HTAi Asia Policy Forum Background Paper

HTA Capacity Building in Asia: Towards One Goal

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Building capacity dissolves differences. It irons out inequalities.

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Executive summary

Although health technology assessment (HTA) is considered by many as an essential element of priority-setting in health care, in many countries the capacity to conduct and use HTA in the healthcare decision-making process is still lacking. Factors contributing to this lack of capacity are, first and foremost, the shortage of skilled technical HTA practitioners. The causes for the scarcity of workers are many; however, the lack of funding for HTA, often stemming from a lack of political willingness to mandate the use of HTA, is a critical factor. This may be due to a lack of understanding of the value of the HTA process and how HTA outcomes are interpreted and used in the healthcare decision-making process.

Educating all stakeholders on the value of HTA will ensure that the HTA is recognized as a transparent, equitable process to ensure access to health care for all. An increased demand for HTA should create a supportive environment to foster HTA activities.

What capacity building looks like and how it is implemented will vary from jurisdiction to jurisdiction, but any measures must be ‘owned’ by local stakeholders in equal partnership with the external players supporting the process. From the pre-meeting survey it is clear that there are some agencies, such as Cambodia, that would benefit greatly from capacity building measures, whilst there are others like ACE in Singapore, that have staff qualified with all the technical skills to conduct HTA, but just not enough human resources to meet the growing demand for HTA. On the other hand, industry delegates report extensive investment in building capacity within their companies and a willingness to reach out to the region to develop capacity and understanding of the HTA process.

Some HTA challenges may be mitigated by networking and by building HTA systems through the pooling of resources across countries.

Finally, by looking at some of the successes and challenges of capacity building in the region that were nominated by the APF delegates, it may be possible to construct a roadmap for future capacity development in the region.
Introduction

Health Technology Assessment (HTA) is a multidisciplinary process that not only systematically synthesizes evidence describing the efficacy, clinical effectiveness, safety and cost-effectiveness of a health technology (drugs, devices, vaccines, health interventions), but also considers the ethical, legal and social implications of a technology. HTA is a well-recognized and methodologically robust priority-setting tool used to support public reimbursement and coverage decision-making, ensuring the efficient use of limited healthcare resources. In its support for the drive to achieve universal health care (UHC) in South-East Asian region, the World Health Organization (WHO) urged member states to pursue HTA as a priority. With the commitment to implement and achieve UHC, especially in low to middle income countries, an increased demand for HTA personnel and proficiency across academia, government and industry has also been observed. Although the foundations of HTA infrastructure is in place in many countries in the region, there remains a gap between supply and demand of HTA capacity as the need for HTA grows.

In addition to needing a good understanding of the health system in which they are working, HTA researchers need qualifications in epidemiology, biostatistics, evidence-based medicine, amongst others, which enable them to search for and critically appraise the literature, synthesize the evidence as part of a systematic review or meta-analysis and conduct economic analyses, as well as having an understanding of the social, cultural, legal and ethical implications of their research. In addition to the skills mentioned above, an ideal HTA team may include information specialists, policy specialists and health economists, all of whom may, or may not, have a clinical or scientific background.

As discussed in previous Asia Policy Forums (APF), capacity in the Asia region has continued to be a barrier for conducting HTA, especially the recruitment, training and retention of skilled HTA practitioners as countries either continue to develop or move towards UHC. During the 2017 APF, Vietnam reported limited technical capacity to undertake HTA to assist in the prioritization of health services to add to its benefits package. At the same APF, countries such as Singapore, the Philippines, Malaysia, Thailand, China and Vietnam also reported that one of the key barriers to using real world data to inform decision-making was the lack of capacity to enable information and data sharing. Interestingly, many of the 2017 industry delegates reported that their companies were involved in a range of capacity building and development activities in conjunction with HTA agencies in order to support the development of robust evidence generation infrastructure in the region (Figure 1). Most companies reported being involved in capacity building in the training and development of skills in HTA and health economics methodology using a collaborative approach including
investing in infrastructure, advocating the use of databases, conducting early assessments and pilot projects, supporting third parties such as universities and think tanks.\textsuperscript{5} During the 2018 APF, the Philippines reported that their limited technical capacity to assess uncertainty around economic analyses prevented its use as a criterion for implementing alternative funding mechanisms such as managed entry schemes.\textsuperscript{6} In the past, China reported that despite a concerted effort to build HTA capacity, HTA was not a mandatory component of the health policy decision-making process, with new health services added to benefit packages based on local experience rather than an evidence-based approach.\textsuperscript{7} Challenges presented by the COVID-19 pandemic were discussed by the APF in 2021, with the lack of HTA capacity identified as a pressing issue, especially when many COVID-19 related interventions (drugs, vaccines and interventions) had to be evaluated and approved with limited evidence within a short timeframe.\textsuperscript{8}

![Figure 1: The percentage of companies reporting capacity building activities in the Asia region (2017 APF)](image)

Government health departments in the region have long recognized HTA as a tool for the efficient and transparent allocation of resources, ensuring the sustainability of health systems that are at various stages of developing and implementing UHC.\textsuperscript{9} Strengthening priority setting by building HTA capacity in the region has been identified as critical for the formulation of benefit packages that can deliver equitable, high-quality and affordable
health care for all. Political will, leadership and legislation have been identified as important and necessary steps in order to advance the use of HTA in the decision-making process for public health resource allocation. Capacity building requires political will to implement HTA processes into everyday decision-making, and to fund the training, development, and retention of professional staff with the necessary expertise. Barriers such as a lack of awareness of HTA, in addition to the shortage of skilled HTA researchers, limited information technology infrastructure and low political support (or political agendas) have limited the capacity to conduct HTA in some countries. Recognizing the link between evidence, policy and practice legitimizes the HTA process, further embedding HTA in the policy decision-making process, and in so doing, fuels the demand and need for capacity building to deliver high quality HTA. The lack of technical HTA capacity combined with limited access to local epidemiological data may result in benefit packages that are not informed by evidence-based decision-making, resulting in inefficient and inequitable healthcare systems, which is opposite to the desired goals of UHC.

The development of HTA capacity where it is lacking will better inform decision-making enabling the more effective, efficient and equitable use of health resources, which will, in due course, result in better health outcomes for the population as a whole.

What is capacity building?

The terms capacity building and capacity development are often used interchangeably in the literature, with some stating that capacity development infers that capacity already exists in the system and can therefore be strengthened by developing existing skills and knowledge, whereas capacity building suggests a lack of existing capacity. Although the term capacity development is preferred by most institutions, for the sake of simplicity and consistency with HTAi*, this paper will use the term capacity building.

Capacity building is a term that is applicable across a myriad of fields including education, industry, agriculture, urban development, and health, with each sector likely to have their own definition based on their specific needs and local context. Capacity building may be simply defined as ‘planned development of (or increase in) knowledge, output rate, management, skills, and other capabilities of an organization through acquisition, incentives, technology, and/or training’. However, the United Nations Development Programme (UNDP) has defined capacity building as that ‘through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development.

* The terms of reference for HTAi’s Scientific Development & Capacity Building Committee is to streamline the scientific direction of the Society, providing guidance and developing the HTA capacity around the world and build up an efficient learning environment within HTAi.
The UN’s Sustainable Development Goal 17 notes that an essential element of capacity building is that sustained, long-lasting transformation is achieved by changing mindsets and attitudes over time, not by achieving single tasks in isolation. Capacity building is a broad and complex undertaking, implying change at multiple levels, and can through the transfer of knowledge and skills at the local (contextualized) level empower people and improve the effectiveness and sustainability of organizations such as the health system.

Capacity building is a term that can be applied at the individual, organizational and environmental level, with all three levels being interconnected and reliant on each other (Figure 2):

- At the individual level – the process of improving an individual’s skills, experience and knowledge by providing access to information, knowledge, education, training as well as hands-on experience that enables them to perform more effectively;
- At the organizational level – improving organizational performance and effectiveness by strengthening internal structures, policies and procedures through strategies, plans, processes and procedures, not only within organizations but between different organizations and sectors (public, private and community); and
- At the environmental or system level – improving policy frameworks to enable organizations, institutions and agencies at all levels and in all sectors to enhance their capacities by addressing economic, political, environmental, legal and social factors in a coherent and mutually reinforcing fashion. The enabling environment sets the ‘rule book’ and, therefore, the overall scope for capacity development.

Access to resources and experiences that develop an individual’s capacity are shaped by organizational and environmental factors, which in turn are influenced by the degree of capacity development in each individual.

It should be noted that the UNDP places an extra category between Organizations and Environment – Networks, either within a country or as an important aspect of regional capacity building between countries. Networking may be as simple as collaboration between institutions on specific projects or general networking opportunities such as that offered by collaborative organizations like HTAsiaLink, which facilitates countries across the Asia region to share their HTA experiences, learnings and resources, and provides opportunities to share technical and methodological know-how. Most important of all, networks such as HTAsiaLink build interpersonal relationships among member countries, fostering a willingness to collaborate, mutual trust, respect, and open communication.
Recently, HTAi’s Scientific Development & Capacity Building (SDCB) Committee set out to develop an HTA-related definition of capacity building that was more relevant to and considered the broad range of HTA-related stakeholders and activities. The SDBC Committee concluded that a simple, HTA-specific definition of capacity building was not currently feasible due to the breadth of HTA activities and the different levels of development of HTA across health systems (nascent to mature). The Committee recommended that an “operationalization menu” be developed, a collaboration and opportunity that members of the APF may wish to participate in, to ensure that capacity building issues specific to the region are reflected in any future work of HTAi in this area.22

**Capacity building principles**

There is no single approach to capacity building to support effective priority-setting, but rather a spectrum of activities that identifies roles and skill sets of all involved in the process.17 Important factors for the success of capacity development include:

- political will – government participation and ownership, leadership and vision;
- locally demand-driven agendas and the involvement of stakeholders at all levels;
- effective technical and financial support, with the right incentives in place;
- long-term continuity;
- an enabling environment.23
The first principle of capacity building is that it should exploit and develop existing local capacities with a locally driven context and agenda. Ideally, a program of capacity building should be sustained and maintained over time, offering opportunities for ongoing learning and change. Strong partnerships with external players, such as funding agencies (e.g. the World Bank) or, as in the case of HTA, agencies such as NICE International, can offer support, advice or help create the right external incentives for capacity building processes. However, local players in whom capacity development is being targeted, should have the ultimate responsibility for identifying their needs and then designing, managing and driving the process of change. That is, what capacity building looks like and how it is implemented must be ‘owned’ by local stakeholders in equal partnership with the external players supporting the process.

A good example of a strong partnership is the capacity building initiative developed by the UK’s National Institute for Health and Care Excellence (NICE) International and Thailand’s Health Intervention and Technology Assessment Program (HITAP). In 2008, NICE International was established to offer: “Advice on building capacity for assessing and interpreting evidence to inform health policy and on designing and using methods and processes to apply this capacity.” Together HITAP and NICE developed a framework that would promote structures and processes to guide health policy and build HTA capacity in countries in the Asia region that were moving towards UHC. The aim of this initiative was to foster the transfer of expertise and knowledge to several countries in the region with the goal of exposing decision makers and technical staff to evidence-based policymaking. Successful projects using this approach include those in Myanmar (improving maternal and child health), the Philippines (an expanded immunization program) and Vietnam (stroke management). The success of these collaborative capacity building projects depended on a demand-driven focus on local policy agendas and building links not only across institutions but between institutions and health policy-makers.

‘the principle that people are best empowered to realise their full potential when the means of development are sustainable – homegrown, long-term, and generated and managed collectively by those who stand to benefit’ UNDP
Capacity building in HTA

HTA capacity building is more than simply training staff in the technical and methodological aspects of conducting HTA. The context for capacity building, and the ability to design processes and manage change will differ markedly between countries and will depend on pre-existing and binding constraints, such as political buy in and governance.13

HTA capacity building at the Individual level

HTA stakeholders at the individual level include the “doers” – those individuals who are involved in conducting HTA, such as academic and industry researchers. Although the organizational and environmental levels are critical for HTA to be embedded into health systems, capacity building at the individual level is essential for successful HTA, giving individuals the means to increase and improve their technical skills, experience and knowledge in order to conduct, interpret and use HTA effectively. Other important stakeholders at the individual level include patients, caregivers and clinicians who are interested and engaged in the HTA process as a means of accessing new health care technologies.22

Essential ‘hard’ technical skills for the producers of HTA include, amongst others, research methods in HTA, identifying and implementing evidence, data gathering and management, and using evidence to inform policy; however, the cultivation of ‘soft’ skills such as effective writing and communication are also of great value.25 Networking and collaboration at the individual level is also key for the transfer of knowledge and skills transfer, with individuals who have acquired skills in how to conduct and then interpret HTA able to mentor others, in so doing, growing capacity.22

HTA capacity building at the Organizational level

HTA capacity building at the Organizational level is context dependent and must consider organizational structures, policies and procedures of HTA, encompassing both within organization relationships (e.g. a HTA agency embedded within a university or hospital) and relationships between organizations (e.g. HTA agency/university and the Department of Health).22 The recent survey of ASEAN countries by Sharma et al (2021) reported that local technical expertise in conducting HTA is concentrated amongst researchers and academics in universities or in nodal agencies. Although universities can serve as centers of capacity building and HTA knowledge brokers through research, data collection and analysis, and innovation, a lack of political support can result in a lack of funding for these centers, which in turn reduces their ability to train more HTA staff. Apart from HTA technical capacity, institutional arrangements are critical in ensuring that a credible and transparent
assessment process can be established to translate evidence into policy in a local context. It is therefore critical that strong links be developed between HTA organizations and health policy-makers so that decision-makers have confidence in the quality of the HTA process and the relevance of the HTA product to the end user. In addition, government funding to enable these institutions to maintain resources such as information technology infrastructure is critical to not only access and utilize data and the evidence base but also to access training opportunities for HTA staff.

**HTA capacity building at the Environmental level**

Stakeholders at the environmental level include those who have the responsibility of implementing HTA, such as health policy-makers in government (primarily health departments), regulatory and procurement agencies, health insurance companies (payers) and donor organizations. However, other important stakeholders include the community as a whole (not at the individual patient level), the media, and health professional bodies. Although most HTA practitioners (and policy-makers to some degree) agree that public consultation and involvement in priority setting should be encouraged, in practice, this rarely occurs. Advocacy may be a more effective role for community stakeholders, harnessing the power and reach of the media and holding policy-makers to account for their decision-making to ensure equity of access to high-quality health care.

One of the main priorities of HTA capacity building at the environmental level in a health care context means putting in place the political will, governance and policy structures to support HTA capacity to inform decision-making and in so doing promote an equitable, efficient and high-quality health system. Wu et al (2022) cited a good example of a lack of understanding and awareness of the HTA process by those tasked with implementing the results of HTA, reporting that too often governments focused on, and valued, budget impact analyses of new health technologies over the more complex cost-effectiveness analyses that estimate value for money rather than affordability. In a recent survey, Sharma et al (2021) reported that although most countries in the region had HTA agencies despite a lack of an explicit remit or legislation mandating the use of HTA, the lack of political will and support prevented the institutionalization and widespread integration of HTA into health systems. Political support, as opposed to political interference, was viewed as crucial to drive the translation and adoption of HTA recommendations into policy.

Finally, it is especially important that all stakeholders at the Individual, Organizational and Environmental levels not only understand the value of, and the need for, priority-setting in health care but also have the capacity to understand the HTA process and how HTA outcomes are interpreted and used in the healthcare decision-making process.
Appendix 2 catalogues some HTA-specific capacity building initiatives.
Pre-meeting surveys

A global survey on HTA was conducted by the WHO in 2020/21 which aimed to measure not only the utilization and scope of HTA in public sector decision-making but also the institutional capacity to support HTA as well as the requirements for strengthening HTA capacity. A total of 127 Member States from all six WHO regions\(^1\) responded to the survey, representing an overall response rate of 65.5 percent. The survey asked questions about the purpose of HTA performed in each country (inclusion in benefits package, pricing of technologies etc.), the type of technologies assessed (drugs, devices etc.), and also the elements included in each HTA (e.g. ethical, equity and feasibility issues). In addition, questions around HTA capacity were asked – the number of staff involved in HTA, the affiliation and qualifications of these staff, and where requests for HTA came from (e.g. Ministry of Health).\(^{27}\)

Of interest to this forum were the questions relating to the strengthening of HTA capacity. The main barrier for producing HTA and using HTA findings in decision-making reported by countries in the SEAR region was a lack of suitably qualified human resources. All regions reported similar barriers to HTA: lack of funding for conducting HTA and a lack of information/data or knowledge of HTA methods (Figure 3).

\[\text{Figure 3} \quad \text{Barriers to HTA production}\] \(^{27}\)

\(^1\) Response rates: European Region (EUR 66%), South-East Asian Region (SEAR 91%), Eastern Mediterranean Region (EMR 57%), Western Pacific Region (WPR 56%), American Region (AMR 66%) and African Region (AFR 68%).
A lack of awareness about the importance of HTA and institutionalization of HTA were cited as significant barriers to incorporating the results of HTA in decision-making by many countries. Interestingly, fewer countries reported political support and a mandate from a policy authority as obstacles for using HTA in health care policy decisions (Figure 4).27

![Figure 4](image)

**Figure 4** Barriers to using HTA to inform decision-making in health care policy27

Of significance to the discussions at this forum, 38% of respondents ranked ‘higher education’ as the top need for further development and capacity building, followed by internal staff training (Figure 5).27

![Figure 5](image)

**Figure 5** HTA capacity building support required by countries27

Individual country profiles can be accessed via this [link](#).
When responses were broken down to the 10 countries from the Southeast Asia region that answered the survey, responses did not differ greatly from the global picture. Qualified human resources were cited as the biggest barrier in terms of producing HTA and then being able to use HTA in the decision-making process. Most respondents (60%) cited a lack of higher education and Masters in HTA as the biggest issue in supporting the implementation of HTA. Figure 6 further breaks down the areas identified by respondents that would most benefit from capacity building activities. 

![Figure 6: Areas that would most benefit from capacity building activities](image)

To identify some of the issues and challenges around HTA capacity specific to the Asia region, pre-meeting surveys of APF industry and agency members were conducted, with the results summarized below. It is hoped that the results of these surveys will act as a prompt for further discussion and exploration during the forum, with the aim of developing a ‘roadmap’ to strengthening HTA capacity in the region.
Summary of the results from the agency survey

HTA has been one of the main priority-setting tools used by health policy-makers to inform evidence-based decision-making on the quality, safety and cost-effectiveness of new healthcare technologies. As discussed in previous Asia Policy Forums, HTA capacity building in the Asia region has continued to be an issue, especially the training, recruitment, and retention of skilled HTA practitioners as countries continue to move towards universal health care.

This survey was intended to identify some of the issues and challenges around HTA capacity in the region to inform discussions at the 2022 APF annual meeting. A copy of the survey questions can be found in Appendix 1.

A total of nine HTA agency participants responded to the survey in full, representing Cambodia, China‡, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Taiwan and Vietnam. The majority of HTA agencies are embedded within their respective Departments of Health (DOH), and all are public sector agencies. Only one agency reported being embedded in a university (Fudan University, Shanghai, China).§ Of the eight agencies embedded in their DOH, only three reported having strong links with a university: Taiwan, Malaysia and Indonesia.

A lack of engagement with universities may represent an opportunity to develop capacity building activities.

The main source of funding for all HTA agencies was their respective Departments of Health (DOH). Four agencies were wholly funded by the DOH, and of these, three reported conducting HTA only for the DOH: Taiwan, the Philippines, and Singapore. Malaysia, although only funded by the DOH also conducted HTA on behalf of other government departments and regulators. All other agencies were funded in part by the DOH, and all conducted HTA on behalf of the DOH; however, additional funding was received from other sources, and HTA was conducted for these funders (Figure 7 and Figure 8).

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‡ Of two HTA agencies in China (Shanghai and Beijing), Shanghai responded to this survey.
§ India reported being embedded within a university - Tata Institute of Social Sciences; however, survey response was incomplete and was removed from results.
Five of the nine (55.6%) agencies currently assess all types of health technologies: drugs, medical devices, diagnostics, vaccines, surgical procedures, health screening programs and public health programs, whilst Taiwan assessed all of these technologies with the exception of diagnostics. Cambodia reported only assessing public health programs, as did Vietnam,
with the addition of drug assessments. Singapore reported assessing all technologies except for health screening programs and public health programs.

When asked about the limitations of HTA infrastructure in their country, responses were fairly consistent across the region. A lack of expertise in the implementation of HTA was cited by six countries, with five of these countries reporting that a lack of technical expertise to conduct HTA and a lack of funding for HTA development were also major issues. Interestingly, only Cambodia and Indonesia reported that a lack of HTA training was a limiting factor. A lack of political support for using HTA in health policy decision-making was only reported by three countries: Indonesia, Vietnam and South Korea. The Philippines identified a lack of research networks with universities to expand capacity for assessments as a limiting factor, and Vietnam cited a lack of local data to support HTA studies. Singapore noted that technical expertise is not an issue, but they are limited by insufficient manpower to be able to carry out more HTA evaluations and related workstreams. Similarly, Malaysia has an inadequate number of experts, and that expertise in this highly skilled area needs to be strengthened.

Although staffing levels (technical and non-technical) varied from country to country, most countries reported the number of staff were below capacity (77.8%), with only Taiwan and Vietnam reporting that they felt staffing levels were just right. Retainment of staff didn’t appear to be an issue, with most countries reporting that staff were employed for more than three years, with only Taiwan and the Philippines reporting an average employment period between 1-3 years. When asked to think about the factors that made retention of HTA staff difficult, the most common reason cited (6/9 (66.7%) agencies) was a stressful work environment. This factor appeared to fulfil a circular argument summed up by Singapore’s comment that due to insufficient staffing levels, ACE** has not been able to provide opportunities for research and due to increased workloads, staff appeared to be stressed at work. A lack of remuneration and a change in career were the next most common reasons for staff turnover (5/9, 55.6%). Interestingly, only Taiwan and Singapore reported a loss of HTA staff in the private sector (Figure 9).

When asked to nominate which was the most important limiting factor for the retention of HTA staff, responses were varied:

*Shanghai, Malaysia - Stressful work environment due to high workloads and deadlines, and pressure for promotion*

** ACE = Agency for Care Effectiveness
Lack of pay (leading to being headhunted by the private sector- Taiwan and Indonesia

Singapore, the Philippines, and South Korea – a lack of professional development

Figure 9 Reported limitations to the retention of HTA agency staff

When asked to identify the key competencies and skills missing from their agency, again, responses varied widely (Figure 10). Singapore reiterated that, on the whole, ACE had the right skill set balance but just not enough human resources to cope with increasing workloads. Cambodia reported deficiencies in all areas of HTA, closely followed by Vietnam.

A lack of HTA staff leads to an increased workload and a stressed workforce.

The most common “missing” skill sets reported were health economists and biostatisticians.
(5/9, 55.6%). Shanghai reported that in addition to administrative and staff qualified in healthcare policy, that medical informatics was a skill that they would like to recruit.

Many staff involved in HTA often have undergraduate degrees in disciplines such as science or medicine and then use this skill set in addition to gaining post-graduate qualifications in an HTA-related field. All agencies except for Cambodia reported that their staff had post-graduate qualifications in an HTA-related field such as epidemiology or biostatistics. The most common background for agency staff was a qualification in medicine, statistics, or pharmacy (7/9, 77.8%), followed by biosciences (5/9, 55.6%). In addition to staff qualified in the range of fields, Malaysia reported staff qualified in hospital administration and as public health physicians. Breaking these figures down further, countries with large agencies such as South Korea (125 researchers), Singapore (80 technical and non-technical staff) and Taiwan (40 FTE) reported high rates of HTA post-graduate qualifications in their full-time staff (ranging from 25%-80%). Demonstrating extremes of capacity, Shanghai reported that all faculty staff had a PhD qualification, whilst Cambodia had no staff, and the Philippines and Vietnam had low numbers (2 each) of staff with an HTA-related post-graduate qualification. Smaller agencies such as Indonesia also had a high proportion of post-graduates, reporting five of their 10 staff had appropriate qualifications.
When thinking about filling these gaps in competencies, overwhelmingly, agencies, with the exception of Vietnam, sought to recruit university graduates and to train them in HTA skills internally. Most agencies (66.7%) also seek to recruit domestically and internationally trained HTA personnel, as well as entry-level staff, with no degree to train in HTA internally. Only Cambodia could not offer any HTA training opportunities to their staff, with all other agencies offering internal training and mentoring (the Philippines only offered internal training). Most agencies offered access to post-graduate courses run by local universities, such as a Master of Public Health, evidence-based medicine and health economics. In addition, many of the agencies have embraced the use of on-line MOOCs. Only South Korea and Indonesia made use of training opportunities offered by industry active in the region (Figure 11). The Philippines, Cambodia, Shanghai and Indonesia thought that current access to training opportunities did not adequately address the demand for HTA in their country.
Networking and collaboration have been identified as key to facilitate the transfer of knowledge and skills, enable mentoring opportunities, in so doing, growing capacity. Agencies in the region clearly value networking, with HTAsiaLink and HTAi foremost among networking opportunities (8/9 agencies, 88.9%). ISPOR was also highly regarded for networking (66.7%), followed by INAHTA and local forums (55.6%).
Summary of the results from the industry survey

A total of ten industry participants responded to the survey; however, only nine answered in full. Of these, four are device manufacturers, five are pharmaceutical companies and one markets both pharmaceuticals and vaccines. All companies reported having an internal HTA capacity, mostly based in the Asia region (60%), with only one company reporting a more global focused HTA capacity, whilst three companies reported both a global and Asia regional based capacity.

Many companies found it difficult to quantify the number of staff dedicated to HTA, mainly due to the global team structure of their company, and with staff having multiple functions within the company, supporting activities such as market access as well as HTA activities. Of the six companies that could quantify the number of staff dedicated to HTA activities, numbers ranged from 2-3 full-time equivalent in smaller companies, up to in excess of 30 employees in the larger global companies, many of whom would have a focus on particular countries in the region. Regardless of their undergraduate qualification (biosciences, medicine, pharmacy or statistics), all companies reported that all staff involved with HTA activities had an HTA-related post-graduate qualification, including public health, epidemiology, health economics and biostatistics.

HTA training opportunities of some kind were offered by all companies, especially improving their HTA capacity by delivering internal training and mentoring as a minimum. The majority of companies (70%) supported their staff financially and with time off to access online HTA courses (MOOCs), as well as formal post-graduate HTA courses and short courses such as those run by ISPOR, demonstrating a commitment to build and invest in HTA. This commitment is also reflected by the majority of companies (70%) being involved in the training and development of HTA skills in the region. How this training is delivered may offer future opportunities for collaboration, as no companies reported having direct links with HTA agencies but rather conducted training in conjunction with local universities. This training covered the wide gamut of HTA skills, including general quantitative (safety, efficacy etc.), health economics (not just cost-effectiveness but also the articulation of value), biostatistics, as well as data (especially real-world data) collection and analysis.
Interestingly, four companies were involved in providing HTA education for policy-makers, whilst others were interested in developing skills around fit-for-purpose registries (2/9) as well qualitative methodologies and patient assistance programs.

As previously discussed, networking plays an important role in developing collaborations and developing skills. Overwhelmingly, industry respondents provide their staff access to HTAi (7/9), ISPOR (8/9) and local forums (7/9) to develop links with the HTA community.

When asked to think about where the greatest gaps in HTA lie in the region, overwhelmingly respondents nominated access to data and policy-maker education (7/9, 77.8%) as the biggest issues, followed closely by basic HTA and health economic methodologies (Figure 12). Other issues nominated included having a more holistic approach to HTA such as partial multiple-criteria decision analysis and deliberative HTA. The applicability of evidence for decision-making was also raised, which ties in with the concern around understanding that there are alternatives to cost per QALY that may be more suitable to use in countries where there is limited access to data.

![Figure 12 Greatest gaps in HTA in the region as identified by industry respondents](image)

Following on from this question, respondents were asked to identify the most important elements that they perceive are currently lacking in HTA infrastructure in the Asia region (Figure 13). Interestingly, most respondents identified a lack of expertise in the
implementation of HTA over the lack of funding and technical expertise to conduct HTA. Other issues raised included the misuse of HTA for cost-cutting purposes, indicating a lack of policy-maker education. Tying in with this comment is the difficulties that decision makers have in understanding costs per QALY, especially coming up with a measure that can be inclusive of all stakeholders, especially patients. Human resource capacity was also identified as a problem, with the lack of HTA personnel resulting in a lack of capacity to produce product reviews in a timely manner.

Figure 13 The main factors that were identified as lacking
Talking Points - HTA capacity building in the Asia region

The final question in the pre-meeting surveys was to ask respondents to identify the greatest challenge and success of their agency or company in terms of HTA capacity building in the region. These answers provide another springboard for discussions during the 2022 APF, especially in relation to understanding and implementing a capacity building roadmap.

**Agency challenges**

*Getting funding and study leave approval for post graduate training.*

*Capacity building on new methodologies*

*Lack of funding, Human Resources, capacity and competencies, and power of institution*

*Staff commitment and support from policy-makers*

*Sufficient funding, staffing and organizational development*

*Lack of human resources*

**Agency successes**

*Collaboration with local universities and experts to build capacity*

*Building cooperation between different stakeholders.*

**Industry challenges**

*Lack of education around why certain HTA approaches may be more appropriate than others, how this impacts results and an unwillingness to discuss these challenges.*

*Opportunities to deliver training*

*The broad adoption of more holistic HTA processes and approaches e.g. deliberative HTA and partial MCDA, with multiple stakeholders and multi-criteria for both assessment and appraisal.*

*Variation in HTA expertise country by country.*

*To connect with HTA organizations*
How HTA systems can accurately define and fairly assess outcomes delivered by health innovations

Sound methodological approach by HTA agencies

Lack of data/access to data. Uncertainty in the evidence base. Lack of health care spending

How to lead primary HTA development in a global setting

More dialogue with payers about HTA is needed to ensure the right evidence is generated/developed

For many markets, neither the government/payer stakeholders nor the internal industry talent have exposure to more developed HTA markets to understand what 'good' looks like, nor the training to do the work to the higher standard

Industry successes

A unified company approach/position to HTA to support all countries in all regions

Agencies being more willing to discuss and engage with industry. More collaboration is needed to address uncertainties from both stakeholders.

Building internal capabilities in the region

A strong presence and engagement in key HTA organizations and platforms around the world

Increased understanding of clinical and economic evidence across the company using an internal training program
Appendix 1  Pre-meeting surveys

In the past, health technology assessment (HTA) has been one of the main priority-setting tools used by health policy-makers to inform evidence-based decision-making on the quality, safety and cost-effectiveness of new healthcare technologies. As discussed in previous Asia Policy Forums, HTA capacity building in the Asia region has continued to be an issue, especially the training, recruitment, and retention of skilled HTA practitioners as countries continue to move toward Universal Health Care.

These surveys were intended to identify some of the issues and challenges around HTA capacity in the region to inform discussions at the 2022 APF annual meeting.

Not-for-profit agencies survey questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which country does your agency represent?</td>
<td></td>
</tr>
<tr>
<td>Is your agency embedded within the Department of Health?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Is your agency embedded within or have strong links with a university?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Is your agency an independent (private sector) agency?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Who funds your HTA activities? Check all that apply</td>
<td>Department of Health, Other government departments, Regulators, Non-government organizations (e.g. WHO), Industry/private sector, International agencies (e.g. NICE International), Other (please specify)</td>
</tr>
<tr>
<td>Who does your agency conduct HTA for? Check all that apply</td>
<td>Department of Health, Other government departments, Regulators, Non-government organizations (e.g. WHO), Industry/private sector, International agencies (e.g. NICE International), Other (please specify)</td>
</tr>
<tr>
<td>What type of technologies do you assess? Check all that apply</td>
<td>Drugs</td>
</tr>
</tbody>
</table>
Medical devices
Diagnostic tests
Vaccines
Surgical procedures
Health screening programs
Public health programs
Other (please specify)

What are the limitations of the HTA infrastructure in your country? Check all that apply
Lack of technical expertise to conduct HTA
Lack of HTA training
Lack of expertise in implementation of HTA
Lack of funding for HTA development
Lack of political support for using HTA in policy
Other (please specify)

As of the beginning of 2022, how many staff did your agency employ? Can you break this down to full-time and part-time workers?

Do you think that this staffing level is
Below capacity
Just right
Above capacity

On average, how long do staff stay in your agency?
< 1 year
1-3 years
> 3 years

What are the limitations in respect to retaining HTA staff? Check all that apply
Lack of pay
Lack of opportunities for promotion
Lack of professional development
Staff head hunted by private sector/industry
Change of career
Lack of research opportunities
Lack of recognition
Stressful work environment
Other (please specify)

Of the limitations above, which factor do you think is the most important?

If below capacity, what key skills are you missing? Check all that apply
Administration staff
HTA specialist – pharmaceuticals
HTA specialist - devices
HTA specialist – diagnostics
HTA specialist - epidemiologist
HTA specialist – evidence-based medicine
HTA specialist – qualitative
Health economist
Biostatistician
Thinking only of your staff involved in conducting HTA, what qualifications do they have? Check all that apply
- Biosciences
- Medicine
- Psychology
- Statistics
- Pharmacy
- Post-graduate in HTA-related field (epidemiology, biostatistics etc)
- Other (please specify)

Of the staff who have an undergraduate qualification, how many have a HTA-related post-graduate qualification (epidemiology, biostatistics etc)?

Does your agency seek to recruit…… Check all that apply
- Qualified HTA personnel – domestically trained
- Qualified HTA personnel – Internationally trained
- University graduates and train HTA skills internally
- Entry level staff (no degree) and train HTA skills internally

What HTA training opportunities are available in your agency? Check all that apply
- Internal training and mentoring
- Formal post-graduate HTA courses run by local universities
- Online HTA courses (MOOCs) run by international universities
- Links with industry active in the region
- None
- Other (please specify)

Do these training opportunities adequately cater to the HTA demand in your country?
- Yes
- No

What networking opportunities do staff at your agency get to undertake to develop links with the HTA community? Check all that apply
- HTAsiaLink
- HTAi
- ISPOR
- INAHTA
- Local forums
- Other

Finally, what do you see as your agency’s greatest challenge and its greatest success in terms of HTA capacity building?
Industry survey questions

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which company do you represent?</td>
</tr>
<tr>
<td>What type of health technology is your company’s primary product?</td>
</tr>
<tr>
<td>- Drugs</td>
</tr>
<tr>
<td>- Medical devices</td>
</tr>
<tr>
<td>- Diagnostic tests</td>
</tr>
<tr>
<td>- Vaccines</td>
</tr>
<tr>
<td>- Other (please specify)</td>
</tr>
<tr>
<td>Does your company have an internal HTA capacity?</td>
</tr>
<tr>
<td>- Yes (go to Q5)</td>
</tr>
<tr>
<td>- No (go to Q4)</td>
</tr>
<tr>
<td>If no, does your company have active HTA engagement with....</td>
</tr>
<tr>
<td>- Department of Health-based HTA agencies</td>
</tr>
<tr>
<td>- University-based HTA agencies (Asia region)</td>
</tr>
<tr>
<td>- University-based HTA agencies (non-Asia region)</td>
</tr>
<tr>
<td>- Private provider HTA agencies (Asia region)</td>
</tr>
<tr>
<td>- Private provider HTA agencies (non-Asia region)</td>
</tr>
<tr>
<td>- Other (please specify)</td>
</tr>
<tr>
<td>- None</td>
</tr>
<tr>
<td>If yes, where is this capacity based?</td>
</tr>
<tr>
<td>- In the Asia region</td>
</tr>
<tr>
<td>- Outside of the Asia region</td>
</tr>
<tr>
<td>If yes, how many staff does your company have dedicated to HTA? Can you break this down to full-time and part-time workers?</td>
</tr>
<tr>
<td>Thinking only of your staff involved in conducting HTA, what qualifications do they have? Check all that apply</td>
</tr>
<tr>
<td>- Biosciences</td>
</tr>
<tr>
<td>- Medicine</td>
</tr>
<tr>
<td>- Psychology</td>
</tr>
<tr>
<td>- Statistics</td>
</tr>
<tr>
<td>- Pharmacy</td>
</tr>
<tr>
<td>- Post-graduate in HTA-related field (epidemiology, biostatistics etc)</td>
</tr>
<tr>
<td>- Other (please specify)</td>
</tr>
<tr>
<td>Of the staff who have an undergraduate qualification, how many have a HTA-related post-graduate qualification (epidemiology, biostatistics etc)?</td>
</tr>
<tr>
<td>What HTA training opportunities are available in your company? Check all that apply</td>
</tr>
<tr>
<td>Internal training and mentoring</td>
</tr>
<tr>
<td>- Formal post-graduate HTA courses</td>
</tr>
<tr>
<td>- Access to online HTA courses (MOOCs)</td>
</tr>
<tr>
<td>- None</td>
</tr>
<tr>
<td>- Other (please specify)</td>
</tr>
<tr>
<td>Is your company actively involved in the training and development of HTA skills in the region?</td>
</tr>
<tr>
<td>- Yes (go to Q11)</td>
</tr>
<tr>
<td>- No (go to Q13)</td>
</tr>
</tbody>
</table>
If yes, is this training conducted….
  Directly with HTA agencies
  In conjunction with local Universities
  Other (please specify)

Does this training consist of developing skills in….(Check all that apply)
  General HTA (quantitative assessment: safety, efficacy etc)
  Health economics methodologies
  Biostatistics methodologies
  Data collection
  Data analysis
  Developing fit-for-purpose registries
  Qualitative methodologies
  Patient assistance programs
  Providing ‘education’ for policy-makers
  Other (please specify)

In your experience, what are the greatest gaps in HTA in the region? Click all that apply
  Basic HTA methodology (quantitative assessment: safety, efficacy etc)
  Health economics methodologies
  Biostatistics methodologies
  Policy-maker education (policy development from evidence)
  Clinician education
  Public/patient education
  Regulator education
  Access to data
  Other (please specify)

What are the limitations of the HTA infrastructure in the Asia region? Check all that apply
Lack of technical expertise to conduct HTA
  Lack of HTA training
  Lack of expertise in implementation of HTA
  Lack of funding for HTA development
  Lack of political support for using HTA in policy
  Other (please specify)

What networking opportunities do staff in your company get to undertake to develop links with the HTA community? Check all that apply
  HTAsiaLink
  HTAi
  ISPOR
  INAHTA
  Local forums
  Other (please specify)

Finally, what do you see as your company’s greatest challenge and its greatest success in terms of HTA capacity building in the region?
Appendix 2 – Catalogue of HTA-specific capacity building initiatives

Asia-Pacific Economic Co-operation (APEC)

APEC’s wide-ranging economic work program makes it uniquely positioned to address the multi-sectoral impact of today’s health threats. In October 2003, APEC established the Health Task Force (HTF) to help address health-related threats to economies’ trade and security, focusing mainly on emerging infectious diseases, including naturally occurring and man-made diseases. In 2007, after a review of the APEC fora, the HTF was upgraded in status to become the Health Working Group (HWG). In addition to engaging with other APEC fora and international organizations like the World Health Organization, the World Bank and the Association of South-East Asian Nations, the HWG has positioned itself as a regional health forum dedicated to demonstrating the value of health to economic growth and development and to building awareness of the return on investment on health innovation.

The **mandate** of the HWG is to work with partners to improve people’s health and well-being, aiming to promote trade, security, inclusive growth and development in the APEC region. The **goal** of the HWG is to help reduce the impact of health-related threats to the economy, trade and security of member economies. The HWG aims to strengthen health systems to increase their efficiency, responsiveness and resilience to achieve and maintain universal health coverage.

Some of the HWG’s **objectives** include:

- To strengthen health systems to improve accessibility, sustainability and quality of healthcare; and
- To encourage and facilitate collaboration between health and other sectors, other APEC fora and international health bodies.

Some industry members of the APF may be involved in this initiative.

**Contacts:** Dr Pongsadhorn POKPERMDEE  
HWG Chair (2022-2023)  
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Assisted by Dr. Ratchakorn KAEPXRAMKUSOL  
Email: ratchakorn@health.moph.go.th

**Michael PEARSON (Mr)**  
HWG Vice Chair (2022)
The taskforce under the industry sponsored APEC- Health Coalition

**Task Force Updates**

- **Ex-HWG Engagement**
  - **Objective:** Engage with relevant APEC sub fora beyond the HWG to advance health coalition priorities
  - **Current Activities:**
    - Formal outreach from APEC HC to chair(s) of relevant APEC sub fora
    - Identify possible immediate JPEG opportunities re. patent linkage
    - Draft concepts related to investment, services (insurance), women in STEM, and SMEs
  - **Members:**
    - EMD Serono / Merck KGaA
    - Johnson & Johnson
    - Eli Lilly
    - Organon
    - Pfizer
    - Sanofi

- **Enablers of Investment**
  - **Objective:** Update & relaunch the EIC to assess & improve life science investment environments in APEC economies
  - **Current Activities:**
    - Identify possible updates to the EIC from the industry perspective
    - Identify appropriate APEC sub fora to relaunch and champion the new EIC
  - **Members:**
    - Johnson & Johnson
    - Merck & Co. / MSD
    - Pfizer
    - Sanofi

- **HTA**
  - **Objective:** Explore government interest in new work via HWG on HTA training & harmonization
  - **Current Activities:**
    - [Launch Task Force]
    - Prioritize issues & best practices from industry perspective in current HTA processes/bodies in APEC
    - Draft concept and socialize with U.S., Thailand, Malaysia & the Philippines
  - **Members:**
    - EMD Serono / Merck KGaA
    - Johnson & Johnson
    - Sanofi

**i-HTS learning platform by EuroScan**

New platform to support capacity building in Early Awareness and HTA. This learning platform and sources should help ease your way to run a sophisticated EAA / HTA unit:

- support staff members to run projects, use digital tools in daily affairs and in network situations;
- to understand Early Awareness, Appropriate Usage and Disinvestment methodologies related to health technologies and services including filtration and prioritization; and
- to prepare and use HTA methods and tools in decision processes.

**https://www.apec.org/groups/som-steering-committee-on-economic-and-technical-cooperation/working-groups/health**

**https://ihts.talentlms.com/ -** write to secretariat@i-hts.org to get registered.
Between 2016 and 2019 a survey was conducted to identify accessible HTA capacity building materials. Firstly, a literature review was conducted to identify published and accessible handbooks and toolkits. This was followed by a survey of universities and HTA professionals specifically aimed to:

(1) understand and list current competencies offered at universities and/or HTA institutions (i.e., HTA agencies, patient organizations, or organizations offering different HTA courses);
(2) identify existing educational and training programs for HTA around the world; and
(3) create a common understanding of the various competencies which could be embedded in (future) HTA educational and training programs.28

In addition, APF members were asked to add the details of any accessible HTA courses that they know of (i.e. courses that anyone in the world can enroll and participate in, that would result in a recognizable qualification).

Courses and resources relevant to the Asia region

- **MaHTAS (Malaysian HTA section)**
  Provides courses on HTA, EBM, epidemiology, literature searching, systematic literature reviews, health economics and statistics to newly employed staff, Expert Committee members, Technical Advisory Committee, policy-makers, clinicians and other health care professionals. Some of these courses are conducted in collaboration with universities. MaHTAS also organizes seminars and workshop on topics related to HTA.

- **University of Malaya, Kuala Lumpur offers:**
  - 1-year full time Master of Epidemiology with a minimum of 42 credits
  - Master of Public Health - [https://spm.um.edu.my/academic/mph/](https://spm.um.edu.my/academic/mph/)
    - The minimum duration of study shall be two (2) regular semesters and one (1) special semester (maximum duration of study shall be eight (8) semesters).
  - Short courses on topics related to Evidence-based Medicine.

- **CDE, Taiwan**
  HTA, EBM, Literature searching, Systematic literature reviews, Health economics, Statistics, ELSO issues, Utility and outcome measures
  Offered frequently Seminars (once a month), Workshops, Intensive courses, Online, Collaborating with Universities
  Offered to newly employed staff and current staff, patient and citizen organizations.
Current CDE staff can access a MOOC covering a range of topics, including an introduction to epidemiology and statistics. In addition, masters and doctoral students can attend a challenge camp with the Taiwan Society for Pharmacoeconomics and Outcome Research to cultivate HTA strengths and understanding.

Offered payment training courses for manufacturers

To respond to the increasing demand for HTA proficiency and with the sponsorship of the CDE, Taiwan, the Health Technology Assessment Credit-Certificate Program was established at Taipei Medical University (TMU) in 2017. The program integrated university HTA-related courses to cultivate HTA proficiency and promote HTA-related research. All registered TMU undergraduate and graduate students were eligible to apply for the HTA program, and applicants could obtain a certificate upon successful completion of 16 required credit units or about 8 courses. The required credits include 4 credits for the Basic Module, 6 credits for the Core Module, and 6 credits for the Application Module. The Basic Module consists of two mandatory courses: biostatistics and epidemiology. The Core Module has three subject areas, and students need to obtain two credits in each area: (1) health economics/pharmacoeconomics, (2) evidence-based medicine, and (3) pharmacy administration/health care policy. In the Application Module, students were able to choose from a list of more than ten courses.


- **Fudan University, Shanghai, China**

HTA courses offered under the Master of Science (MS), Master of Public Health (MPH) and PhD programs at School of Public Health. Fudan delivers HTA courses and pharmacoeconomics courses for under- and post-graduate programs. The other related courses include epidemiology (different levels), statistics (different levels), EBM, literature review, health economics (different levels), research design, health service research, program evaluation, health care management, hospital management, social medicines, etc. All graduate programs require a thesis.

Fudan produced the first Massive Open Online Course (MOOC, 12 modules) in HTA in Chinese (with English subtitle), and delivers a national continuous education program of HTA, in-person training workshop (5-day Module, 40 teaching hours), 1-2 times per year. (50-100 participants from HTA agencies, universities, hospitals, CDC, government or industrials).
HTA post-graduate courses

MSc HTA courses†† (offered in 2016/2017)²⁸

- MSc in International Health Technology Assessment, Pricing and Reimbursement: 3 modules over 2 years
  University of Sheffield, UK.
  [http://www.sheffield.ac.uk/scharr/prospective_students/masters/ihtapr](http://www.sheffield.ac.uk/scharr/prospective_students/masters/ihtapr)

- MSc in HTA: 12 months full-time; 24 months part-time
  University of Glasgow, UK
  [http://www.gla.ac.uk/postgraduate/taught/healthtechnologyassessment/](http://www.gla.ac.uk/postgraduate/taught/healthtechnologyassessment/)

- Public Health (Health Technology Assessment) MPH/PG Diploma/PG Certificate: 1 year FT, 2 years PT
  University of Birmingham, UK,

- MSc in HTA, at least 1 year after BSc, 5 modules
  University Medical Center Radboud Nijmegen, The Netherlands,

- MSc in HTA, minimum of 2-years, maximum time permitted or completion of the program is 4-years

- Master of Science Program in Health Technology Assessment, Evidence-Based Healthcare and Decision Science, modules, thesis and internship
  UMIT, Austria,

- Evaluation methods: Online module within Masters/Graduate Diploma in Public Health
  University of Sydney, Australia

- HTA: Online module within Masters/Graduate Diploma in Public Health
  University of Adelaide/ AHTA, Australia

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†† These courses were offered/surveyed in 2016/2017. Some may not be offered moving forward into 2023)

- HTA: Masters program and Short courses
  Instituto Nacional de Cardiologia, Brazil

- HTA: Graduate course within Epidemiology program/ Health Systems
  University of Ottawa, Canada
  https://catalogue.uottawa.ca/en/graduate/master-science-epidemiology-specialization-biostatistics/

- HTA
  McMaster University, Canada
  https://academiccalendars.romcmaster.ca/preview_program.php?catoid=25&poid=14636&hl=%22health+technology+assessment%22&returnto=search

- Health economics: Masters in Global Health economics
  John Hopkins University, USA
  https://publichealth.jhu.edu/academics/mhs-in-global-health-economics

- Health economics: Doctoral program in Healthcare economics
  Brown University, USA
  https://www.brown.edu/academics/public-health/h spp/doctoral-program

- HTA: blended online, module within Masters of Public Health
  University of Pretoria, South Africa
  https://www.up.ac.za/yearbooks/2021/pdf/programme/10256502

- HTA: Masters/ short course
  UiT Arctic University, Norway
  https://en.uit.no/education/courses/course?p_document_id=743840

- Introduction to Health Economic Evaluation: 1-day short course
  University of Oxford, UK
  https://www.herc.ox.ac.uk/herc-short-courses/introduction-to-health-economic-evaluation

- Applied Methods of Cost-Effectiveness Analysis: 3-day short course
  University of Oxford, UK
  https://www.herc.ox.ac.uk/herc-short-courses/applied-methods-of-cost-effectiveness-analysis
• Introduction to systematic reviews and Health Economics: 1-day short course
  University of Southampton, UK
  https://www.southampton.ac.uk/shtac/training/systematic-reviews-training.page

• Systematic assessment of medical technologies: Blended online 6-month module in Masters
  Technical University of Berlin, Germany

• HTA: Blended online module (undergraduate, post-graduate, PhD training, short courses)
  Institute of Medical Technology Assessment, (iMTA), Netherlands

• HTA: 2-day short course
  UMC Utrecht Julius Center

Possibly not running any more:

• Ulysses Program: 8 courses divided in 4 modules, over 2 years
  Four Universities (Montreal, Barcelona, Rome and Toronto),

• Health technology assessment - HTA La valutazione delle tecnologie in sanità, 60 credits: estimated 380 hrs + 500 hrs Master thesis

• HTA Module: 90hours
  Kazakh Medical University, Kazakhstan

• Refresher course in HTA: MOOC and modules within Master of Public Policies
  Fundaçao Oswaldo Cruz (FioCruz), Brazil

• HTA project: Within Masters or post graduate programs in Biostatistics, Epidemiology and Informatics
  University of Pennsylvania, USA

• Module on quantitative HTA methods: Blended online within Masters of Public Health in Health Policy and Management
  Center for the Evaluation of Value and Risk in Health, Tufts Medical Centre, USA

• Economic Evaluation module: within Masters of Public Health and Post-graduate Diploma in Health Economics
  University of Cape Town, South Africa
• Economic Evaluation module: within Masters of Public Health University of Witwatersrand School Of Public Health, South Africa

• HTA Advanced course: within Economic Evaluation of Healthcare programs - Masters in International Management Economics & Policy SDA Bocconi, Italy

Handbooks and Toolkits

• EUnetHTA, Europe  
  EUnetHTA Handbook on HTA Capacity Building (2008) 

• EUnetHTA, Europe  
  HTA core model 
  Available from: https://www.eunethta.eu/hta-core-model/

• DACEHTA, Denmark  
  Health Technology Assessment Handbook (2007) 
  Available from: https://www.sst.dk/~media/ECAAC5AA1D6943BEAC96907E03023E22.ashx

• KCE, Belgium  

• Lewin Group, USA  
  Introduction to health technology assessment (2014) 

• AGENAS, Italy  
  Manuale delle procedure HTA (2015) 

• Institute for Quality and Efficiency in Health Care (IQWiG)  
  General Methods 
  Available from: https://www.iqwig.de/methoden/general-methods_version-6-1.pdf

• The VALIDATE Handbook  
  An approach on the integration of values in doing assessments of health technologies 
  Available from: https://validatehta.eu/downloads/

• EuroScan International Network  
  Available from: http://epapers.bham.ac.uk/2120/1/EuroScan_Methods_Toolkit_October_2014_FINAL_CC_added.pdf
References


World Health Organization, Geneva, Switzerland  


