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Bridge to the Future:

Horizon Scanning for Emerging Health Technology

Editor's Talk

In the world that is full of unpredictable and countless number of uncertainties, it is a great challenge that we have to observe and adapt in order to overcome such swiftly shifting challenges. However, over the past three years, people around the world have been facing one of the most critical health issues caused by coronavirus pandemic that has taken a toll on lives and livelihoods of people and obstructed healthcare systems and services. Quick responses and changes are needed to advance existing health technologies and to make sure that everyone is safe and healthy.

The ongoing pandemic has taught us to prepare and to ensure that we can prevent future potential threats, especially in health care sector. One of the methods for strategic foresight called "Horizon Scanning (HS)" can play a critical role in health technology assessment (HTA), and notify healthcare systems to better prepare for future possible health threats. Find out more on how HS can aid HTA in Singapore and Malaysia through the special scoop from the Agency for Care Effectiveness (ACE), Singapore, and the Malaysian Health Technology Assessment Section (MaHTAS), Malaysia, in the following pages!

HTAsiaLink Newsletter Editorial Team

Health Intervention and Technology Assessment Program (HITAP)

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technology assessment (HTA) agencies in Asia-Pacific region. It focuses on facilitating HTA research by accelerating information and resources sharing and developing an efficient methodology for HTA in the region.

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In an era of rapidly evolving health technologies such as drugs, medical devices or services, or vaccines, these technologies require appropriate assessment, oversight, and monitoring before being integrated into healthcare systems and services. In the field of health technology assessment (HTA), horizon scanning (HS) serves as an early HTA to provide early awareness and alert to the healthcare system. It is a systematic process to identify, filter and prioritise new and emerging health technologies that can address significant clinical unmet needs, allowing assessment of its potential impact on patient health and the healthcare system. These insights may aid policymakers in the decision-making process to determine whether such technologies should be adopted in current healthcare services. Therefore, appropriate supervision, governance, prioritisation, and allotment of healthcare resources can be made to maximise the potential and impact of promising health technologies on the healthcare system to achieve better health outcomes and cost-effectiveness.

The role of horizon scanning for healthcare technology

While HS does not seek to predict the future, it aims to forecast potential technological trends to allow the healthcare system to better navigate the future and stay ahead of the curve. In Singapore, the Agency for Care Effectiveness (ACE) established a HS system in 2019 for high-cost cell, tissue, or gene therapy products, which has since expanded to include medical technologies given the rapid innovation in this space. To date, ACE has established a technology tracker to monitor new and emerging medical technologies that address diseases which impose the highest burden on Singapore. Using the tracker, promising technologies that potentially address unmet clinical needs are prioritised for evaluation.

Several technologies have been evaluated by ACE so far, including diagnostics, devices and artificial intelligence tools, in the form of HS reports. Based on the reports, recommendations on whether the current evidence supports the adoption of these technologies into the public healthcare system are deliberated by a committee of senior clinicians, finance and regulatory domain experts. With the intent of enabling organisational preparedness, the committee's recommendations and ACE's HS reports are disseminated to healthcare policymakers and providers for advance notice on such emerging or disruptive technologies poised to enter the healthcare system. As ACE's HS system matures further, the impact of HS on the healthcare system may be assessed to allow ACE to review and refine its HS processes, ensuring that it remains fit-for-purpose to serve the needs of the local healthcare system.

As HTA is typically performed for health technologies that have diffused into clinical practice, there remains a gap in evaluating technologies in early stages of adoption. To close the gap, ACE has also explored the novel use of HS to inform topics for HTA at the point of regulatory approval and market access. By evaluating newly registered health technologies that are not yet widely adopted, it enables early funding decisions to promote diffusion and adoption of technologies with significant benefits to patients and/or the healthcare system. This approach also ensures patient access to new and innovative technologies while avoiding challenges in altering deeply entrenched practices of using low- or no-value technologies. However, one disadvantage of this approach is the frequent lack of high-quality evidence for a meaningful evaluation of such early-stage technologies, which necessitates a careful selection of health technologies with adequate data for a thorough HTA. Aside from early-stage technologies, HS is also planned to be used to inform on obsolete or low-value technologies for disinvestment purposes.

Meanwhile in Malaysia, the Horizon Scanning Unit of the Malaysian Health Technology Assessment Section (MaHTAS), Ministry of Health Malaysia, provides HS services to formulate timely advice to governmental health providers and policymakers to allow appropriate implementation and/or adoption of health technologies and to facilitate timely budgetary planning. MaHTAS's role is to identify health technologies that are new and emerging as well as those that are obsolete. The objective of the process is to explore possible changes in the indication or use of an existing technology, or technologies that are part of a group of developing technologies that, as a whole, may have an impact and major implications for the healthcare system.

In sum, HS plays a complementary role to HTA in allowing the assessment of health technologies along the entire continuum of their lifecycle, from the pre-market phase to post-marketing with widespread adoption of the technology.



The value of foresight in strategic decision-making

HS also plays a pivotal role in serving as a strategic foresight tool apart from functioning as an early warning system (EWS) or to identify obsolete technologies. For example, in Malaysia, technologies including pharmaceutical and non-pharmaceutical are identified within 24 months before they are planned to be marketed.

An effective and successful HS system identifies innovations that have potential impact on clinical and cost of patient care and disseminates to stakeholders timely information relevant to their needs. This information enables appropriate decision making to be made in organisational planning and readiness, budget application, change in clinical practices, training, regulatory reviews for disruptive technology, commercialisation, investment, facilitate appropriate adoption of the technology and identify further research requirements. In addition, early dialogues with innovators are conducted together with researchers and investors to help them improve the value of the innovation they are developing and provide advice to the evidence generation process. In Malaysia, for instance, the innovators also link with other ministries or agencies involved in facilitating start-up companies and the commercialisation of highly potential local innovations.

In the time where many healthcare systems face resource scarcity and increasing service demand, disinvestment processes on obsolete or low-value health technologies could help to ensure the sustainability of the healthcare system, provide new resources that could in turn be reinvested in more effective, cost-effective, or useful health technologies. In Malaysia, this is conducted through reviewing clinical practice guidelines (CPG) and health technology reports for health technologies that are not being recommended and by engaging the experts in relevant clinical fields. This is to ensure cost-saving, optimise funding, and improve the quality and safety of healthcare services provided to the population.

The role of horizon scanning during the COVID-19 pandemic

The unprecedented COVID-19 pandemic has pushed global healthcare systems to and beyond their limits, forcing countries to innovate in the way they respond to the crisis. As a result, there has been a surge in demand for innovative digital and other health technology solutions to support outbreak control, manage COVID-19 cases, and deliver healthcare services. With these rapid technological advancements, having the right evidence at the right time is of paramount importance in healthcare decision making.

Particularly, the unique capability of HS has enabled the healthcare system to remain agile and stay up-to-date in a rapidly changing healthcare environment, especially during the COVID-19 pandemic.

In Malaysia, HS activities help identify and keep track of new and innovative technologies developed to screen, diagnose, and treat patients with COVID-19. These technologies were identified early, and their potential impact was assessed, evidence gaps were identified and informed to policymakers. Local studies were conducted by the research institutes to generate evidence and real-world data for early and rapid adoption of the technologies. Infectious disease modelling was utilised to include and assess various public health interventions in controlling and managing the pandemic.



In line with the practice of international HTA agencies, ACE utilised its HS system in the early stages of the COVID-19 pandemic to identify and monitor the developmental status of vaccines, drugs, and diagnostic tools with the intention of providing strategic foresight to policymakers through weekly updates. Innovative tools to combat COVID-19, such as 3D-printing of ventilator valves and point-of-care tests, were also identified. In addition, HS contributed to a number of rapid evidence reviews on potential COVID-19 interventions. This highlights the ability of HS to switch from its peacetime role to its use to keep abreast of the rapidly evolving body of technologies and evidence in the face of a public health emergency, reflecting its versatility and practicality in adapting to the dynamic needs of the healthcare system. The recent call for an adaptive and living HTA ensures the continued role of HS to respond to the prevailing exigencies of the healthcare system.

With the spectre of another global pandemic from "Disease X", HS could be one of the key pillars to bolster strategic readiness and organisational resilience for the healthcare system to be adequately prepared for any future uncertainties or threats. As the saying goes, "the future is hiding in plain sight, we just have to work to see and action it."

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Member and Partner

Activities ____



Introducing new workstreams at ACE

Agency for Care Effectiveness: ACE, Singapore



The Agency for Care Effectiveness (ACE) has recently initiated two new workstreams to complement its HTA capabilities. To enable early awareness for new and emerging health technologies, ACE has established a horizon scanning (HS) system to provide healthcare policymakers and providers advance notice on promising incoming technologies for resource planning.

In addition, ACE has established the Consumer Engagement and Education (CEE) workstream to support patient involvement in ACE's work, drive desired consumer behaviours, and develop plain English summaries and educational resources to improve health literacy and encourage shared healthcare decision-making between patients and their doctors.

Visit ACE's website to learn more about our HS and CEE activities. HS: https://www.ace-hta.gov.sg/healthcare-professionals/ace-horizon-scanning CEE: https://www.ace-hta.gov.sg/Patients-And-Community/Educational-Resources



Core to Evidence-Based Health Policy

Center for Outcomes Research and Economic Evaluation for Health: C2H, Japan



Center for Outcomes Research and Economic Evaluation for Health (CORE2-Health; C2H) is an organisation of the National Institute of Public Health (NIPH), established in 2018 for academic research on cost-effectiveness evaluation, and public roles of the official evaluation process.

In Japan, where public healthcare expenditure has been increasing, we evaluate the balance between the cost and outcome of healthcare technologies. We also provide data and materials for evidence-based health policy (EBPH). The goal is to make the public healthcare system more sustainable.

Link: https://c2h.niph.go.jp/en/



HTA Challenge Camp for Students in Taiwan

Center for Drug Evaluation: CDE, Taiwan



To cultivate health technology assessment (HTA) strengths, the Center for Drug Evaluation (CDE) jointly held HTA Challenge Camp with the Taiwan Society for Pharmacoeconomics and Outcome Research (TaSPOR) in late January 2022. The camp aimed to assist graduating students grasp more about HTA in various fields including HTA agencies, manufacturers, and academies, and gathered more than 30 graduate students from across the country.

During the two-day event, classes examined: "what is HTA," and "the Pharmaceutical Benefit and Reimbursement Scheme (PBRS) Joint Committee meeting," while at the same time allowing students to prepare cases and simulate PRBS Joint Committee meeting discussions. Researchers from CDE-HTA and senior experts from industrial and academic venues disseminated the role of HTA within different environments.

Participants were with a welcoming response and consistently known to positively anticipate the next HTA challenge camp.

Link: https://www.taspor.org.tw/news_02.php?id=313

Annual Presentation of HTA Research Projects

Center for Drug Evaluation: CDE, Taiwan



In December 2021, Division of Health Technology Assessment of Center for Drug Evaluation (CDE-HTA) held its annual presentation of HTA research projects via a virtual meeting. The research projects aimed to evaluate the outcome of health policies and policy proposals and were commissioned by Ministry of Health and Welfare.

The projects presented included "dental services in people in special needs," "CEA of next-generation sequencing in certain epilepsy patients", "cost-effectiveness of different hemophilia treatment strategies," and "best strategy evaluation of pneumonia vaccines for high-risk population and subsidizing elder population."

Researchers and experts from academia and public sectors shared the experiences and opinions in the event.

Link: https://www.cde.org.tw/news/activity_more?id=469



Development of MCDA for prioritisation activities in rare disease in Malaysia

The Malaysian Health Technology Assessment Section: MaHTAS, Malaysia



A workshop was successfully held from 8th -10th February 2022 which aimed for an interactive engagement of multi-stakeholders in the development of Multi-criteria decision analysis (MCDA) process for rare disease and to explore the feasibility of its implementation. The attendees of this workshop were the rare disease committee members, including healthcare professionals from Ministry of Health and Ministry of Education, government officials and, patients or their representative from patient's organisations. Several representatives from industry were also invited to this workshop. A set of criteria and its weightage for prioritisation were proposed and discussed in depth to obtain a collective decision.



Development of Korean living guideline for COVID-19 treatment

The National Evidence-based Healthcare Collaborating Agency: NECA, South Korea



Facing the escalating need for the evidence-based clinical practice guidelines (CPG) among clinicians in the early phase of the COVID-19 pandemic, the National Evidence-based Healthcare Collaborating Agency (NECA) and the Korean Academy of Medical Sciences (KAMS) collaborated to develop Korean COVID-19 living guideline.

With methodological support from NECA, a total of 31 clinicians participated in developing COVID-19 CPG. Twenty-eight clinical questions on pharmaceutical, severe patient treatment, rapid antigen test and vaccine were developed. As the Living Guideline, searching for the latest evidence and local unpublished data was conducted monthly and recommendations have been regularly updated within 3-4 months.

Link: https://www.neca.re.kr/lay1/bbs/S1T11C174/F/58/view.do?article_seq=8811&cpage=1&rows=10&condition=&keyword=&show=&cat=

Economic analysis of border control policies during COVID-19

National University of Singapore: NUS, Singapore



The study aims to optimise COVID-19 testing and quarantine policies between Thailand and Singapore for economic recovery. The cost-benefit analysis of testing and quarantine policies showed that the Pareto Optimal bilateral policies are characterised by (1) no quarantine on both sides, (2) no testing or having antigen rapid test (ART) pre-departure and upon arrival on each side. The receipts in the tourism sector and the cost/ profit of implementing quarantine and testing have bigger economic impact than costs and health loss associated with COVID-19 transmission. The work was presented at multiple occasions including to the Thai government and a webinar attended by representatives from World Health Organization (WHO) and The International Air Transport Association (IATA) among others.



 \sim Please feel free to reach out to us at hiper@nus.edu.sg for more details about the project.



HTAsiaLink members

As of 22 July 2022

Organisational members

Australia	 The Australian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S)
	 Health Technology Reference Group (HTRG)
	 Menzies School of Public Health, University of Sydney
	The George Institute for Global Health
Bhutan	 Essential Medicines and Technology Division (EMTD), Department of Medical Services, Ministry of Health, Bhutan
China	 Vanke School of Public Health, Tsinghua University
	 China National Health Development Research Center (CNHDRC)
	 NHC Key Laboratory of Health Technology Assessment (Fudan University)
	Shanghai Health Technology Assessment Research Center,
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	 Institute of Public Health Kalyani (IPHK)
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	 Department of Health Research (DHR),
	Ministry of Health and Family Welfare, Government of India
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	 InaHTAC (Indonesia Health Technology Assessment Committee), Ministry of Health, Republic of Indonesia
Japan	 HIAS Health, Research Center for Health Policy and Economics, Hitotsubashi Institute for Advanced Study (HIAS), Hitotsubashi University
	 Center for Outcomes Research and Economic Evaluation for Health (C2H), National Institute of Public Health

Malaysia	 School of Pharmaceutical Sciences, Universiti Sains Malaysia (USM) Malaysia Health Technology Assessment Section (MaHTAS), Ministry of Health Malaysia Pharmaceutical Services Program, Ministry of Health, Malaysia
Philippines	 HTA Unit - Philippines Department of Health
Singapore	 Ministry of Health, Singapore Health Services Research Unit, Changi General Hospital, Singapore Health Services (SingHealth) Saw Swee Hock School of Public Health Health Services Research Institute (HSRI), Duke-NUS Medical School
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Sri Lanka	 Health System Research Unit, Department of Community Medicine, Faculty of Medicine, University of Colombo
Taiwan	 Division of Health Technology Assessment, Center for Drug Evaluation (CDE) National Hepatitis C Program (NHCP) Office, Ministry of Health and Welfare Big Data Research Center, Fu Jen Catholic University
Thailand	 Mahidol Oxford Tropical Medicine Research Unit (MORU), Faculty of Tropical Medicine, Mahidol University Health Technology Assessment Program, Mahidol University Faculty of Pharmacy, Thammasat University Health Intervention and Technology Assessment Program (HITAP)
Vietnam	 Health Strategy and Policy Institute (HSPI)
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Associate members

Canada	 Health Technology Assessment Unit of the McGill University Health Centre
Germany	 EuroScan international network
South Africa	 Priority Cost Effective Lessons for System Strengthening (PRICELESS), Wits School of Public Health
UK	 Global Health and Development Group, Institute of Global Health Innovation, Imperial College London