International Journal of Technology Assessment in Health Care

www.cambridge.org/thc

Assessment

Cite this article: Sitanggang RJ, Chavarina KK, K.C. S, Wadhwa R, Wiweko B, Purba FD, Ghazali IMM, Jacobsen JHW, Dilokthornsakul P, Mayxay M, Isaranuwatchai W, Wang Y, Chen Y-L, Ong BSK, Kar S, Avdeyev A, Teerawattananon Y (2024). Impact of COVID-19 pandemic on HTAsiaLink network members. *International Journal of Technology Assessment in Health Care*, **40**(1), e63, 1–8
https://doi.org/10.1017/S0266462324000357

Received: 13 December 2023
Revised: 31 May 2024
Accepted: 04 July 2024

Keywords:
Health technology assessment organizations; Impact; Pandemic; COVID-19; Asia-pacific

Corresponding author:
Ryan Jonathan Sitanggang;
Email: ryan.s@hitap.net

Impact of COVID-19 pandemic on HTAsiaLink network members

Ryan Jonathan Sitanggang[1], Kinanti Khansa Chavarina[1], Sarin K.C.[1], Raina Wadhwa[2], Budi Wiweko[3], Fredrick Dermawan Purba[4], Izzuna Mudla Mohamed Ghazali[5], Jonathan Henry Webster Jacobsen[6], Piyameth Dilokthornsakul[7], Mayfong Mayxay[8], Wanrudee Isaranuwatchai[1], Yaoling Wang[9], Ying-Li Chen[10], Benjamin Shao Kiat Ong[11], Sitanshu Kar[12], Andrey Avdeyev[13] and Yot Teerawattananon[1]

[1]Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand; [2]Department of Community Medicine and School of Public Health, Post Graduate Institute of Medical Education and Research (PGIMER), India; [3]Indonesia Health Technology Assessment Committee (InaHTAC), Ministry of Health, Republic of Indonesia; [4]Center for Health Technology Assessment (CHTA), Universitas Padjadjaran, Indonesia; [5]Malaysian Health Technology Assessment Section (MaHTAS), Ministry of Health, Malaysia; [6]Research and Evaluation, Australian Safety and Efficacy Register of New Interventional Procedures–Surgical, Royal Australasian College of Surgeons, Australia; [7]Center for Medical and Health Technology Assessment (CM-HTA), Chiang Mai University, Thailand; [8]Unit for Health Evidence and Policy (UHEP), University of Health Sciences (UHS), and Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit (LOMWRU), Lao People's Democratic Republic; [9]China National Health Development Research Center (CNHDRC), People's Republic of China; [10]Center for Drug Evaluation (CDE), Health Technology Assessment, Taiwan; [11]Agency for Care Effectiveness, Ministry of Health, Singapore; [12]Department of Social and Preventive Medicine, Jawaharlal Institute of Postgraduate Medical Education And Research (JIPMER), India and [13]Medical Center Hospital of the President's Affairs Administration, Republic of Kazakhstan

Abstract

Objectives: This study investigates the impact of coronavirus disease 2019 (COVID-19) pandemic on HTAsiaLink members at the organizational level and provides recommendations for mitigating similar challenges in the future.

Methods: A survey was disseminated among HTAsiaLink members to assess the COVID-19 impact in three areas: (i) inputs, (ii) process, and (iii) outputs of the Health Technology Assessment organizations' (HTAOs) research operations and HTA process in general.

Results: Survey results showed that most HTAOs hired more staff and secured similar or higher funding levels during COVID-19. Nevertheless, some organizations reported high staff turnover. COVID-19-relevant research was prioritized, and most of the organizations had to adapt their research design to meet the needs of policymakers. Time constraints in conducting research and inability to collect primary data were reported as impacts on the research process. Overall, the number of research projects and accessibility of respondents' publications increased during COVID-19.

Conclusions: Research demand for HTAOs increased during COVID-19 and impacted their research process; however, they demonstrated resilience and adaptability to provide timely evidence for policymakers. With the growing reliance on HTA, HTAOs require adequate financial support, continuous capacity building, collaboration, and partnership, innovative HTA methods, and a pragmatic yet robust, evidence-to-policy process in preparation for future pandemics.

Introduction

The coronavirus disease 2019 (COVID-19) pandemic has affected all aspects of health systems and the field of Health Technology Assessment (HTA) is no exception (1). Nonetheless, HTA in Asia has played a significant role in policymaking during the pandemic, either by assessing the value of interventions (2) or by adapting their research capabilities to answer various policy questions (3–6). A robust and dynamic HTA system is therefore desirable during both peacetime and public health emergencies (1; 3; 7–9). As we exit COVID-19 and prepare to strengthen our response system for future pandemics, it is crucial to understand the impact of COVID-19 on organizations that conduct HTA-related research in Asia as a priority.

Commitment to Universal Health Coverage (UHC) has increased political buy-in from countries and allowed HTA to flourish across Asia (10; 11). It continues to shape national health policies in many countries; however, the field is far from reaching its full potential in Asia (10). HTAsiaLink, a network of non-for-profit organizations that conduct HTA-related research,

plays an important role in the growth of HTA in the region (12). Established in 2011 with three founding members, HTAsiaLink now hosts over fifty organizations from twenty member countries. It has three main objectives (i) strengthen individual and institutional capacity in HTA research and integration of HTA evidence into policymaking; (ii) promote collaboration and reduce research waste; and (iii) share best practices among members (12).

Several studies have studied the impact of COVID-19 on HTA including the speed of regulatory decisions (13; 14; 18), changes in engagement with the industry, patients, and caregivers, the use of real-world data, and emerging elements of value (19), as well as the process of conducting HTA studies (20). A study from Brazil (15) explored the impact of the COVID-19 pandemic on the HTA process of the National Commission for the Incorporation of Technologies into the Brazilian health system. The National Centre for Pharmacoeconomics Review Group (16) and a global survey (17) studied the methodological challenges presented by COVID-19. One commentary highlighted how HTA organizations in low- and middle-income countries (LMICs) adapted to the pandemic needs by leveraging existing research skills and networks (3). Although existing literature sheds light on the impact of COVID-19 on HTA process, methods, and market access, there is sparse information on how COVID-19 has affected HTAOs at the organizational level, specifically those in the Asia-Pacific region.

This study seeks to understand how COVID-19 has impacted organizations that conduct HTA-related research in the Asia-Pacific region, specifically the members of HTAsiaLink.

Methodology

Online Survey and Virtual Consultation

An online cross-sectional survey was administered among HTAsiaLink members (forty-four organizations across twenty countries in the Asia-Pacific) between December 2022 and January 2023 to understand the impact they experienced from COVID-19. The survey was first disseminated at the HTAsiaLink Member meeting during the tenth HTAsiaLink Annual Conference held in Pattaya, Thailand, on 2 December 2022, and subsequently circulated to all member organizations via email. The questionnaire was piloted among four HITAP staff to improve clarity and comprehensibility. The survey was developed and administered on Survey Sparrow, a web-and mobile-based platform. Members were asked to submit only one response per organization. In addition to the survey, a virtual consultation was held on 29 May 2023 to validate and supplement the study results. Informed consent was sought from all respondents and participation in the online survey and the virtual consultation was voluntary.

Questionnaire Development

Impact on "something" may be inferred by the performance it ensues (21). Hence, the questionnaire was developed using an existing framework (22) which provides guidance on measuring the performance of HTAOs. The framework presents four functions of HTAOs as indicators to their performance (i) adaptation; (ii) production; (iii) culture and values; (iv) goal attainment. Given the difficulty in delineating these functions, we further classified them under the three key domains of the logical framework (23), namely (i) inputs, (ii) process, and (iii) outputs, to assess impact.

The questionnaire had eight sections and a total of thirty questions. No personal data were obtained unless they chose to be a collaborator in the data analysis and manuscript writing process.

The survey questions were based on the three key domains mentioned above: (i) inputs (changes in human and financial resources), (ii) process (changes in the HTA process and ability to independently design, conduct, and disseminate research), (iii) outputs (number of projects, HTA related publications, and public accessibility to publications). The full questionnaire can be found in Supplementary Tables A1 and A2. Organizations were categorized as either an HTA agency or a research agency. An HTA agency was defined as a dedicated national HTA agency for the country while a research agency was defined as an organization that conducts research, including HTA, but not a dedicated national HTA agency. Projects were referred to as any research projects, including COVID-19 related, while publications were limited to HTA publications (e.g., economic evaluation and HTA guidelines). As COVID-19 hit countries at different times in 2020, the years 2019 and 2021 were selected as a period before and during COVID-19, respectively. Considering the time needed for publications and human resourcing, 2022 was chosen as a reference point for these two sub-domains.

Data Analysis

Responses from Survey Sparrow were imported into Excel for data cleaning and analysis. The virtual consultation was recorded and transcribed into a summary. Upon validating and supplementing the survey data with the summary from the virtual consultation, descriptive results were presented either in count and percentages for quantitative or in narrative form for qualitative data. Results were presented to reflect the impact of COVID-19 on inputs, processes, and outputs of HTAOs as they relate to conducting research activities. No statistical analysis was performed on the quantitative data.

Results

Out of the forty-four HTAsiaLink members, twelve (27 percent) organizations representing ten countries in the Asia-Pacific region responded to the survey. Among the respondents, the oldest organization was the Malaysian Health Technology Assessment Section (MaHTAS), established in 1995, and the most recently established in 2020, was the HTA Resource Centre within the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER). Table A1 summarizes the respondents' profiles and responses.

Impact on Inputs (Human and Financial Resources)

Some organizations e.g. CDE, HITAP, and ACE, reported high staff turnover during COVID-19. Nonetheless, most organizations (8/11, 73 percent) also managed to hire more staff during this period. Only HITAP and ACE were able to hire or retain international staff during COVID-19. MaHTAS and MCH did not hire additional staff during COVID-19. MaHTAS was unable to do so as they would need approval from the Ministry. To mitigate this, MaHTAS adapted their ways of working to accommodate the increased demand for research. No notable difference was observed between HTA and research agencies (Figure 1).

Most of the organizations (8/11, 73 percent) managed to secure similar or higher levels of funding during COVID-19 compared to the pre-COVID-19 period. Only CNHDRC, MCH, and UHS received less funding during this period. MCH, MaHTAS, ACE, and INAHTAC received a fixed budget from

https://doi.org/10.1017/S0266462324000357 Published online by Cambridge University Press

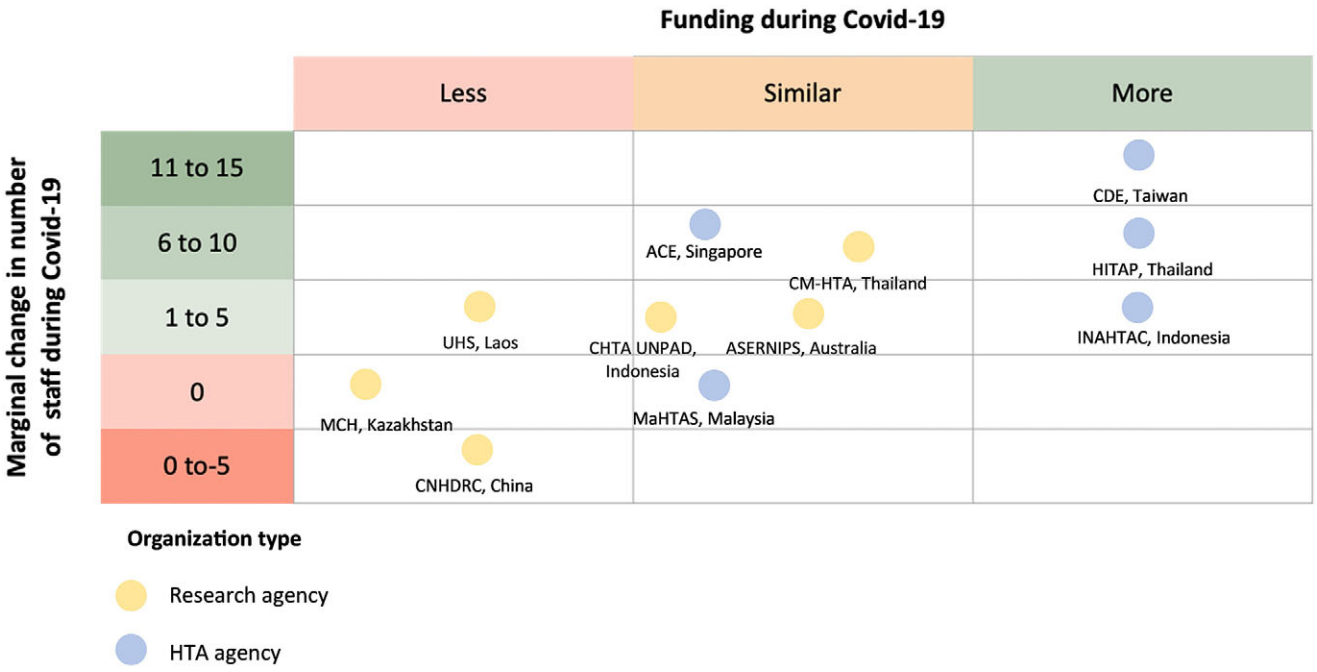

Figure 1. Changes in number of staff and funding during COVID-19.

the government or hospital, while the rest received project-based funding. CNHDRC reported difficulties securing adequate funding during COVID-19 from the private sector, consequently, there was a reduction in funding. Despite receiving less funding and having fewer staff, CNHDRC conducted more projects during this period to meet the high demand for evidence from the government. CNHDRC mitigated this issue by collaborating with other research agencies to conduct research studies.

Impact on Processes

All organizations indicated that there were slight adjustments to the HTA process during the COVID-19 pandemic. ASERNIPS, MaHTAS, and MCH reported that the HTA process was conducted in a shorter timeframe to provide timely recommendations. All organizations reported that COVID-19-related research was prioritized in their respective countries, and therefore, all organizations, except CDE, undertook COVID-19-related research during this period. HITAP reported having to adapt their research design to meet policymakers need for evidence on topics such as protocol for rationing the use of critical resources (24), early HTA for COVID-19 vaccines (25), and bilateral travel policies using vaccination certificates (6).

Most of the organizations (10/12, 83 percent) reported that COVID-19 had affected their regular data collection process (Table A2). These organizations therefore resorted to other means including online data collection, retrieving available real-world data, literature review, or expert consultation. CDE reported that COVID-19 did not impact their data collection process and cited their reliance on secondary data since the pre-COVID-19 period to conduct research studies.

HITAP, INAHTAC, MaHTAS, and MCH, reported that COVID-19 had impacted their ability to independently design research methods, draw conclusions, and publish results design (Table A2). CNHDRC, due to regulations on data, were unable to publish their research in peer-reviewed journals. As a result, they resorted to communicating their research findings through policy briefs that were catered to decision-makers. ASERNIPS, MaHTAS, and MCH specifically reported facing challenges in completing their research and providing policy recommendations in a timely manner due to short deadlines from policymakers. Organizations mitigated this issue by conducting rapid reviews or rapid HTA when appropriate.

Impact on Outputs (Projects, Publications, and Accessibility)

Most of the organizations (8/11, 73 percent) saw an increase in the number of research projects undertaken during COVID-19 compared to the pre-COVID period (Figure 2). Only UNPAD, UHS, and MCH had a reduction during this period. The type of new projects included by the respondents include rapid review, horizon scanning, HTA assessments and appraisals, clinical and implementation guidelines on health technologies, and health policy evaluation. As reported earlier, all organizations conducted at least one research on COVID-19 to inform decision-making.

Only ACE, INAHTAC, MaHTAS, and MCH reported an increase in HTA-related publications during COVID-19 compared to the pre-COVID period. ACE, INAHTAC, MaHTAS, HITAP, and MCH reported increased accessibility to HTA-related publications during COVID-19, while CDE, ASERNIPS, CNHDRC, and CMHTA reported it being similar to the pre-COVID-19 period. UHS and UNPAD reported being worse. For organizations that reported increased accessibility of their publications, one of the potential reasons cited was the increased use of policy briefs and digital platforms for communication during COVID-19. In addition, COVID-19 raised public health awareness among the public which may have induced evidence-seeking behavior.

https://doi.org/10.1017/S0266462324000357 Published online by Cambridge University Press

Figure 2. COVID-19 impact toward research projects.

Discussion

This study surveyed HTAOs in the Asia-Pacific region proxied by HTAsiaLink members to understand the impact of COVID-19 on their inputs, processes, and outputs as they relate to conducting research activities.

We find that COVID-19 has had a relatively low impact on HTAO's ability to secure funding. In fact, the majority of HTAOs attracted similar or more funding during this period which may be explained by increased demand for evidence from policymakers (in light of the pandemic), resulting in increased availability of funds for research at national and global levels and fast-tracked funding and ethical approvals. While no studies can confirm this in the region, this was found to be true in the U.K. (26). Furthermore, funding mechanisms (either grant-based and/or routine government budget line) may have helped HTAOs maintain adequate funding during COVID-19.

Although our study found that more staff were hired during the pandemic, staff retention remained a challenge for almost all HTAOs, presumably due to the high workload and better opportunities. While other studies did not report changes in staff levels, observations of high staff turnover and burnout were evident (17) and this is not limited to the field of health research (27; 28). As staff levels affect HTAO's research productivity and, ultimately, their ability to inform decision-making, organizations should prioritize managing burnout and increasing resilience, especially while working during emergencies. While not-for-profit HTAOs may not be able to offer attractive remuneration like the private sector may (29), they could find innovative ways (for example, flexibility in working hours and location, scholarships, staff exchange programs, career progression, leadership roles, etc.) to attract and retain staff. HTAsiaLink could commission a study on factors associated with staff retention in not-for-profit HTAOs, which may provide insights and appropriate strategies. A more sustainable solution is to routinely build the capacity of early career researchers in the region, a key mandate of HTAsiaLink (12) and an increasing priority for other regional networks (30).

Our study points to a significant impact on HTAO's process of conducting research. Traditional HTA research for UHC was deprioritized by an influx of COVID-19-related research according to our respondents. Similar observations were reported by other studies (17; 18; 20). Consequently, this appears to have reduced the number of traditional HTA publications (UHC-related) from these HTAOs. However, this provided HTAOs with opportunities to expand their scope of work and adapt research methods and capabilities to address policy needs of the hour (3; 6; 25). As we enter the post-COVID-19 era, HTAOs should continue to diversify their research portfolio and build capabilities beyond traditional HTA to remain relevant to policymakers and attract diverse talents and funding.

In terms of assessment, COVID-19 induced lockdowns appear to have affected HTAO's ability to collect primary data and conduct in-person stakeholder consultations, an observation reported by others (19; 20). However, these challenges were overcome by using secondary data and leveraging digital platforms, a trend that was prevalent globally (31; 32). While our study did not examine the impact on HTA research methodology, studies have discussed the challenges and potential increase in uncertainty and reduction in quality of HTA studies resulting from such disruptions (16; 17). Despite the risk of reduced quality of research, HTAOs in our and other studies reported the pressure of presenting evidence to policymakers in a short timeframe (13; 17–19). As Chris Whitty rightly says, "An 80 percent right paper before a policy decision is made is worth ten 95 percent right papers afterward, provided the methodological limitations imposed by doing it fast are made clear" (33), speed is indeed more valuable over quality in emergency settings. However, research ethics, standards, and independence should be maintained to the extent possible to avoid the misuse and misinterpretation of low-quality evidence to forward agendas (17). Fortunately, some guidance is now available on applying HTA during pandemics (16) and maintaining standards while ensuring timeliness (34). Future studies could apply such guidance to their research, comment on their usefulness, and build on as appropriate such that timely yet reliable evidence can be produced during future pandemics.

To combat some of the challenges discussed above, including lack of data and balancing quality and timeliness, the HTAOs in this study recommend expanding collaboration and strengthening partnerships within and across regions. For example, during the pandemic, ten organizations from HTAsiaLink representing ten countries collaborated in an initiative called the COVID-19 Vaccination Policy Research and Decision-Support Initiative in Asia (CORESIA) (35), to fast-track the exchange of reliable cross-country information, data, and evidence on issues related to COVID-19 policies. The Ministry of Public Health Intelligence Unit (MIU) in Thailand, through HITAP, routinely leveraged this collaboration to gather evidence from the region to inform national policies (in the absence of local data). In the post-pandemic era, HTAsiaLink is working to (i) harmonize clinical data required to conduct HTA studies and (ii) establish a comprehensive registry for ongoing HTA-related studies in the region. These efforts are aimed at filling the data, technical capacity, and evidence gap that many LMICs face while rewarding existing studies by increasing visibility and reducing duplication of efforts.

https://doi.org/10.1017/S0266462324000357 Published online by Cambridge University Press

Our study has several limitations. Only 27 percent of the HTAsiaLink members participated in the survey, therefore, study results may not be representative of the impact across all HTAOs in the region. However, response from twelve organizations representing ten countries may be considered high compared to other studies. Only a few performance indicators from the LaFortune et al.'s framework (22) were chosen to study impact on HTAOs, hence, other important dimensions such as impact on research coordination, learning, approval decisions, timing, methodology, etc., were not considered. In this study, we only presented descriptive results and did not perform any statistical analysis due to the limited sample size. Therefore, no causal inferences can be made from our results. Furthermore, data from the survey were only estimates and may be subject to inaccuracies. Our study did not factor in contextual differences such as baseline capacity, capabilities, link to policymakers, etc., of HTAOs which could provide a more nuanced understanding and nature of impacts from the pandemic.

Conclusion

COVID-19 has impacted several dimensions of HTAOs in the Asia-Pacific region. Nonetheless, HTAOs have shown resilience and adapted well to the pandemic and were able to consistently support policymakers in their countries. With commitment to efficient and equitable UHC, there is growing reliance from countries to adopt HTA. Therefore, adequate financial support from the governments and funders to undertake research, continuous capacity building efforts with adequate support system for staff, innovation in HTA methods to incorporate dynamic policy questions, and pragmatic yet robust evidence to policy process are some key takeaways as we prepare for the next pandemic.

Supplementary material. The supplementary material for this article can be found at http://doi.org/10.1017/S0266462324000357.

Acknowledgments. The authors express their deepest appreciation to the members of the HTAsiaLink network who participated in this study and the members who reviewed the manuscript.

Funding statement. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Competing interest. Dr Piyameth Dilokthornsakul, an author of this manuscript, received research grants from Norvartis (Thailand), Pfizer (Thailand), and Boehringer Ingelheim (Thailand) for other projects at the Center for Medical and Health Technology Assessment (CM-HTA), Chiang Mai University. However, these funding sources are unrelated to the research presented in this manuscript. The other authors declare no conflict of interests.

References

1. **Lorgelly PK**, **Adler A.** Impact of a global pandemic on health technology assessment. *Appl Health Econ Health Policy.* 2020;**18**:339–43. doi: 10.1007/s40258-020-00590-9.
2. **Utami AM**, **Rendrayani F**, **Khoiry QA**, et al. Economic evaluation of COVID-19 vaccination: A systematic review. *J Glob Health.* 2023;**13**:06001. doi: 10.7189/jogh.13.06001.
3. **Ananthakrishnan A**, **Luz ACG**, **Kc S**, et al. How can health technology assessment support our response to public health emergencies? *Health Res Policy Syst.* 2022;**20**:124. doi: 10.1186/s12961-022-00925-z.
4. **Duarte A**, **Walker S**, **Metry A**, **Wong R**, **Panovska-Griffiths J**, **Sculpher M.** Jointly modelling economics and epidemiology to support public policy decisions for the COVID-19 response: A review of UK studies. *PharmacoEconomics.* 2021;**39**(8):879–887. doi: 10.1007/s40273-021-01045-2.
5. **HTAsiaLink**. How to optimise HTA usage in healthcare crisis? HTAsiaLink Newsletter. 2021;15. Available from: https://www.hitap.net/documents/181084.
6. **Cai CGX**, **Lim NW-H**, **Huynh VA**, et al. Economic analysis of border control policies during COVID-19 pandemic: A modelling study to inform cross-border travel policy between Singapore and Thailand. *Int J Environ Res Public Health.* 2023;**20**:4011.
7. **HTA assessment of COVID-19 interventions in Ireland**. *PharmacoEconomics Outcomes News.* 2020;**864**:1. doi: 10.1007/s40274-020-7191-9.
8. Organised by: EUPHA-HTA E-E, HTAi, Chair persons: Chiara de Waure EP. 3.H. Workshop: The role of HTA for COVID-19 vaccines: present and future perspectives. *Eur J Public Health.* 2021;**31**(Suppl 3). doi: 10.1093/eurpub/ckab164.199.
9. **Miglietta A**, **de Waure C**, **Chronaki C**, et al. Health technology assessment applied to emergency preparedness: A new perspective. *Int J Technol Assess Health Care.* 2021;**37**:e77. doi: 10.1017/S0266462321000465.
10. **Teerawattananon Y**, **Rattanavipapong W**, **Lin LW**, et al. Landscape analysis of health technology assessment (HTA): Systems and practices in Asia. *Int J Technol Assess Health Care.* 2019;**35**:416–21. doi: 10.1017/s0266462319000667.
11. **World Health Organization (WHO)**. [Internet] 2015 Global survey on health technology assessment by national authorities; 2015.
12. **Teerawattananon Y**, **Luz K**, **Yothasmutra C**, et al. Historical development of the HTAsiaLink network and its key determinants of success. *Int J Technol Assess Health Care.* 2018;**34**:260–6. doi: 10.1017/s0266462318000223.
13. **Mundy L**, **Kearney B.** "What's Keeping Me Up at Night?" Reflections on the COVID-19 pandemic in Asia. *Int J Technol Assess Health Care.* 2022;**38**:e51. doi: 10.1017/S0266462322000381.
14. **Thomas M**, **Craddy P**, **Foxon G.** PNS173 impact of COVID-19 on HTA bodies and pharmaceutical company pricing and market access activities. *Value Health.* 2020;**23**:S670. doi: 10.1016/j.jval.2020.08.1617.
15. **Cardoso MMdA**, **Thabane L**, **Andrade LGMd**, et al. Exploring the COVID-19 pandemic's impact on the health technology assessment process of the national commission for the incorporation of technologies Into the Brazilian Health System. *Value Health Reg Issues.* 2023;**37**:18–22. doi: https://doi.org/10.1016/j.vhri.2023.04.002.
16. **Leahy J**, **Hickey C**, **McConnell D**et al. Coronavirus disease 2019: Considerations for health technology assessment from the National Centre for Pharmacoeconomics Review Group. *Value Health.* 2020;**23**:1423–6. doi: https://doi.org/10.1016/j.jval.2020.09.003.
17. **Elvidge J**, **Dawoud D.** Assessing technologies for COVID-19: What are the challenges for health technology assessment agencies? Findings from a survey and roundtable workshop. *Pharmacoeconomics.* 2021;**39**:1455–63. doi: 10.1007/s40273-021-01097-4.
18. **International Society for Pharmacoeconomics and Outcomes Research (ISPOR)**. COVID-19: Challenges and opportunities for the global health technology assessment community. Value Outcomes Spotlight; 2021.
19. **Barham L**, **Lovell, A.** [Internet] New developments in HTA: Evolution not revolution in Health Technology Assessment; 2020. Report No.
20. **Boss J**, **Bending, M**, **Rawson K.** Health technology assessment during the COVID-19 pandemic. The evidence forum [Internet]. 2020 [cited 2023 July 9]. Available from: https://www.evidera.com/white-paper-hta-during-the-covid-19-pandemic/.
21. **Puga C.** *Performance and Impact*. In: List RA, Anheier HK, Toepler S, editors. *International Encyclopedia of Civil Society*. Cham: Springer International Publishing; 2020. p. 1–7.
22. **Lafortune L**, **Farand L**, **Mondou I**, **Sicotte C**, **Battista R.** Assessing the performance of health technology assessment organizations: a framework. *Int J Technol Assess Health Care.* 2008;**24**:76–86. doi: 10.1017/s0266462307080105.
23. **The United States Agency for International Development (USAID)**. [Internet] Logical Framework. The United States Agency for International Development (USAID); [cited 25 October 2023]. Available from: https://www.usaid.gov/logical-framework.
24. **Marshall AI**, **Archer R**, **Witthayapipopsakul W**, et al. Developing a Thai national critical care allocation guideline during the COVID-19 pandemic:

a rapid review and stakeholder consultation. *Health Res Policy Syst.* 2021;**19**: 47. doi: 10.1186/s12961-021-00696-z.

25. **Wang Y**, **Luangasanatip N**, **Pan-ngum W**, et al. Assessing the cost-effectiveness of COVID-19 vaccines in a low incidence and low mortality setting: the case of Thailand at start of the pandemic. *Eur J Health Econ.* 2023;**24**:735–48. doi: 10.1007/s10198-022-01505-2.
26. **Chinnery PF**, **Pearce JJ**, **Kinsey AM**, **Jenkinson JM**, **Wells G**, **Watt FM**. How COVID-19 has changed medical research funding. *Interface Focus.* 2021;**11**:20210025. doi: 10.1098/rsfs.2021.0025.
27. **Poon Y-SR**, **Lin YP**, **Griffiths P**, **Yong KK**, **Seah B**, **Liaw SY**. A global overview of healthcare workers' turnover intention amid COVID-19 pandemic: A systematic review with future directions. *Hum Resour Health.* 2022;**20**:70. doi: 10.1186/s12960-022-00764-7.
28. **Sungbun S**, **Naknoi S**, **Somboon P**, **Thosingha O.** Impact of the COVID-19 pandemic crisis on turnover intention among nurses in emergency departments in Thailand: A cross sectional study. *BMC Nurs.* 2023;**22**: 337. doi: 10.1186/s12912-023-01495-3.
29. **O'Rourke B**, **Werkö SS**, **Merlin T**, **Huang LY**, **Schuller T.** The 'Top 10' challenges for health technology assessment: INAHTA viewpoint. *Int J Technol Asses Health Care.* 2020;**36**:1–4. doi: 10.1017/S0266462319000825.
30. **Mundy L**, **Maddern G.** HTA capacity building in Asia: Towards one goal. *Int J Technol Assess Health Care.* 2023;**39**:e56. doi: 10.1017/s0266462323000405.
31. **Sharon Wolf EA**, **Autumn Brown**, **Edward Tsinigo**, **Richard Murphy Edro**. [Internet] Remote data-collection during COVID 19: Thing of the past or the way of the future?: World Blank Blogs; 2022 [cited 30 October 2023]. Available from: https://blogs.worldbank.org/education/remote-data-collection-during-covid-19-thing-past-or-way-future.
32. **Sarah Coates HA**. [Internet] Data collection changes due to the pandemic and their impact on estimating personal well-being. Off Nat Stat; 2021 [cited 2023 Oct 30]. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/methodologies/datacollectionchangesduetothepandemicandtheirimpactonestimatingpersonalwellbeing.
33. **Whitty CJM**. What makes an academic paper useful for health policy? *BMC Med.* 2015;**13**:301. doi: 10.1186/s12916-015-0544-8.
34. **Teerawattananon Y**, **Kc S**, **Chi YL**, et al. Recalibrating the notion of modelling for policymaking during pandemics. *Epidemics.* 2022;**38**: 100552. doi: https://doi.org/10.1016/j.epidem.2022.100552.
35. **Kc S**, **Faradiba D**, **Sittimart M**, et al. Factors associated with the opposition to COVID-19 vaccination certificates: A multi-country observational study from Asia. *Travel Med Infect Dis.* 2022;**48**:102358. doi: https://doi.org/10.1016/j.tmaid.2022.102358.

https://doi.org/10.1017/S0266462324000357 Published online by Cambridge University Press

Appendix

Table A1. Respondents profile and responses

Variables	CDE	MaHTAS	ASERNIPS	JIPMER	ACE	CMHTA	HITAP	CNHDRC	INAHTAC	CHTA UNPAD	UHS	MCH
Country	Taiwan	Malaysia	Australia	India	Singapore	Thailand	Thailand	China	Indonesia	Indonesia	Laos	Kazakhstan
Date of establishment	2008	1995	1998	2020	2015	2019	2007	2008	2013	2019	2007	2015
Organization type[b]	HTA agency	HTA agency	Research agency	Research agency	HTA agency	Research agency	HTA agency	Research agency	HTA agency	Research agency	Research agency	Research agency
New projects in 2021	135	109	23	6	90	0	30	100	1	1	5	29
Change in new projects[a]	(+) 26–50%	(+) 76–100%	(+) 0–25%	N/A†	(+) 76–100%	(+) 0–25%	(+) 0–25%	(+) 0–25%	(+) 76–100%	(–) 76–100%	(–) 26–50%	(–) 0–25%
Covid–19-related projects in 2021	0–25%	26–50%	0–25%	0–25%	0–25%	0–25%	26–50%	0–25%	0–25%	0–25%	26–50%	0–25%
Published HTA reports and/or guidelines in 2022	137	73	19	4	95	1	10	25	15	0	1	9
Change in HTA reports and guidelines published[a]	(–) 0–25%	(+) 0–25%	(–) 0–25%	N/A†	(+) 76–100%	No response	(–) 0–25%	(–) 0–25%	(+) 76–100%	(–) 76–100%	No response	(+) 0–25%
Change in public accessibility to the organizations' work[a]	Similar	Better	Similar	N/A†	Better	Similar	Better	Similar	Better	Worse	Worse	Better
Positive impacts of Covid–19 projects	No	Yes, on visibility	Yes, on visibility	Yes, research leadership and capacity building	Yes, on visibility	No	Yes, on networking	Yes, research leadership and capacity building	Yes, on visibility	No	No	Yes, on visibility
Number of staff in 2019	35	30	16	N/A†	50	0	60	18	7	12	2	6
Number of staff in 2022	50	30	18	5	60	6	70	14	10	17	4	6
Change in funding[a]	More	Similar	Similar	N/A†	Similar	Similar	More	Less	More	Similar	Less	Less[b]
Percentage change in funding[a]	(+) 0–25%	–	–	N/A†	–	–	(+) 0–25%	(–) 0–25%	(+) 76–100%	–	(–) 0–25%	(+) 0–25%
Funding model[b]	Project-based	Fixed budget		Project-based	Fixed budget	Project-based	Project-based	Project-based	Fixed budget	Project-based		Fixed budget
Changes in data collection process[a]	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covid–19 projects impact on organization's ability to independently design research methods, draw conclusions, and publish results	No	Yes	No	No	No	No	Yes	No	Yes	No	No	Yes

[a]Change between before and during Covid-19
[b]Information received or revised during the consultation meeting.
†Not applicable as JIPMER was established in 2020.

Table A2. COVID-19 impact on the research process

Data collection process and COVID-19 impact			
Organization	COVID-19 affected collection process?	Most used data collection process	COVID-19 impacted ability to independently design research methods, draw conclusions, and publish results?
MCH, Kazakhstan	✓	Online data collection/ online interview	✓
CHTA UNPAD, Indonesia	✓	Online data collection/ online interview	X
HITAP, Thailand	✓	Online data collection/ online interview	✓
CNHDRC, China	✓	Online data collection/ online interview	X
CM-HTA, Thailand	✓	Online data collection/ online interview	X
UHS, Laos	✓	Online data collection/ online interview	X
JIPMER, India	✓	Online data collection/ online interview	X
MaHTAS, Malaysia	✓	Literature review	✓
ASERNIPS, Australia	✓	Literature review	X
InaHTAC, Indonesia	✓	Available real-world data	✓
ACE, Singapore	X	N/A	X
CDE, Taiwan	X	N/A	X

✓Impacted by COVID-19.
XNot impacted by COVID-19.

https://doi.org/10.1017/S0266462324000357 Published online by Cambridge University Press