

Addressing issues in health technology assessment promotion: Motives, enablers, and barriers

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Objectives: The aim of this study was to analyze the motives, enablers, and barriers to promote or initiate health technology assessment (HTA) in different contexts.

Methods: An observational study design was used to address the above question that included a survey questionnaire and a two-phase study. The respondents for the questionnaire and first round of the study were from HTA agencies of high income countries and those low and middle income countries that have managed to establish HTA agencies ($n = 50$), that are members of International Network of Agencies for Health Technology Assessment (INAHTA), EuroScan, or European network for Health Technology Assessment (EUnetHTA). The second round of the study was exclusively with respondents from low and middle income countries that were mainly affiliated to Health Technology Assessment International (HTAi) interest subgroup for low and middle income countries and aimed to initiate HTA activities ($n = 34$).

Results: Forty-one of fifty HTA agencies answered the survey questionnaire. Thirty-three of fifty individuals belonging to HTA agencies from high income countries and sixteen of thirty-four individuals from low and middle income countries answered in the first and second phases of the study, respectively. In the promotion and/or initiation of HTA, the top

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three motives were the same for both high income and low and middle income countries. The top three enablers were also similar but the prioritization varies. The top three barriers were more context specific.

Conclusions: HTA promotion or initiation is influenced by the following: (i) key players that affect the time taken to establish HTA agencies; (ii) three models for HTA promotion and initiation: top-down (political interest), bottom-up (academic/research interest), and converging (political and academic/research interests); and (iii) motives, enablers, and barriers at the local context.

Keywords: Technology assessment, Observational study, Motives, Enablers, Barriers

At a coordination meeting of European health technology assessment (HTA) leaders, a statement was made: “We have to remember that, if HTA did not exist, it would be necessary to invent it” (2). The statement was probably made in the light of the decision-making challenges ahead of present and future health systems. Decisions are required on what interventions should be offered, the way the health system is organized, and how the interventions should be provided to achieve an optimal health gain with available resources, while, at the same time, respecting people’s expectations (17). The declared purpose of HTA is to support the process of decision making in health care at policy level by providing reliable information (5). To achieve this, HTA is committed to the work of collecting and analyzing evidence from research in a systematic and reproducible way and to make it accessible and usable for decision-making purposes, in particular by means of assessment reports (13).

OVERVIEW OF HTA IN DIFFERENT COUNTRIES

HTA exists in several high income countries of the five continents: North America, South America, Asia, Europe, and Oceania. In these countries, it seems obvious to say that HTA has developed and grown in a time of heightened concern for rising healthcare expenditures, associated in part with rapid technological change (1). The pressures in most high income countries are similar: high expenditures for health care, the visibility of new technologies, and the necessity to begin to rationalize healthcare technology (3). As the ideas of technology assessment gradually spread to other countries, formal technology assessment activities started (4).

During the 1990s, almost all Member States of the European Union (EU) developed national and/or regional public HTA agencies and programs. The groundwork has been laid in Western Europe for more widespread coordination, especially through the EU funded projects, beginning in 1994 and continuing to the present (2). HTA exists both formally and informally in some of the Asian and South American low and middle income countries, for example, Malaysia, China, Philippines, Korea, Thailand, Taiwan, Bangladesh, Bhutan, Brunei, Cambodia, India, Indonesia, Laos, Maldives, Mon-

golia, Nepal, Pakistan, Sri Lanka, Vietnam Argentina, Chile, and Brazil (15).

Medical technology and the management talent required to handle it play a particularly major role in their national health care and have significant economic, political, and ethical ramifications (14). There are some practical scenarios that justify the need and scope of HTA in low and middle income countries. A study on governmental decisions on introduction of new technologies in Asia observed the diffusion pattern of the MRI machine in the Asian regions for the year 1997–98. There are observable problems in terms of efficiency, equity, and quality of technological services.

The study recommends purchasing and regulatory bodies to be empowered with skill and knowledge of HTA (9). Another study showed diagnostics and vaccines to be more beneficial than surgical procedures and imaging technologies in the Indian context (18). The greatest problem concerning healthcare technology for low and middle income countries is that they are dependent upon the industrialized world for technology. One of the solutions to this problem is to improve the choices that are available to them (6). In recent years, interest to pursue HTA has been quite promising in low and middle income countries. However, the initiatives for HTA implementation are different in different contexts, and the motives, enablers, and barriers could be also different. It is, thus, interesting to know the differences among countries, if any, in the way they initiate or promote HTA to aid those initiatives to be successful. Overall, the following research could be of potential interest to individuals, organizations, and networks who are trying to promote HTA in any context, but especially in low and middle income countries.

RESEARCH AIM AND OBJECTIVES

The overall aim of the study was to identify, observe, and describe the existing issues relating to establishment of HTA that naturally occurs in the context of the high and low and middle income nations. There were three objectives for the research: (I) to identify key actors and how they influence HTA implementation; (II) to analyze if time influences HTA promotion; and (III) to identify what motives, enablers, and barriers in different contexts (high income versus low and middle income countries) influence HTA promotion.

Table 1. List of countries that participated in the study*

OECD countries			Upper middle income economies	Lower middle income economies
Spain	New Zealand	Sweden	Lithuania	India
Italy	Canada	Switzerland	Argentina	Bolivia
Denmark	United States of America	Austria	Malaysia	Jordan
Ireland	Republic of Korea	Italy	Venezuela	Iran
Belgium	Chile	Norway	Panama	Pakistan
Finland	Israel	United Kingdom	Peru	Ecuador
Germany	Mexico	Australia	Brazil	Thailand
The Netherlands	—	—	—	—

OECD, Organisation for Economic Co-operation and Development.

*According to OECD and World Bank (12;13)

RESEARCH METHODS

The European network for Health Technology Assessment (EUnetHTA) Work Package 8 on Capacity Building for HTA has provided a strong basis for background literature for this study (7).

Research Sample

For the Objectives I and II, a survey questionnaire was administered. The sample included HTA experts and individuals from various established HTA agencies (high income and low and middle income countries; $N = 50$). The HTA agencies were members of either one or more of these networks: International Network of Agencies for Health Technology Assessment (INAHTA), EuroScan, and EUnetHTA. For Objective III, a two-phase study was conducted. Sample I was the same as above for the first round of the two-phase study. Sample II, exclusively used for the second round, consisted of individuals from low and middle income countries with experience and/or interest in HTA in their local context ($N = 34$). These individuals were primarily identified from the Health Technology Assessment International (HTAi) interest subgroup for low and middle income countries (see Table 1 for the list of countries that participated).

Data Collection and Analysis

For both Phases I and II of the study, there were three main issues chosen, namely- motives, enablers, and barriers to HTA promotion or initiation. The questionnaire was developed in collaboration with the researcher from CAHTA who had previously collaborated in developing income EUnetHTA Work Package 8 on Capacity Building for HTA. The first phase of the study, used a five-point Likert scale for the purpose of rating the survey, whereas the second phase of the study used a ten-point Likert scale. In the questionnaire, a closed format was applied by previously completing relevant information about the agencies that was obtained from the literature review of the Journal "History of HTA. An open format was simultaneously applied by giving flexibility to the participants to change the previously completed data in case there had been an error. The questionnaire was distributed indi-

vidually and electronically to each participant, and a specific time limit was set to return the completed questionnaires. The data obtained from undertaking each research task were processed using PASW statistical software version 17. In the descriptive analysis, a central tendency for quantitative variables, including mode, mean, median, and rank, a test of normality (Kolmogorov-Smirnov test), and an analysis of dispersion through the standard deviation were calculated.

RESULTS

Survey Questionnaire

Forty-one of fifty respondents answered the survey questionnaire. The breakdown of respondents shows that: twenty-three were from EU countries; six from Asia; four from Oceania; three from the Latin American and the Caribbean countries (LAC); and five from North America. In total, individuals of thirty-six high income and five low and middle income countries from established HTA agencies responded (see Table 2). The average time taken to establish an HTA agency was around 4.8 years. Politically based HTA agencies were significantly faster to be established than research-based agencies. In this research, the key players in HTA promotion and/or initiation have been identified. The key drivers observed in establishing HTA agencies were mainly political interest (78.05 percent) that was the highest score, followed by research interest (19.5 percent) that was the second highest, and political/research interest (2.45 percent) in the third place.

Changes in Phase I and II of the Study

Motives for HTA Promotion/Initiation. The top three motives remained the same between Phases I and II (see Table 3).

Enablers for HTA Promotion/Initiation. The top three enablers remained the same between Rounds I and II except the order of prioritization varied (see Table 3).

Barriers to HTA Promotion/Initiation. The top barrier remained the same for both high income and low and

Table 2. Worldwide Distribution of the Average and Median Time for the Reasons to Initiate HTA Agencies

	Reason to initiate (no. of agencies)	Years to start (average)	Years to start (median)
Total	Total (41)	4.76	4
	Political (32)	4.36	3
	Political+research/academia (1)	3	3
	Research/academia (8)	6.25	5.5
Europe	Total (23)	4.47	4
	Political (20)	4.65	4
	Research/academia (2+1)	3.33	3
North America	Total (5)	3.33	2
	Political (4)	3	2
	Research/academia (1)	10	10
LAC	Total (3)	7.33	2
	Political (2)	10	10
	Research/academia (1)	2	2
Oceania	Total (4)	5	5
	Political (2)	3.5	3.5
	Research/academia (2)	6.5	6.5
Asia	Total (6)	4.66	2
	Political (4)	2.5	2.5
	Research/academia (2)	9	9
High income	Total (36)	4.17	3.5
	Political (29)	4.07	3.5
	Research/academia (7)	4.86	5
Low and middle income	Total (5)	9	6
	Political (3)	8.66	6
	Research/academia (2)	2.5	2.5

Note: Approaches- Political-Top down; Research/Academia- Bottom up; Political+ Research/Academia- Converging.

middle income countries. Rank 3 of high income countries moved to Rank 2 in the case of low and middle income countries. Rank 2 and Rank 3 of high income and low and middle income countries, respectively, were different (see Table 3).

DISCUSSION

Models for HTA Initiation and Promotion

The results of this research show that there are two main approaches for the institutionalization of HTA: top-down and bottom-up approaches. In addition, a third converging (top-down and bottom-up) approach has also been discussed.

The research had a major limitation, the participation of individuals from low and middle income countries in Round II was lower when compared with participation in Round I from high income countries. In any case, all those members of the Interest SubGroup (ISG) on low and middle income countries of HTAi belonging to low and middle income countries were contacted, as well as those members of Latin-American and Caribbean countries (LAC) that were promoting HTA. A high ratio of participation was obtained in both cases.

Top-Down Approach. The process of institutionalizing a national HTA program is largely a synthesis of top-down and bottom-up action and relies on strong network-

ing activities (7;10). In the *top-down approach*, interest in promoting an HTA starts at a political level (national or regional) descending to the bottom level. This approach is commonly seen in most countries that have established HTAs. It suggests the involvement of all relevant stakeholders, together with action by decision makers at the relevant government level because: (i) they can set off the regulatory framework for the institutionalization of HTA and (ii) provide the financial resources for funding the future agency (19). In the current study, in the case of North America, Asia, and Oceania, this approach (political interest) has drastically minimized the duration to establish HTA by nearly half of the time taken by research interest.

Bottom-Up Approach. The second approach in contrast is a *bottom-up approach*. Creating a positive interest among various actors and involving expertise at both the meso and micro level generally activates a bottom-up process. Those activities are based on building a network, which includes producers, health professionals, clinicians, decision makers, patients' associations, etc. (10). In this research, it has been observed that this approach, although seen in some high income countries, is more noticeable in low and middle income countries. A possible explanation is that, in the absence of political framework and support, this approach acts as a driving force to make the case for HTA in resource

Table 3. Top Ten Motives, Enablers, and Barriers for HTA Promotion for High Income Countries (Round I) and Low and Middle Income Countries (Round II)

Rank No.	High income countries (Round I) N = 34		Low and middle income countries (Round II) N = 16		High income countries (Round I) N = 34		Low and middle income countries (Round II) N = 16		High income countries (Round I) N = 34		Low and middle income countries (Round II) N = 16	
	Motives	Mean	Motives	Mean	Enablers	Mean	Enablers	Mean	Barriers	Mean	Barriers	Mean
1	To support decision making in health care and promote appropriate resource allocation	4.3	To support decision making in health care and promote appropriate resource allocation	8.3	Availability of financial resources to perform/run HTA	3.8	Availability of human resources to develop HTA	7.6	Lack of financial resources to perform/run HTA	3,6	Lack of financial resources to perform/run HTA	8.5
2	Credibility, transparency, and accountability at different decision-making levels	4.2	Credibility, transparency, and accountability at different decision-making levels	7.5	Availability of human resources to develop HTA	3.7	Availability of financial resources to perform/run HTA	7.3	Lack of human resources to perform/run HTA	3,6	Resistance to change from existing practice routines and culture	7.5
3	To achieve better quality of health services	3.9	To achieve better quality of health services	6.1	Existing good practices and examples from other countries	3.7	Existing good practices and examples from other countries	7.3	Resistance to change from existing practice routines and culture	3,5	Lack of knowledge about EBM and/or HTA	6.0
4	Sustainability of the health system	3.4	To reduce and /or control healthcare costs	5.8	Existing international networking, support and collaboration	3.7	Understanding the local needs and setting priorities	5.8	Lack of interest for EBM and/or HTA	3,4	Lack of human resources to perform/run HTA	6.0
5	Interest of the managers to produce a credible process	3.3	Sustainability of the health system	5.5	Understanding the local needs and setting priorities	3.7	Existing international networking, support and collaboration	5.4	Lack of knowledge about EBM and/or HTA	3,3	Lack of interest for EBM and/or HTA	5.8
6	To reduce and /or control healthcare costs	3.3	Interest of the managers to produce a credible process	4.8	Interest and demand for EBM and/or HTA	3.6	Availability of capacity building and training programs for HTA and EBM	4.3	Conflict of interest	3,3	Conflict of interest	3.8

Table 3. Continued.

Rank No.	High income countries (Round I) <i>N</i> = 34		Low and middle income countries (Round II) <i>N</i> = 16		High income countries (Round I) <i>N</i> = 34		Low and middle income countries (Round II) <i>N</i> = 16		High income countries (Round I) <i>N</i> = 34		Low and middle income countries (Round II) <i>N</i> = 16	
	Motives	Mean	Motives	Mean	Enablers	Mean	Enablers	Mean	Barriers	Mean	Barriers	Mean
7	Introduction of a legal framework that makes HTA in need	3.2	To satisfy the demands and needs of the end users professionals and/or patients	3.5	HTA is expected to produce a positive health impact	3.6	Interest and demand for EBM and/or HTA	3.8	Absence of real world application	3,3	Questionable data quality	3.4
8	To satisfy the demands and needs of the end users professionals and / or patients	3.2	Introduction of a legal framework that makes HTA in need	3.4	Existing knowledge and skills or groups that work EBM and/or HTA	3.6	HTA is expected to produce a positive health impact	3.1	HTA viewed as an obstacle to acquisition of new technologies	3,3	Rigidity of the health system to change	3.3
9	Guaranteed introduction of innovation and new technologies to the health system	3.1	Guaranteed introduction of innovation and new technologies to the health system	2.9	Compatibility to adopt and/or adapt foreign evidence in the local context	3.6	Compatibility to adopt and/or adapt foreign evidence in the local context	2.8	Questionable data quality	3,2	Absence of real world application	3.1
10	Academic/Scientific pressure and/or motivation for more transparent process	3.1	Academic/Scientific pressure and/or motivation for more transparent process	2.5	Availability of capacity building and training programs for HTA and EBM	3.5	Existing knowledge and skills or groups that work EBM and/or HTA	2.4	Rigidity of the health system to change	3,2	HTA viewed as an obstacle to acquisition of new technologies	2.9

limited settings. The individuals with research interest are usually affiliated to academic institution(s) with potential networks/contacts at the national and international level. These dynamic individuals are seen to promote HTA with their own efforts and with support from overseas organizations. However, this approach has been observed to consume more time and effort in the institutionalization of HTA. The longer time involved with this approach is usually due to resource limitations available at the individual level. There are also related challenges to convince stakeholders at the policy and political level of the need for HTA. This approach has been especially observed in the case of South America and the EU, where the academic/research interest has minimized the duration to establish HTA by a time gap of a few years when compared with the time taken by political interest.

Converging Approach. A third *converging approach* has also been suggested by the authors identified through our study. It is simply a combination of the first two approaches, that is, the top and bottom level players. It suggests that the effort is mutual between political players and researchers. Although this approach has not been widely prevalent in established HTA agencies reviewed in this research, it can be that this approach is an essential key to sustainability of future HTA institutionalization. It could possibly reduce the conflicts of interest emerging from different top and bottom level players as the goals and motives in this case are generally allied and the resources (mainly capacity building) and efforts merged. Evidence suggests that this approach has minimized time taken to establish HTA when compared with plain academic/research approach in four of the five continents observed: Asia, Europe, Oceania, and North America.

Motives

One of the main findings of this research has been that the top three motives to establish HTA are the same for high income and low and middle income countries irrespective of the differing local contexts. Whether HTA is being promoted from the top-down, bottom-up, or with a converging approach, most stakeholders may use a similar selling point for HTA: its value as a health policy tool that gives health care needed transparency (19). In this sense, the quality of the tool is possibly as important as the legitimacy given to its outputs and products. That legitimacy can come from different sources (political support, regulatory bodies and users, academic and health professionals, etc.). However, an HTA report has to survive at that point in the relationship between HTA and the policy process where there is an ongoing interplay of belief systems in which decision making can be value driven as much as evidence based. This is likely to be a common feature for decision making between high income and low and middle income countries and so perhaps needs to be considered as a practical issue when looking to promote and/or initiate HTA.

Enablers

Enablers are perceived or prioritized differently in high income and low and middle income countries. In high income countries, the concept of HTA has been implemented more fully and trained HTA personnel are more abundant than in low and middle income countries. This is probably why the financial resources are primary enablers to carry out HTA in established institutions in high income countries. Ensuring that sufficient funds are available to train HTA professionals is simply part of an overall budget secured to finance an HTA agency. Essentially, funding for the recurrent operational costs of an established HTA structure needs to be identified and secured on a long-term basis. In low and middle income countries, the availability of human resources is the *number one enabler*. It appears that financial and infrastructural resources are secondary to the availability of motivated and trained human resources for HTA in low and middle income countries. The third enabler was the same for both high income and low and middle income nations, that is, existence of good practices and examples from other countries. HTA work is no longer done in national isolation. The national HTA concept needs to include an international network strategy right from the beginning (10). This explains another common enabler of international networking and collaboration to share and transfer good practices to different local contexts. Networking, at regional, national, and international levels, can be very helpful for newly established HTA organizations with limited resources by avoiding repetition of HTA assessments made previously by other HTA organizations. The form or type of the final products of newly established HTA organizations will be influenced by the local culture, as well as by factors that determine the type of HTA questions (e.g., existence or otherwise of academic activity, existence or otherwise of research or not, level of health care, etc.) (10;19).

Barriers

The first and foremost barrier for promotion and/or initiation of HTA in both high income and low and middle income countries has been the lack of financial resources to perform/run HTA. Newly established HTA organizations in countries without any institutionalized HTA will have to develop gradually, starting with activities that do not require a large amount of resources. Development must run alongside health policies and those, in most countries, emphasize measurement, accountability, value for money, and evidence-based policies and practices (10).

The second barrier for high income countries is the lack of human resources for performing or running HTA. It is important to consider that a relatively small number of experts are currently active in the field, in contrast with the large number of new and existing technologies to be evaluated. Successful HTA programs require an appropriate education and training strategy targeted at expertise, organization, and

staff qualification (11). There is a common challenge to both high income and low and middle income countries in the form of resistance to change from existing practice routines and culture. This has been prioritized as third by high income countries and second by low and middle income countries. This challenge seems to be related with the barrier of not having sufficient human resources for HTA. Finally, the findings on barriers reflect that, in the establishment of a new HTA organization and during daily work, “Facilities” appeared to be a less important barrier for organizations compared with others such as “Staff,” “Funding,” or “Impact on target groups.” The only solution mentioned by the participants in the international survey on HTA organizations was related to a problem with the building and involved approaching potential stakeholders (8).

CONCLUSIONS

The observational and descriptive nature of the research has helped identify some practical recommendations that can by and large benefit the HTA community, especially those in low and middle income countries. A starting point is that promotion and initiation should be given a greater emphasis if we are to ensure the sustainability of HTA in low and middle income countries. Several key messages are drawn from the study. First, the key actors and time taken to establish HTA seem to be related. If political interest is the main driver for promoting and/or initiating HTA, the time taken is, with a few exceptions, almost half as quick as time taken by academic research and/or political + academic research interests. Second, the future implications of the different models for sustainable HTA promotion and initiation are crucial. Having said that, the phrase “No one size fits all” should be understood. Third, in the evolution of HTA as a ubiquitous concept, “Motives” for its creation seem to be the same in any context. Fourth, the “Enablers” for HTA promotion are similarly perceived across different contexts and cultures. However, the prioritization of enablers could vary. Fifth, the “Barriers,” although not entirely different, are context-specific and unique in every health system. This suggests that there could be “unique opportunities” that can be used to deal with them. That said, financial constraints remain the number one barrier in any context and undoubtedly will remain so in the post 2008/09 economic climate. Going back to the start of this study there was a basic question: “Is HTA promotion and/or initiation influenced by- key players, time, motives, enablers, barriers?” The analysis of results suggests that these are all issues that influence HTA promotion and/or initiation. However, their impact varies according to the particular contexts in which HTA promotion and/or initiation is happening. Finally, it is important to consider that, although a formal HTA program might not be in place in a given country, decisions are frequently based on unilateral industry information, particular interests of individuals or “gut feelings” (8;17). A possible

way ahead, is to identify those existing systems and to work around them so that they support HTA promotion.

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CONFLICT OF INTEREST

All authors report having no potential conflicts of interest.

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