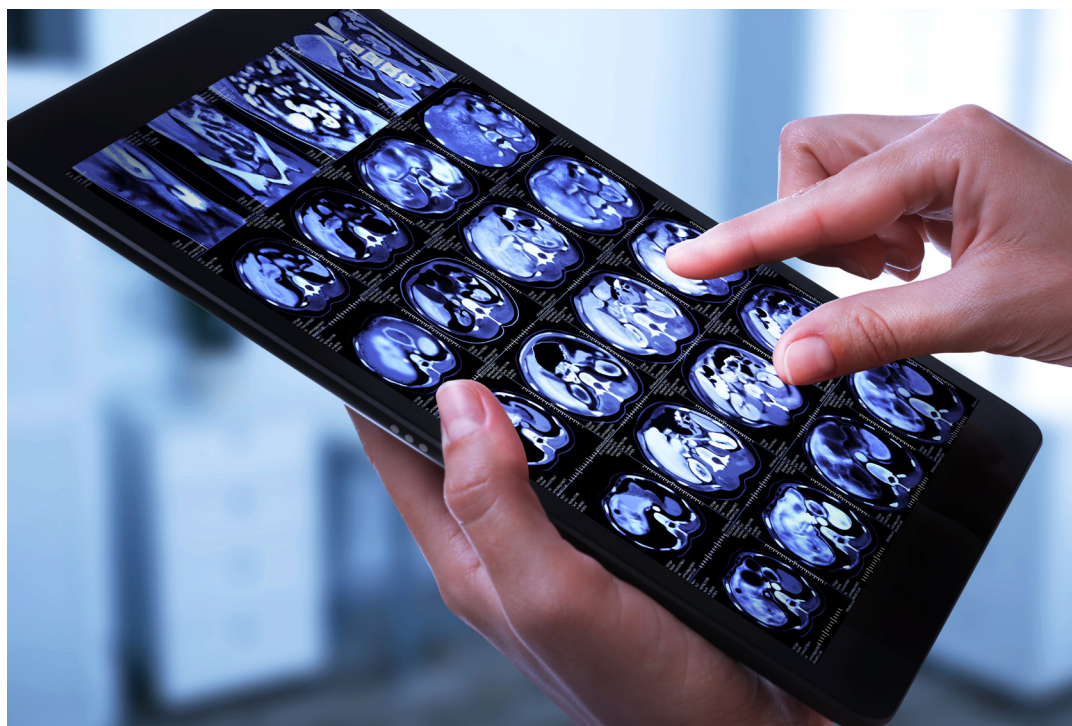


The ACE Consumer Panel



# ACUITY FOR IMAGING TEST DECISION-MAKING

Three ACE Clinical Guidances provide evidence-based recommendations on the use of computed tomography, magnetic resonance and chest X-ray for common clinical scenarios.



**A**ssociate Professor Tan Cher Heng, Senior Consultant, Department of Diagnostic Radiology, Tan Tock Seng Hospital, identified some of the frequently ordered imaging tests in Singapore and saw the potential for increasing their appropriate use in reducing burden on the healthcare system. He shares, “We have to be mindful of the limited capacity of our healthcare system. For instance, magnetic resonance imaging (MRI) is an expensive test and its higher use relative to the increase in actual attendances in clinics and emergency rooms over time suggested that there could be potential for more appropriate ordering, thereby reducing costs for patients and the health system.” This prompted Assoc Prof Tan to propose the Appropriateness Criteria for Use of Imaging Technology (ACUITY) project in 2018.

Assoc Prof Tan worked closely with ACE to convene workgroups comprising multidisciplinary experts representing relevant Colleges under the Academy of Medicine Singapore to formulate local ACUITY guidelines. This culminated in the publication of three ACE Clinical Guidances (ACGs) advocating evidence-based recommendations on the appropriate use of imaging tests within high-volume or high-cost radiology settings – computed tomography (CT)/MRI of the brain for headache, MRI of the lumbar spine for low back pain as well as chest X-ray (CXR) for the asymptomatic local population.

Beyond publishing the ACGs, the ACUITY project sought to make the evidence-based recommendations

readily available at the point of clinical decision-making. Starting with the Singapore Health Services and followed closely by Ng Teng Fong General Hospital, the ACG recommendations on ordering MRI for low back pain were incorporated into the institutions’ electronic medical records (EMR) radiology ordering systems to guide healthcare professionals appropriately. To establish the impact of the ACG, an implementation workgroup was set up at Singapore General

Hospital. Assoc Prof Tan explains, “Through this workgroup, we reviewed ordering data to determine the impact the ACG had on appropriate use of MRI for diagnostic investigation of low back pain. There was a reduction in the MRI orders that usually have low clinical utility after the ACG recommendations were incorporated into the EMR order form. We look forward to progressively rolling this out to other public healthcare institutions”.

As the CXR ACG targeted common clinical scenarios in which CXR is unlikely to confer clinical benefit, such as for general medical examination or lung cancer screening in the asymptomatic local population, the ACG was disseminated to the institutes of higher learning through the Ministry of Education. This led to a significant decrease in the unnecessary use of CXR for pre-enrolment checks at one local autonomous university. “Immediate impact can be gained by simply recommending a change at policy level,” explains Assoc Prof Tan.

“These ACGs represent international best practices that have been contextualised to the local setting and are applicable across specialties. They are meant to encourage and emphasise appropriate use of imaging tests, not to curb the use of imaging when it is warranted,” Assoc Prof Tan concludes.

Download the three ACGs at [www.go.gov.sg/ace-acg](http://www.go.gov.sg/ace-acg) and watch the webinar on MRI for low back pain at [www.go.gov.sg/ace-videos](http://www.go.gov.sg/ace-videos).



ASSOCIATE PROFESSOR  
TAN CHER HENG,  
Senior Consultant, Department of  
Diagnostic Radiology, Tan Tock Seng Hospital

## INSIDE ACE: A PEEK INTO WHAT WE DO

Dr Louise Goh, Lead Specialist, Health Technology Evaluation, Utilisation Review and Adoption, tells us why she finds her work at ACE meaningful and fulfilling.

### What does your job at ACE entail?

As part of the Economic Modelling and Outcomes Evaluation (EMOE) team, I assess the effects of subsidy decisions on utilisation of health technologies, changes in clinical practice and associated patient outcomes to support policy decision-making using real-world data. I also conduct budget impact analysis to assess the expected changes in healthcare expenditure and inform price negotiations with manufacturers, and monitor the use of subsidised health technologies to identify and address barriers to their uptake.

### How did you become interested in the healthcare sector?

One of my university professors shared that people need healthcare some of the time and public health all the time. This sparked my interest in public health and led me to a specialisation in epidemiology and biostatistics, which are cornerstones of public health. It's about using numbers to tell a story; we are like disease detectives studying the causes, risk factors, treatment and health outcomes, while determining how to prevent, control or stop the disease. There is never a dull moment, especially now as we face new diseases, treatments and other challenges.

### What are some of the most fulfilling aspects of your job at ACE?

I can make an impact by helping to improve patients' affordability and access to cost-effective treatments. This, in turn, helps patients to achieve better health outcomes in the long term. I also enjoy working alongside colleagues in ACE who are equally passionate about making a difference, and other divisions within the Ministry of Health to effect policy changes. Everyone at ACE is always willing to lend a helping hand. What we do today at ACE will shape the healthcare system we have in the future.



Dr Louise Goh is a data expert with a passion for deriving insights from numbers.

**The three ACGs represent international best practices that have been contextualised to the local setting and are applicable across specialties. They are meant to encourage and emphasise appropriate use of imaging tests, not to curb the use of imaging when it is warranted.”**



# HANDY SUPPORT FOR ASTHMA MANAGEMENT

Three healthcare professionals share how ACE's educational resources support their work and help educate asthma patients on the importance of self-management.

## Do you think patient education is important in asthma management — and why?

**Dr Ho:** Gone are the days where patients waited for their doctors to give them information. Nowadays, patients are more well-read and do their research beforehand to find out more about their condition. With so much information available, it is important for doctors today to streamline patients' knowledge and guide or correct their understanding.

## How have ACE's asthma resources supported your clinical practice?

**Dr Ho:** I have found the asthma patient fact sheet to be very useful, especially for well-read but misinformed patients. It addresses concerns about recommended treatments by debunking myths about inhaled corticosteroid use — this allows me to focus discussions and guide my patients on an individual basis to better manage their condition. The one-page format also makes it convenient for me to hand out to my patients, and they can bring it home to read in their own time too.

Patients often struggle to remember the names of their inhalers. Within the ACG and on the ACE website, there is a chart with illustrations of the various preventer medications. I simply show that to my patients, and they can easily identify what they are using.



**DR HO WOON YANG,**  
Senior Family Physician,  
Raffles Medical  
Harbourfront Centre

**An important part of asthma management is about empowering patients to manage their own condition. Doctors are here to facilitate, and asthma resources can help in that process."**



## Why is patient education important in asthma management, and what role do you play?

**Ms Tan:** Without proper education, a patient will not be able to understand what they are experiencing. In some cases, they may then fail to comply with their recommended treatment, which would cause their asthma to worsen. Where necessary, we act as the patients' advocate to understand their individual needs and knowledge gaps so that we can guide and assist them accordingly.

**Ms Lee:** I've always believed that knowledge is power — a patient who gets an asthma attack but has sufficient self-management techniques will know better how to deal with it. Similarly, knowing

potential side effects of their medications and how to manage them is also important.

## How has ACE's patient education flipchart helped to enhance patient care?

**Ms Tan:** It is a very comprehensive tool. I find it highly relevant for both new and existing patients, and I use it for both groups. I can zoom in to specific sections to have targeted discussions with individual patients based on their concerns. The graphics and concise text make it easy to keep my patients engaged.



**MS TAN SZE MIN,**  
Senior Staff Nurse,  
Nursing Speciality (Respiratory),  
Tan Tock Seng Hospital

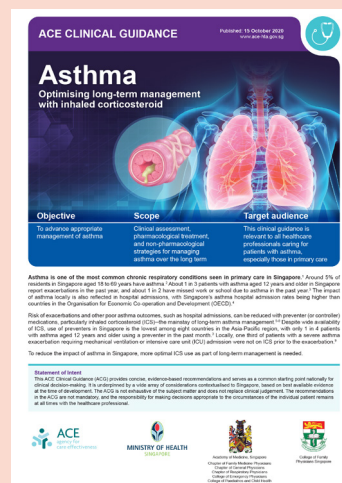
**Ms Lee:** The colourful visuals make it easier for patients of different literacy levels to understand complex concepts. The pointers provided within the flipchart prompt me on key discussion points and help me keep the conversation on track. I bring it along to the wards and clinic as I meet different patients since it is lightweight and portable.



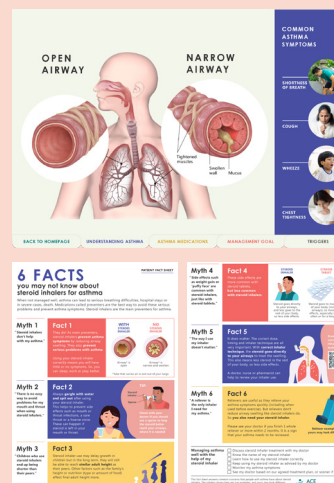
**MS LEE SHU YI,**  
Senior Staff Nurse,  
Nursing Speciality (Respiratory),  
Tan Tock Seng Hospital

## HAVE YOU SEEN OUR ASTHMA ACG AND RESOURCES?

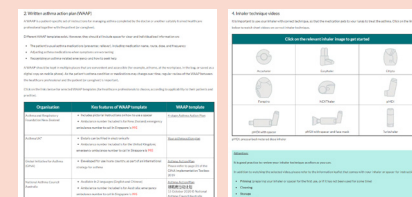
Use them to support conversations with your patients today!



The ACG covers clinical assessment, pharmacological treatment, and non-pharmacological strategies for managing asthma over the long term.



The patient education flipchart and patient factsheet (available in four languages) help facilitate discussions across key components of asthma patient education.



A curated selection of written asthma action plans and inhaler technique videos provide further guidance to patients and caregivers to enhance self-management skills.



Find out more about ACE's asthma ACG and resources

## ACE NEWS

### LATEST TECHNOLOGY GUIDANCES

**ACE's Technology Guidances** explain subsidy recommendations made by MOH's Drug Advisory Committee (DAC) and Medical Technology Advisory Committee (MTAC) for evaluated health technologies. They also include the Committees' rationale for the subsidy recommendations and a summary of key clinical and economic evidence that informed their deliberations.



List of ACE's Technology Guidances published in the last 6 months

### LATEST CLINICAL GUIDANCES

**ACE Clinical Guidances** (ACGs) provide concise, evidence-based recommendations to inform specific areas of clinical practice and serve as a common starting point nationally for clinical decision-making. ACGs are underpinned by a wide array of considerations contextualised to Singapore, based on best available evidence at the time of development. Each ACG is developed in collaboration with a multidisciplinary group of local experts representing relevant specialties and practice settings. ACGs are not exhaustive of the subject matter and do not replace clinical judgement.



List of ACE Clinical Guidances (ACGs)





## HALE AND HEARTY ONCE AGAIN

Eligible patients with severe aortic stenosis can now enjoy subsidies for Transcatheter Aortic Valve Implantation, whose benefits include short hospital stays and a swift return to normal activities.

**M**r Tay Yong Ngan, a 76-year-old retired civil servant, was on his way home after lunch with his friend. About 10 minutes into his walk, he suffered breathlessness, blurry vision and discomfort on the left side of his chest and eventually fainted at the void deck of his block.

Upon admission to the National Heart Centre Singapore (NHCS), it was discovered that he had severe aortic stenosis (AS) and required urgent intervention. Assistant Professor Ho Kay Woon, the Senior Consultant at NHCS who is in charge of Mr Tay's treatment, explains that the current standard treatment, open heart surgery, was not advisable due to the severe stenosis of his cervical spine at the C4-5 level. "With the manipulation of the neck during intubation for general anaesthesia before surgery, there is a risk of cord compression and paralysis, which leads to permanent disability," he says.

### REDUCING SURGICAL RISKS WITH TAVI

Fortunately, there was a solution to this quandary: Transcatheter Aortic Valve Implantation (TAVI). According to the Ministry of Health's Medical Technology Advisory Committee (MTAC) guidance recommendation as informed by ACE's evaluation, TAVI can be recommended for patients with symptomatic severe aortic stenosis who are inoperable or have unacceptably high surgery risk for open heart surgery. A patient's surgical risk is assessed using a standard checklist, in combination with other specific risks (e.g. frailty or technical difficulty). It is important that TAVI's suitability for a patient should be assessed by a multidisciplinary heart team.

**TAVI reduces hospitalisation for heart failure due to untreated AS, improves symptoms and prolongs life expectancy to that of a patient of the same age without AS."**

Mr Tay had long been aware of his cardiac and cholesterol issues and had undergone a coronary angioplasty and stenting in 2002. The sudden loss of consciousness worried him as he had been taking his medication consistently, and a recent coronary angiogram had showed that his stent was still intact. To achieve the best treatment outcomes while minimising surgical risks, Mr Tay agreed with Asst Prof Ho's recommendation to undergo TAVI in April this year. Under local anaesthesia and sedation, a TAVI valve was implanted across Mr Tay's narrowed aortic valve via the femoral artery. The narrowing of the aortic valve was treated and, as a result, Mr Tay's symptoms were completely resolved.

### FAST RECOVERY

The TAVI procedure went smoothly for Mr Tay, whose aortic valve gradient was reduced from 48 mmHg to 12 mmHg. An echocardiogram showed normal left ventricular size and systolic function. He was discharged five days after his procedure, with no further fainting, chest pain or breathlessness.

According to Asst Prof Ho, TAVI patients can usually be discharged within about four days of the procedure and can return to normal activities soon.

In the longer term, for patients who are inoperable or have unacceptably high surgical risk, TAVI reduces the need for hospitalisation due to untreated AS, improves symptoms and prolongs a patient's life expectancy to that of a healthy person of the same age, he added. Without treatment, Mr Tay was expected to have two to three years left to live.

After receiving TAVI, Mr Tay says, "It reduces suffering and pain for patients. After this operation, I felt so much better, as if my heart is normal. I used to pant every time I walked. I still felt weak and panted when I walked just after the operation, but now I don't pant anymore. I can walk up the stairs, and I sleep better now."

Eligible AS patients can receive government subsidy for TAVI. Asst Prof Ho says that around 10 to 15 of his patients have benefitted from the subsidy for TAVI since September 2021. "The subsidy has improved patient affordability for this procedure," he adds.



ASSISTANT PROFESSOR  
HO KAY WOON,  
Senior Consultant, NHCS



Scan the QR code to find out more about the recommendations for TAVI

## A SAFER, COST-EFFECTIVE TREATMENT FOR NON-VALVULAR ATRIAL FIBRILLATION

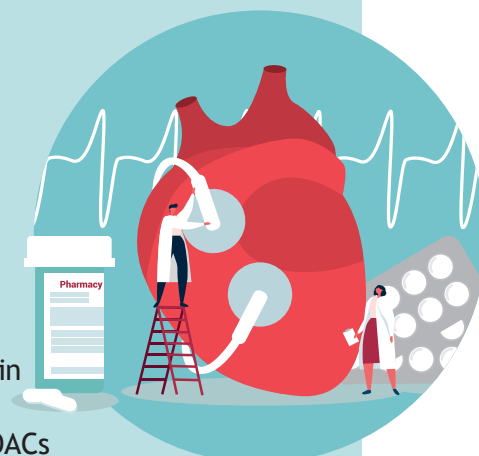
ACE researchers presented their findings on the real-world impact of non-vitamin K antagonist oral anticoagulation agents at the International Society of Pharmacoeconomics and Outcomes Research (ISPOR) 2022 conference and was identified as the "Top 5% Finalist for the ISPOR 2022 Research Presentation Awards".

**I**n Singapore, the prevalence of atrial fibrillation, also known as irregular heartbeat, in adults of Chinese ethnicity aged 55 years and above was estimated to be 1.5 per cent and 5.8 per cent in those aged 80 years or older.<sup>1</sup> The risk of thromboembolic complications (i.e. blockage of blood vessel), namely ischemic strokes, is three to five times higher in patients with atrial fibrillation.<sup>2</sup> While warfarin has been the mainstay oral anticoagulant treatment for decades, patients using it must adhere to dietary restrictions, go for regular blood tests and be mindful of its potential interactions with other drugs.

Non-vitamin K antagonist oral anticoagulation agents (NOACs) rivaroxaban and apixaban, which are effective in reducing stroke and systemic embolism and have a favourable safety profile (lower risk of bleeding) compared to warfarin in patients with non-valvular AF, were listed for subsidy in January 2017 and October 2018 respectively. The overall utilisation volume of NOACs increased by more than

200 per cent while warfarin decreased by 12 per cent, increasing the share of NOACs from 26 per cent in Q4 2016 (pre-subsidy) to 57 per cent in Q1 2020 (post-subsidy).

To understand the real-world impact of NOACs in our local population, ACE conducted a retrospective cohort study on over 10,000 adult patients treated with oral anticoagulants for non-valvular atrial fibrillation (NVAf) using MOH's linked national health record databases. The study found that NOACs were more effective than warfarin in reducing stroke and death risk. Over a median follow-up of two years, NOACs were associated with a 17 per cent reduction in stroke or systemic embolism, a 23 per cent reduction in any major bleeding complications and a 19 per cent risk reduction in deaths. These translate to about 560 fewer deaths and 860 fewer hospitalisations due to stroke and major bleeding complications over five years, with potential cost savings to the healthcare system.



1 Yap KB, Ng TP, Ong HY. Low prevalence of atrial fibrillation in community-dwelling Chinese aged 55 years or older in Singapore: a population-based study. *Journal of Electrocardiology*. 2008;41(2):94-8.

2 Kannel WB, Wolf PA, Benjamin EJ, et al. Prevalence, incidence, prognosis, and predisposing conditions for atrial fibrillation: population-based estimates 1. *American Journal of Cardiology*. 82(7):2N-9N.



# SPOTLIGHT

## VALUE-BASED HEALTHCARE CONFERENCE 2022

ACE held its inaugural Value-Based Healthcare Conference on 29 and 30 September 2022 at Resorts World Convention Centre, Sentosa. Discussions focused on strengthening Singapore's healthcare system to provide quality, affordable and sustainable healthcare for all. There were local and international speakers from the fields of health technology assessment (HTA), clinical practice, patient engagement and education, who shared deep insights on various topics related to value-based healthcare. The event also served as a platform for healthcare professionals to network and reconnect in person.

Take a look back at the highlights of the Value-Based Healthcare Conference 2022 on [ACE's LinkedIn](#).



From left: Professor Chee Yam Cheng, Professor Robyn Ward, Mr Meindert Boysen, and Associate Professor Toh Han Chong.



Left: Associate Professor Kenneth Mak, Director of Medical Services, MOH Above: Mr Chan Yeng Kit, Permanent Secretary (Health), MOH



From left: Dr Daphne Khoo, Associate Professor Tan Tze Lee, Professor Debra Rowett, Associate Professor Kenneth Mak, Professor Erwin Loh, Ms Sarah Fitt, Professor Robyn Ward, Mr Meindert Boysen, Professor Chee Yam Cheng

## EXETER UNIVERSITY HTA TRAINING

The University of Exeter (UoE) is one of the 10 approved service providers on MOH-ACE's HTA panel to provide health technology assessment (HTA) services. Professor G.J. Melendez-Torres, Professor of Clinical and Social Epidemiology and Director of the Peninsula Technology Assessment Group (PenTAG) at UoE, met with some members of ACE's HTA team for a half-day session on 31 March 2022 to share with ACE staff about his experience of leading PenTAG and his research expertise on evidence synthesis methods.



## HTA TRAINING WORKSHOP, FEBRUARY 2023

ACE will be holding a pharmacoeconomics workshop in February 2023 for institutional Pharmacy & Therapeutics Committees and MAF Plus Panels. The aim is to enrich participants' skills to support their roles in the selection of drugs for formulary listing and in reviewing the provision of financial assistance in public healthcare institutions. Participants will learn through immersive discussions on challenges in drug evaluations, and will get to understand the perspectives of both evaluator and decision-maker. The workshop will be delivered by trainers from the University of Newcastle, Australia, together with facilitators from ACE.



## HTAi ASIAN POLICY FORUM

The HTA International (HTAi) Asian Policy Forum took place on 2 to 4 November 2022 at Hotel Fort Canning. Themed "HTA Capacity Building in Asia: Towards One Goal", it aimed to develop a roadmap to building and nurturing HTA capacity in Asia. ACE's Chief HTA Officer Adjunct Associate Professor Ng Kwong Hoe, who presented on Day 2, shared Singapore's experience on setting up a HTA agency to inform funding decisions to improve patient access to clinically-effective and cost-effective health technologies while maintaining a sustainable healthcare system. He highlighted the challenges faced in capacity-building and how we progressed to where we are today. His presentation focused on:

- Staff recruitment and retention
- The impact of COVID-19 on manpower
- The link between HTA and policy-making
- Learning and training, including international collaborations and the meaningfulness of ACE's work

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