

ACEINSIGHTS

Driving better decision-making in healthcare

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COMING TOGETHER TO ADD VALUE

Winning projects showcased at Agency for Care Effectiveness' (ACE's) Value-Based Healthcare Conference cemented Singapore's healthcare system as one that meets the evolving needs of its population.

A persistent pain point for both patients and doctors in hospitals is waiting time. In particular, minor cases such as those involving treatment for patients with abscesses requiring surgical drainage includes time spent at the emergency department's triage counter, waiting for the doctor's diagnosis, waiting to be assigned an inpatient bed, and waiting for an emergency operating theatre slot.

Although these surgeries typically take between 10 and 15 minutes, patients end up spending two to three days in hospital, occupying beds that could be allocated to patients with greater needs.

"During this time, the patient is kept fasted in preparation for surgery under general anaesthesia, unsure of the overall waiting time involved, all of which negatively affects the patient experience. For doctors, this waiting time also means we are unable to clear beds efficiently to make way for other patients who require inpatient care," says Dr Chua Hui Wen, Consultant, General Surgery at Sengkang General Hospital.

To alleviate the bed crunch worsened by the COVID-19 pandemic, Dr Chua and her colleagues initiated a fast-track surgery workflow for healthy patients with abscesses requiring drainage. This resulted in great improvements in patient satisfaction, and annual healthcare cost savings of nearly \$33,400 — a prime example of value-based healthcare. Titled the 'Pop and Squeeze' pathway, it was among 13 winning projects showcased at ACE's Value-Based Healthcare Conference (VHBC) held in September 2022.

CREATING MEASURABLE IMPACT

With a theme of *Quality and Sustainable Healthcare for All*, the one-and-a-half-day conference organised by ACE focused on creating value in the practice of appropriate care. It was marked by keynote lectures, presentations and discussions featuring local and international healthcare experts.

The winning projects were selected for the tangible impact they created in addressing healthcare challenges, from manpower crunches to cost and capacity constraints. Optimising the delivery of care is especially critical amid an increasingly costly and highly stressed healthcare landscape.

One project that drove value and improved clinical outcomes is the *Sepsis value-driven outcomes (VDO): A whole-of-hospital value-driven outcomes approach to optimize clinical outcomes and minimize hospitalization for sepsis* project, which helped to maintain low mortality rates and minimise hospitalisation for community-acquired sepsis, a prevalent condition with a high mortality rate. The National University Hospital's (NUH's) annual cost of treating these patients is approximately \$64 million.

The project's team lead Adj A/Prof See Kay Choong, Senior Consultant, Department of Medicine, NUH, shares that the initiatives led to a reduction in mean hospital length of stay from 17 to 14 days, and an average cost reduction of 12 percentage points per patient.

Cost reductions and improved clinical outcomes can also be achieved through the standardisation of care. This was proven by Ng Teng Fong General Hospital's (NTFGH's) *Superior Outcomes in Total Knee Replacement Value Driven Outcomes* project that enhanced care and lowered costs for one of the most successful surgical interventions that provides substantial pain relief and functional improvement in patients suffering from knee arthritis.

According to the project's co-author, Adj A/Prof Fareed Kagda, Group Chief, Orthopaedic Surgery, National University Health System (NUHS) and Head of Department, Orthopaedic Surgery, NTFGH, the approach resulted in, among other improvements, a cumulative 12.7 per cent decrease in Cost coupled with a cumulative 31 per cent increase in Clinical Quality Index (CQI).



ACE
agency for
care effectiveness



MINISTRY OF HEALTH
SINGAPORE



Singapore General Hospital's Neonatal Transitional Care Team.

EASING THE BURDEN

With Singapore's national healthcare strategy evolving to take a life-course approach, there is greater focus on driving preventive health and early intervention. The plan also sees greater participation of primary care providers such as family physicians, and more community partnerships.

An initiative that dovetailed with this strategy is the *Moving towards a Transdisciplinary Model of Care for Children with Feeding Difficulties* project.

Currently, children who display picky eating or behaviours related to feeding difficulties are co-managed by a team of specialised speech and occupational therapists in an inter-disciplinary setting. However, the number of referrals has increased significantly in recent years, resulting in long wait times of up to three months for the first visit. The team decided to explore the feasibility of a transdisciplinary model of care in helping to reduce waiting time and cost for patients.

"Through this project, we reduced the wait time by 61 per cent for first visits. Currently, it can be as short as one week. The cost per session was also reduced with this change, helping to increase affordability," notes project lead Ms Jo Chen, Senior Principal Occupational Therapist, Occupational Therapy Service, KK Women's and Children's Hospital (KKH).

In the same vein, the *Transitional Care Service for Newborns in Transition* project demonstrably freed up hospital resources by helping reduce the one-day Neonatal Intensive Care Unit (NICU) admission rate by 50 per cent within one year.

Project lead Dr Vina Tagamolila, a Resident Physician at Singapore General Hospital's Department

of Neonatal and Developmental Medicine, shares that prior to the project, all babies requiring Continuous Positive Airway Pressure (CPAP) support after delivery were admitted and remained in the NICU for at least 24 hours after being weaned off oxygen support. Through establishing eligibility criteria, having a structured monitoring regime and ensuring timely review of medical team, her team managed to safely and efficiently transfer infants who received only a few hours of respiratory support to the High Dependency (HD) Unit without compromising their care. To date, none of the babies transitioned to HD (as young as eight hours old) were readmitted to the NICU within the next 24 hours.

"The term 'value-based' care does not exclusively equate to financial benefits. Our project may have lowered hospital costs – HD cost is 70 per cent less than that of NICU – but when you consider the intangible benefits: decreased duration of maternal and infant separation and early initiation of breastfeeding; efficient use of hospital manpower and resources which ultimately lead to better patient experience and satisfaction – that for me is the essence of VBHC," she asserts.

TECHNOLOGY FOR THE WIN

The pandemic strained healthcare systems globally, underscoring the need to reduce operational inefficiencies. This accelerated the adoption of technology such as tele-health services to ensure that chronic patients continue to receive appropriate and adequate care. *Enhancing the Chronic Care Model Through Use of Tele-Health Services* saw video consultation services implemented across all the National Healthcare Group Polyclinics (NHGP) for the follow-up of patients with well-controlled chronic diseases such as diabetes, hypertension and high cholesterol.

"Our evaluation found that it was effective and safe, with more than 85 per cent overall satisfaction with the service," says project lead Dr Sabrina Wong, Family Physician – Senior Consultant, Deputy Director, Clinical Services, NHGP, adding that plans are in the

pipeline to implement video consultations through the new NHG Care application.

The effectiveness of technology was also showcased by the *Managing AGgression using Immersive Content (MAGIC) – A Blended Learning Experience using Virtual Reality* workshop organised to help medical professionals better relate to their patients.

"The blended learning project, which consisted of a didactic lecture, role-playing with hands-on session and a VR game, allowed healthcare workers to apply what they learnt into solving simulated clinical situations. This helped them to be more confident in dealing with agitation in an effective and empathetic manner," explains project lead Dr Cyrus Ho, Consultant and Assistant Professor, Psychological Medicine, NUHS.



Conducting a consultation session through a video call.

CONTINUOUS IMPROVEMENT

Summing up the conference, Dr Ho asserted that working together was key to successfully implementing solutions to commonly encountered clinical problems. "Value-based healthcare is important and what we should always strive for – to provide affordable, quality and evidence-based care to all patients."

The learnings of these presentations at the VBHC highlight Singapore's position at the vanguard of healthcare.

Value-based healthcare is important and what we should always strive for – to provide affordable, quality and evidence-based care to all patients."

DR CYRUS HO,
Consultant and Assistant Professor, Psychological Medicine,
National University Health System



ACE NEWS

LATEST TECHNOLOGY GUIDANCES

[ACE's Technology Guidances](#) explain funding 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 funding 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)

DID YOU KNOW?
Healthcare professionals can earn 1 CME/CPE point for every ACG read.



AI-GUIDED SOFTWARE CAN STREAMLINE CARDIOVASCULAR DISEASE DIAGNOSIS

ACE's Horizon Scanning workstream has assessed Caption Guidance to be beneficial in helping novice medical professionals acquire diagnostic quality cardiac ultrasound images.



transthoracic echocardiography (2D-TTE) images using a portable handheld ultrasound scanner for the diagnostic assessment of cardiac chambers in point-of-care settings. This can increase the reproducibility and standardisation of image acquisition, and in turn, improve clinical workflows and decision-making.

GUIDES NOVICE OPERATORS IN IMAGE ACQUISITION

Based on the evidence reviewed, Caption Guidance serves as an efficient tool in guiding operators with limited experience in acquiring echocardiographic scans with adequate diagnostic quality for clinical assessment. These scans were shown to have similar diagnostic qualities to those obtained by trained sonographers without AI assistance. This was further supported by a high agreement in diagnostic decisions in distinguishing between normal and abnormal heart structures and functions, between the scans obtained by the two groups of operators.

SERVES AS AN ENABLER FOR ADOPTING POCUS

Caption Guidance may help to reduce the barrier for adoption of cardiac POCUS while improving patients' access to echocardiography, especially in situations where a standard 2D-TTE may not be readily available or performed in a timely fashion. In tandem with the advancement of cart-based ultrasound systems to handheld devices, the technology can serve as a potential enabler for ultrasound imaging in community care where access to advanced imaging may be limited.



Click or scan to read more about ACE's Horizon Scanning workstream

As part of ACE's horizon scanning (HS) system, new and emerging medical technologies that have a significant impact on the local healthcare system are evaluated to provide healthcare policymakers and providers with advanced notice for organisational preparedness before they enter the local market or diffuse into the public healthcare system. One such technology evaluated by ACE's HS system is Caption Guidance (Caption Health, Inc.), which serves to assist medical professionals in the acquisition of cardiac ultrasound images.

At present, echocardiography is one of the most widely used imaging tools for diagnosing cardiovascular diseases, which are among the top causes of

hospitalisation and mortality in Singapore. Typically, echocardiograms are performed in echocardiography laboratories using dedicated ultrasound machines by trained sonographers. However, recent advancements in echocardiography has allowed cardiac point-of-care ultrasound (POCUS) to be performed outside the conventional laboratory setting by medical professionals with varying competency in ultrasound imaging. This may lead to potential variation in image quality and subsequent clinical decisions.

Caption Guidance, an artificial intelligence (AI)-guided software, provides real-time prescriptive guidance to help users obtain limited two-dimensional

INSIDE ACE: A PEEK INTO WHAT WE DO



Tan Ping Tee, Senior Specialist, Consumer Engagement and Education, shares the highlights of her work empowering patients to make informed decisions.

What does your job at ACE entail?

I lead the Consumer Engagement and Education (CEE) team, which involves fostering collaborative working relationships with patient groups in Singapore, and helping them to meaningfully contribute by including patients' views and lived experiences in ACE's health technology assessments. The team also co-develops factsheets with patient organisations about different conditions and treatments to

improve health literacy and enable patients and their carers to make shared evidence-based decisions with their clinicians about their healthcare needs.

What do you love most about your role/working at ACE?

I love that ACE's work has a meaningful impact on health outcomes and the lives of patients, and that I have the opportunity to collaborate with patients, policymakers and clinicians every day. I am motivated and driven by my team members, who share an equally strong commitment to include patients' voices in healthcare decision-making.

What was the most memorable/exciting project you have worked on?

The CEE team held a briefing and Q&A session about ACE's new patient involvement processes with around 150 participants from patient organisations, the industry and academia in February. The session



ACE's Consumer Engagement and Education (CEE) team.

promoted greater public understanding of the importance of patient involvement in ACE's work. It also enabled participating patient groups to network with each other and ACE staff, to develop collaborative partnerships and build a sense of shared purpose. I am proud of my team for organising this successful event that was well received by all attendees.

Mdm Kartini Binte Abdul Rahim with her daughter Diyanah.



TARGETED THERAPY FOR A RARE BLOOD CANCER

Read on to find out how targeted therapy, ruxolitinib, helped alleviate a patient's struggle with myelofibrosis.

When Mdm Kartini Binte Abdul Rahim first started experiencing fatigue, bone pain, poor appetite and feelings of fullness despite eating little, she shrugged off the symptoms, thinking that they would go away over time.

However, the warning signs persisted. By late 2018, the 62-year-old housewife could no longer ignore them.

"As months went by, I felt that something was not right. My wrist began to hurt more, and my tummy felt tighter with a mass on the left side. That was when I decided to see the doctor," Mdm Kartini shares, adding that even then, she did not think she was seriously ill.

The condition turned out to be a rare type of blood cancer called myelofibrosis, which leads to the production of abnormal cancer cells in the bone marrow. This causes scar tissue to form and prevents the bone marrow from making healthy blood cells. The lack of healthy blood cells causes many of the signs and symptoms of myelofibrosis.

According to Mdm Kartini's clinician, Dr Jen Wei Ying, a consultant with the Department of Haematology-Oncology at the National University Cancer Institute, Singapore, myelofibrosis frequently causes patients to feel tired or breathless even without much exertion, due to a low red blood cell count.

As the condition progresses, the spleen partially takes over in making blood cells. "This may cause the spleen to enlarge, leading to compression symptoms if it presses on the stomach. As a result, patients may feel very full after only a small meal or experience discomfort on the left side of the tummy," adds Dr Jen.

A BETTER QUALITY OF LIFE

Ruxolitinib belongs to a group of medicines called Janus kinase (JAK) inhibitors, which work by blocking signals that cause cancer cells to multiply. Given that Mdm Kartini experienced symptoms related to an enlarged spleen, Dr Jen recommended

treatment with ruxolitinib to reduce spleen size and relieve symptoms associated with myelofibrosis.

Mdm Kartini was prescribed twice-daily ruxolitinib, which she would take on a long-term basis.

Since starting treatment, Mdm Kartini's appetite has returned to normal. She has also resumed her daily activities with minimal disruptions, for example, performing household chores, spending time with her energetic grandchildren and going on outings with friends.

According to Dr Jen, treatments for myelofibrosis are tailored to the patient's symptoms while prioritising individual needs. "The focus is on symptom control and maintaining a good quality of life," she says.

IMPROVING ACCESSIBILITY OF CANCER DRUGS

Ruxolitinib is among the cancer drugs on the Cancer Drug List (CDL) which was introduced by the Ministry of Health (MOH) in September 2022. The CDL includes cancer treatments which are clinically-proven and cost-effective.

Through the CDL, MOH has been able to improve the affordability of cancer drug treatments. More than 80 per cent of subsidised cancer patients in public healthcare institutions will now be able to access a wider range of subsidised cancer treatments than before. The CDL is developed based on recommendations by the MOH Drug Advisory Committee, supported by ACE, Singapore's national Health Technology Assessment agency. ACE conducts

evaluations of the cancer drugs and price negotiations with companies to achieve better prices and cost-effectiveness, thereby improving affordability for patients.

According to Dr Jen, ACE's work helps to standardise clinical practice by reviewing the evidence and cost-effectiveness of drugs.

"With the CDL and MediShield Life (MSHL) policy changes, more drugs are subsidised, and for more patients. This improves healthcare accessibility for clinically proven and cost-effective treatments," she adds. MSHL now covers drug treatments under the CDL, provides more targeted coverage based on the cost of each cancer drug treatment and allows patients to claim an additional limit of up to \$3,600 a year for cancer drug services.

Mdm Kartini is just one of the patients who has benefitted from the CDL, paying for her medication at a lower cost. Before the changes, six-monthly applications for continued funding were required, resulting in administrative burden for Mdm Kartini and her healthcare team.

"Healthcare costs are rising at an exponential rate. Co-operation between government agencies, healthcare providers, insurance companies and industry players is necessary to formulate policies that benefit patients and increase access to cancer therapies," concludes Dr Jen.

To facilitate shared decision-making for the best value-based health outcomes, healthcare professionals are encouraged to discuss treatment options with their patients. When considering Mdm Kartini's symptoms and diagnosis, Dr Jen was able to recommend an effective and affordable treatment that enhanced her quality of life.

Undergoing ruxolitinib treatment has helped to enhance Mdm Kartini Binte Abdul Rahim's quality of life.



DR JEN WEI YING,
Consultant, Department
of Haematology-Oncology,
National University Cancer
Institute, Singapore (NCIS)

Healthcare costs are rising at an exponential rate. Co-operation between government agencies, healthcare providers, insurance companies and industry players is necessary to formulate policies that benefit patients and increase access to cancer therapies."

SPOTLIGHT

HTA WORKSHOP 2023

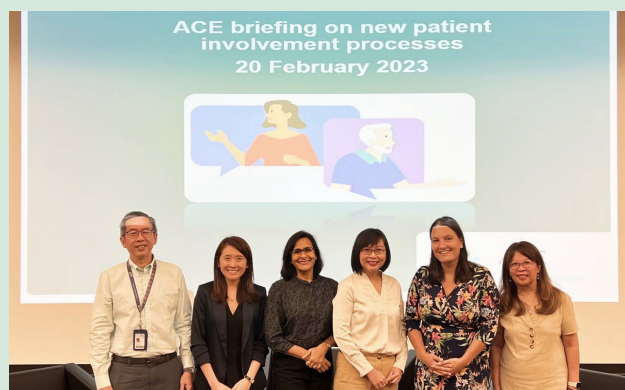
ACE organised a pharmacoeconomics workshop held from 13 to 16 February 2023 for professionals from public healthcare institutions. Participants learnt about the challenges in drug evaluation faced by the health technology assessment (HTA) team, as well as factors surrounding the funding decision-making process. Featuring immersive discussions, the workshop was delivered by trainers from the University of Newcastle, Australia, together with facilitators from ACE.



From left: Mr Mohamed Ismail bin Abdul Aziz; Ms Lin Liang; Adj Associate Prof Ng Kwong Hoe; Ms Danielle Lang; Mr Marc Bevan; A/Prof David Newby.

BRIEFING ON NEW PATIENT INVOLVEMENT PROCESSES

Given that lived experiences and testimonials from patients and their caregivers help to inform the funding recommendations to the Ministry of Health, ACE's Consumer Engagement and Education (CEE) team held a briefing session on processes to encourage patient involvement in ACE's work. The event on 20 February was attended by participants from patient and voluntary organisations, industry and academia.



From left: A/Prof Lau Tang Ching; Ms Ping-Tee Tan; Dr Ritu Jain; Ms Ai Ling Sim-Devadas; Ms Fiona Pearce; Dr Daphne Khoo.

Through a series of presentations and a panel discussion, the session aimed to promote greater public understanding of ACE and our patient involvement processes. It also provided networking opportunities among attendees, and for ACE staff to establish collaborative partnerships and a shared purpose. Among the suggestions raised by the audience during the discussion was for ACE to collect case studies to share the impact of patient input.

10TH HTASIALINK ANNUAL CONFERENCE

Senior Lead Specialist (Economic Modelling & Outcomes Evaluation), Mr Benjamin Ong, who is also a board member of HTAsiaLink, and Specialist (Value-Based Pricing), Dr Yan Teck Ho, represented ACE at the 10th HTAsiaLink Conference held in Pattaya, Thailand, from 30 November to 2 December 2022. Themed *The Role of HTA in the New Normal: Driving the Post-COVID health system through evidence-informed decisions*, the event marked a decade of HTAsiaLink, a network of HTA agencies in the Asia-Pacific. Dr Yan Teck also presented a plenary titled *Novel approaches against antimicrobial resistance* during the conference.



Fourth from right: Mr Benjamin Ong, Senior Lead Specialist (Economic Modelling & Outcomes Evaluation).

HEADACHE SEMINAR

On 6 May 2023, ACE held a seminar on *Approach to Assessing and Managing Headache as the Presenting Symptom*. It provided key practice points for healthcare professionals on assessing and managing headache, as aligned with the ACE Clinical Guidance (ACG), "When to order CT/MRI for headache".

The event, moderated by Assoc Prof Tan Cher Heng, Senior Consultant, Diagnostic Radiology, Tan Tock Seng Hospital, featured guest speakers Dr Bernard Chan, Senior Consultant, Neurology, National University Hospital; Dr Yasmin Idu Jion, Senior Consultant, Neurology, National Neuroscience Institute; Prof Tchoyoson Lim, Senior Consultant, Neuroradiology, National Neuroscience Institute and Clin Asst Prof Gilbert Tan, Family Physician, Senior Consultant, Family Medicine, SingHealth Polyclinics.



Look out for recordings of the seminar available on ACE's website soon!



From left: Prof Tchoyoson Lim, Clin Asst Prof Gilbert Tan, Dr Yasmin Idu Jion, Dr Bernard Chan, Assoc Prof Tan Cher Heng.

HIPER SYMPOSIUM 2023

The Saw Swee Hock School of Public Health's annual *Health Intervention and Policy Evaluation Research (HIPER) Symposium* was held on 23 and 24 February. Themed *Empowering Stakeholders and Advancing HTA Practice*, this year's symposium sought to engage stakeholders in the entire healthcare ecosystem, equip them with knowledge of HTA processes, and share challenges faced by those within the sector.

The event featured insightful presentations by ACE's Senior Principal Lead Specialist (Medical Technology Evaluation and Horizon Scanning), Dr Hong Ju, and ACE's Senior Advisor (Consumer Engagement and Education), Ms Fiona Pearce, as well as panel discussions and a breakout session. The event focused on various topics, such as how to conduct HTA assessments on medical devices in Singapore; how to incorporate the patient's voice in HTA; why healthcare professionals need to be involved in HTA; and how to conduct HTA for a hypothetical high-cost drug.



Dr Hong Ju, Senior Principal Lead Specialist, ACE (Medical Technology Evaluation and Horizon Scanning).

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