



Perspective

Health technology assessment in India: Reflection & future roadmap

One of the aspirational goals of the Government of India is to achieve Universal Health Coverage¹. Considering the increasing disease burden and underfunded health system, it appears challenging for the government to meet all the health needs of the population². Therefore, optimum allocation and utilization of the available resources is quintessential. Health technology assessment (HTA) is a promising and a globally accepted tool to facilitate evidence-based priority setting for efficient and equitable resource allocation^{3,4}. HTA is a multidisciplinary process to systematically evaluate the clinical, social, economic, organizational, and ethical issues of a health intervention or technology, so that the intervention offering maximum health gains from limited or scarce resources can be selected³.

Marking an important development in the government's commitment towards a transparent, evidence-informed practice (EIP) for resource allocation, HTA was recommended under several government policies, such as the Twelfth Five Year Plan⁵ (2012-2017) and National Health Policy⁶ (2017). This was followed by creation of Health Technology Assessment in India (HTAIn) – an institutional structure created in the Department of Health Research (DHR), Ministry of Health and Family Welfare (MoHFW), New Delhi, India⁷⁻⁹. The strategic position of DHR in terms of functional linkage to MoHFW as well as National Institute for Transforming India (NITI) *Aayog* – the strategic policymaking arm of Central Government, and several other regulatory bodies implies that all factors leading research towards policymaking are favourably aligned. This paper attempts to outline the major HTA based initiatives undertaken so far, and the steps for the future. These are discussed in the following three domains – capacity building, supporting HTA research, ensuring the transfer of bench-level research to policy.

The first challenge was to identify and build a community of credible HTA researchers. The HTAIn Secretariat at the DHR undertook several steps in this direction, in partnership with the International Decision Support Initiative (iDSI) and Regional Resource Hub at Postgraduate Institute of Medical Education and Research, Chandigarh, India. A series of capacity-building workshops were initiated to train the participants from technical partners (government, semi-government and private) in various aspects of undertaking an HTA⁸.

For the identification of technical partners and availability of expertise therein, an HTA capacity assessment questionnaire was circulated by HTAIn among several Indian academic and research institutes in 2015⁹. This led to selection of technical partners and identification of areas requiring further capacity building. The gap-analysis revealed deficiency in two key areas – economic evaluation and decision modelling. Another domain included in the questionnaire was systematic reviews and meta-analysis, which is also a recommended strategy for effectiveness assessment. Therefore, the focus areas for capacity building were centred primarily on these aspects. The Secretariat also created regional resource hubs to develop local capacity and expertise to support State-specific needs in these regions¹⁰. Alongside, the DHR created a fellowship programme to train its scientists in the field of HTA in eminent universities.

The second step was to develop the data and systems to facilitate effective conducting of economic evaluation, which is an important tool of HTA¹¹⁻¹³. Two data gaps for conducting of economic evaluations included – data on cost of health-care services and determining Indian quality of life (QOL) tariff values for health states. Being an essential requirement for HTA studies, most countries with an established

HTA system have created database to record such information. In line with the National Institute for Health and Care Excellence (NICE), United Kingdom, and Health Intervention and Technology Assessment Program (HITAP), Thailand, HTAIn has made efforts in creating such databases. A nationally representative study to estimate the cost of various services and procedures, in both public and private sector, is presently underway in 13 Indian States¹⁴. This study will help generate unit cost of healthcare services and procedures at both secondary and tertiary care hospitals which will further build on the evidence from previous studies¹⁵⁻¹⁷. A cost database has been created, which can be used for planning healthcare services, determining provider payment rates, and conducting HTA¹⁸.

Measuring quality of life (QOL) to incorporate utility values is an integral part of an economic evaluation¹⁹. As QOL is a context-specific concept, it is imperative for a country to have its indigenous QOL value set²⁰. Therefore, another large nationally representative study to determine the Indian value set using EQ-5D-5L health states was commissioned²¹. This study will not only generate an Indian value-set, but also answer several methodological questions around the valuation of health consequences in HTA studies²¹.

Increasing number of HTA studies in the country necessitates a systematic management and provision of HTA-related information. Therefore, in line with the National Institute for Health Research (NIHR) HTA database²², HTAIn is in the process of establishing a database of studies which it has itself commissioned⁷. Other innovations for knowledge synthesis include suggestions for the introduction of a national HTA journal, establishment of primary HTA data repositories and creation of a national repository of decision models, which will not only serve as valuable resources for locating literature and information but also reduce unintended duplication of effort by researchers.

Besides developing robust data systems for HTA studies, conducting of the analysis also needs to be standardized. Heterogeneity in methods for economic evaluations undertaken in India has been previously reported in a systematic review¹³. Therefore, standardization of the HTA methods is needed, so that evidence across studies can be compared at face value. A reference case for undertaking HTA in India has been developed along with an HTA manual which details all the steps and processes to be followed for an HTA study¹⁰.

To make an HTA study comprehensive, it will be useful to incorporate aspects of evaluation, beyond efficiency, *viz* effects on equity, out-of-pocket expenditure and financial risk protection. These aspects would be relevant to align the HTA based decisions with the broad objectives of the universal health coverage policies.

The third aspect for the future of HTA research involves enhancing its uptake for policy making. The HTAIn Secretariat has established liaison with the MoHFW, NITI *Aayog*, National Health Systems Resource Centre, National Health Authority, National Pharmaceutical Pricing Authority, Central Drug Standards Control Organization, and various other State level departments of health. This will promote the uptake of HTA research for the policy making, as these organizations play a key role in health policy decisions. For example, a recent DHR study informed consultations which led to pricing of health benefit packages under *Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana* (AB PM-JAY)²³.

Second, while several current evaluations by the HTAIn relate to medical devices, public health programmes as well as platforms of care¹⁰, it will be important to expand the frontiers in value-based pricing and pharmacoeconomics²⁴. Since a lot of the drug procurement in India happens at the State level through drug procurement corporations²⁵, it is important for Regional Resource Hubs and HTAIn Secretariat to foster a partnership with these agencies.

Another critical area being spearheaded by the Secretariat includes the development of standard treatment guidelines (STGs). While previous attempts at developing STGs have limited themselves to evidence around clinical effectiveness²⁶, it will be pertinent to include evidence on cost-effectiveness as well.

Finally, apart from evaluating newer interventions for introduction in the health system, HTA can also be used to assess the cost-effectiveness of technologies which are already operational. For instance, for population-based cervical cancer screening of women, National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) recommends the screening strategy of visual inspection with acetic acid (VIA) at a frequency of five years²⁷. This intervention has now been evaluated in a study commissioned by HTAIn, which considered all the available screening alternatives, and

concludes that VIA every five years is the most cost-effective option in India²⁸. Hence, HTA can be used as a potential tool to gauge the impact of such policy decisions.

The final aspect to address for the future will be how decisions on priority setting are taken^{29,30}. To facilitate this process, it is crucial to ensure greater stakeholder participation, better dissemination of evidence, and transparent management of conflicts of interest. The decision regarding cost-effectiveness of an intervention is made by comparing its health benefits against a threshold. The future of HTAIn calls for developing objective methods and explicit value systems to enable the policymakers in defining a threshold for making decisions.

The HTAIn has also designed a 'Process Manual for HTA', which contains methodological guidelines for conducting of HTA studies in India. The Secretariat should also ensure that there is the institutionalization of the processes, adherence to quality standards and retention of a skilled workforce. Appropriate incentives for capacity building as well as retention of the skilled workforce will be crucial to create a critical mass of HTA researchers, so that the pace of this important journey is not slowed down.

Lessons from countries where HTA has been a success, suggest that factors such as the high proportion of public investment and strategic purchasing, political will and legislation, good health information infrastructure, local training on HTA related disciplines, effective collaboration among stakeholders and a country's independence from external aid have proven to be conducive for the institutionalization of HTA^{31,32}. India should take due care to address pertinent challenges in the way of institutionalizing HTA.

Besides these, several challenges of political economy like perception of HTA being a barrier to innovations and a tool to ration healthcare to contain costs also needs to be addressed³³. Thus, HTAIn would need to engage with all stakeholders which also ensures that innovations and development and making evidence-informed choices do not become adversaries.

The journey of HTAIn has so far enjoyed the support of the political leadership, policymakers as well as the researcher community. However, impact assessment in terms of cost savings for the health system, gain in health outcomes, improvement in distributional effects

across population sub-groups and higher financial risk protection will be paramount for the future advocacy for HTAIn.

Conflicts of Interest: None.

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