*Original Article*
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**Medical Journal of the Islamic Republic of Iran (MJIRI)**
Iran University of Medical Sciences

# Health technology assessment in Iran: Barriers and solutions

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Received: 7 September 2015 Accepted: 8 November 2015 Published: 26 January 2016

## Abstract

**Background:** Health technology assessment (HTA) is a tool utilized for efficient dissemination of technology. For the purpose of encouraging decision-makers to utilize this tool, at first, we need to identify the obstacles in the processes of preparation, utilization, and implementation of HTAs. This study aims to define these barriers and offer solutions for effective utilization of HTA reports produced in Iran.

**Methods**: This qualitative content analysis determines the various beneficiaries of HTA, and utilizes a semi-structured interview with the participants who are all involved in the HTA.

**Results**: Nine out of ten people invited for the interviews accepted the researchers' invitation. An analysis of barriers and solutions for improving the utilization of HTA reports was conducted in three levels of policy makers (policy level), specialists in healthcare (professional level), and ordinary people (public level). The barriers in the policy level include unsuitability of reports for their audience, incompatible views toward the definition and necessity of health technology assessment, lack of financial resources for report preparation, and limitations in large-scale policymaking in Ministry of Health. Barriers in the professional level include lack of knowledge on HTA among service-providers. Barriers in the public level consist of information asymmetry.

**Conclusion**: There are various barriers toward accurate utilization of HTAs in Iran. Thus, a systematic approach which involves people, brings about culture, improves infrastructures, and boosts supervision on the performance is recommended.

**Keywords**: Health Technology Assessment, Developing country, Qualitative Study.

***Cite this article as***: Mohtasham F, Yazdizadeh B, Zali Z, Majdzadeh R, Nedjat S. Health technology assessment in Iran: Barriers and solutions. *Med J Islam Repub Iran* 2016 (26 January). Vol. 30:321.

## Introduction

Advances in science and technology, public aging, advent of new pathogens and illnesses, unexpected results of medical interventions and the anxiety experienced by doctors and patients, insurances, financial expectations of technology-developing companies, prevention of medical errors, competition of service-providers to utilize new technologies, public demand created by the increased knowledge, and mass media reports and advertisements are all factors that lead to an increase in demand for new health technologies (1).

On the other hand, rapid distribution of new health technologies before assessment and a full understanding of their side-effects, decreases public trust toward the health system. Thus, before implementation, it is essential to inform the decision-makers about new technologies, their necessity, cost-effectiveness, and the right

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way to utilize them (2,3).

Health technology assessment is a multi-stage process that studies medical, social, economic, developmental, and distributional aspects of technology. The goal of technology assessment is to provide accurate data to support decision-making in healthcare and policymaking (1).

Health technology assessment (HTA) has been well established in developed countries, but it has not found a firm footing in many developing countries. This is especially true of the Eastern Mediterranean Region (EMR). Some countries in the region have HTA programs, whereas in some, efforts are being made to establish HTA, or HTA-related activities are being carried out in the absence of a formal HTA program. Iran has one of the first national HTA programs in the Eastern Mediterranean Region (EMR) (4). So, the Iranian HTA experiences will highlight the challenges encountered, progress made and lessons learnt in implementing national HTA programs.

Iran as a developing country is an upper-middle-income country located in the southwest of Asia – the Middle East. Based on the latest reports of the World Bank, its population is 76.42 million people (2012), its GDP (current US$) is 514.1 billion (2011), its Health expenditure, public (% of total health expenditure) is 39.7 (2011) and its total expenditure on health is 6.0 percent of GDP (2011).

Because of the increasing demand for technology assessment in Iran, following the decisions made by officials of the time, in 2007 HTA activities started in Iran in the form of secretariats in Ministry of Health. This bureau's goal was to spread health technology assessment based on scientific evidences all over the country with the purpose of supporting effective utilization of limited resources of the health system (5).

In order to increase the production of HTAs and make their utilization possible in decision-making, first, we need to determine the barriers on the way of their preparation and utilization. Therefore, this study aims to analyze the ideas and views of the stakeholders and decision-makers on barriers and solution of HTA in order to identify the difficulties and offer solutions for effective utilization of the HTA reports produced in Iran.

## Methods

This study aims to identify the obstacles on the way of HTA and to offer solutions for increasing the usability of the reports produced in Iran by qualitative content analyzing stakeholders' and decision-makers' points of view.

### *Sampling*

Maximum variation sampling has been utilized to include producers and consumers of HTA with utmost variety. Variety has been a criterion in choosing the participants among different positions such as policymakers, administrators, and employees - either in governmental or non-governmental jobs. In order to facilitate the initial sampling, snowball sampling has been used, meaning that the researcher would start the interview with a particular participant and after recording their views on the topic, he/she would ask the participant "who should be interviewed next in order to get some more information on the topic?"

About the sample size of interviewees, it should be mentioned that sample size was based on the limited resources and not data saturation.

### *Data Collection*

The main data collection tool in this study is semi-structured interviews; the researchers interviewed the participant in their workplaces separately from June to September 2012. A note taker accompanied the interviewer in the interviews. The approximate length of the interviews was 45 minutes to one hour. In order to follow the scientific principles in the interviews, an interview guide was prepared to facilitate the process. The researcher started the interview with general question such as

"What do you think about the conducted HTAs in Iran?" Then he would proceed to questions such as, "Why some decision-makers do not credit HTA reports, even those prepared in Iran?", "What barriers affect the utilization of HTA reports in Iran?", "Which solution will improve the current state of utilization of HTA results in the country?", all the interviews were recorded after obtaining oral permissions from the interviewees. The audio-file for each interview was numbered by a special code, archived, and later transcribed.

### *Data analysis*

Data analysis was performed using Thematic Analysis Method (6). The stages of data analysis were transcription of the interviews, careful and iterative study of the transcribed texts, code opening and creating the open codes, classification of open codes and finding the axial codes, the identification of relationships among different axes and identification and definition of the main selective codes. The extraction of initial and axial codes was done inductively from the data and the extraction of main codes was done deductively. In order to identify the selective codes, Drummond et al.'s study was utilized (7). This study takes it for granted that all the key decision-makers in the health system, that is, all the policymakers (policy level), healthcare specialist (professional level), and people (public level) can create barriers for implementation and exploitation of the HTA findings. For this reason, analysis of the barriers and solutions were done for all the three actors of the health system. In order to extract the intended codes MAXQDA11 software was utilized.

### *Trustworthiness*

In order to guarantee trustworthiness, questions were repeated in the interviews. Also, the coding was done by an independent researcher besides the main researcher and the results were compared. In order to reach a conclusion in conflicting coded topics, researchers held a meeting and finished the coding process.

In order to classify the findings appropriately, similar studies were reviewed; and to identify the selective codes Drummond et al.'s (7) study was utilized.

## Results

Nine out of ten people invited for the interview accepted the invitation. The name of organizations and their interviewed representatives are brought in Table 1.

### *Barriers of HTA in Iran*

After the classification of open codes and finding the axial codes, the main categories of barriers of HTA in Iran were classified in three areas, namely policy, professional, and public levels.

### *Policy level*

In this level, barriers that affect the production and utilization of HTAs in policy-making and management are analyzed. In this category, four main codes were identified.

Lack of financial resources: As mentioned by one interviewer "There is no official financial resource for HTA."

Unsuitability of HTA reports: The low quality and the delay in the preparation of reports are due to the following factors:

- Unprofessionalism of HTA researchers due to lack of HTA specialists.

Table 1. Distribution of the Participants of the Semi-Structured Interview

| Organization | Distribution (people) |
|---|---|
| Bureau of Health Technology Assessment of Ministry of Health | 3 |
| Bureau of Medical Equipment of Ministry of Health | 1 |
| Private Sector | 1 |
| University of Medical Sciences | 2 |
| Bureau of Management of Hospitals and Eminence of Clinical Governance of Ministry of Health | 1 |
| Ministry of Welfare | 1 |
| Total | 9 |

- Tentativeness of the instructions and unsuitably of student admission.
- Lack of standardized procedures for determining topics and working methods.

According to one of the interviewees the HTA team must be "multidisciplinary" but such groups have not been formed in our universities and research centers; even if we had such teams they would have been in a great danger:

"One of the most serious obstacles on the way of HTA in Iran is that there is no course on team work. It means that a researcher doesn't want his or her group to be the best. It means that a researcher doesn't accept his own share of the research project and he is seeking to impose his ideas and is trying to lead the group; this will stop the progress."

Conflicting views on the definition and necessity of HTA: Also, there are conflicting views on what HTA is, which questions and problems it can address, and what is its role in the health system and among the stakeholders. Some of the participants consider HTA to be necessary only for cutting-edge technologies:

"I don't think it is right to say that there must be an HTA report attached to every new technology that enters the country. The HTA philosophy itself says that HTA exists to make new technologies emerge. It means that in cases where a policymaker can't decide whether to utilize a technology or not, HTA must analyze it and help the policymaker to decide."

In contrast, some stakeholder generalizes the utilization of HTA to broader areas:

"Today, it has become common in our country. By saying HTA, we mean misutilization and over-utilization of technologies. But I say, even under-utilization of technology needs HTA. Technologies that are not utilized must also be addressed. HTAs always concern public level; they are never in the clinical level."

Limitations in large-scale policymaking: Limitations in policy making severely affect the utilization of HTA reports. One such limitation is absence of legal obligations to follow HTA findings. On the other hand, there is pressure from different sides to buy new products for which there are no reports available or the reports recommend not buying them.

Lack of administrative stabilization makes the condition even more complex. As one of the interviewees points out "Managers are constantly changing; as soon as you persuade one manager to utilization of HTA reports, the managers changed."

Lack of appropriate large-scale policies and frameworks for technology management, also affects the utilization of HTA reports:

"There is no roadmap or plan to advance health in this country. And since we don't have a plan, the market is the determining factor. Technologies are not brought into the country through policies, they are imposed on us."

"We do not have the burden-patterns for different diseases in the country to know what to import in order to affect the patterns"

Also, as mentioned by one of the interviewees, Ministry of Health does not have a proper supervision and is not able evaluate the HTAs in terms of quality and usability.

### *Professional Level*

A central code concerning the unawareness of the service providers about the goals of the HTA was identified for this level. The service providers are the main determiners of methods of diseases recognition and curing and play an important role in creating induced demand in health market. According to one of the participants "We have had doctors that wouldn't accept what we said, at all. They said you are limiting people and you don't let them to benefit from the best medical services and you are also limiting the equipments." They said important changes will take place in the future and people will all go abroad to fulfill their medical needs and to benefit from new services."

According to the same person "The pro-

cedure goes like this; first doctors start to prescribe a new medicine for people, then, since that new medicine does not exist in the market, demand for that particular medicine increases. This aggregated demand, sometimes, turns into demonstrations and protests in front of large pharmacies. As slogans are uttered, the pressure increases, and only at this stage we decide to analyze the new remedy. It means that the procedure is in no ways right."

### *Public Level*

At this level, the information asymmetry between the public and other parts of the health system is identified as central.

"A private company can be the producer or the importer of an expensive medicine in the country. They usually contact well-known doctors or specialists to persuade others to use that particular medicine. After a while, the medicine starts to spread in the society and is introduced to the patients; a new demand is thus created. If you allow this, after two years, depending on the burden of the particular disease, there will be no need for the companies to refer to doctors to sell their medicine and the demand has increased so much that there is even no need for advertising. A person who is referred to a specialist is a common person and cannot judge on his/her doctor's decision."

### *Solutions to Increase HTA Report Utilization*

After the classification of the open codes and identification of the main axial codes, the main categories of solutions HTA in Iran were classified in the three categories of policy level, professional level, and public level.

### *Policy level*

According to one of the participants, the role of Ministry of Health in large-scale HTA policymaking must change:

"The Ministry, as a national policymaker, has to step aside from the implementation process and must focus on the following two duties: 'policymaking and tactical planning and guidance of the systems according to a strategic plan.' Ministry of Health must improve its accreditation centers either in the healthcare, laboratory systems, or care-provision. This can only be achieved if this process does not change into a business."

The main issue in utilizing the results of technology assessment is whether the utilization of the reports is optional or obligatory. Some of the participants believed that the utilization of HTA recommendations must be obligatory while others deemed them to be optional.

The participation of all stakeholders is essential for program's success. Some of these stakeholders are policymakers and administrators, medical equipment companies and importers of technology, insurance companies, service-providers, universities, and HTA researchers. According to the participants, interaction among these stakeholders in the production phase of HTAs will increase the possibility of reports to be utilized.

One of the interviewees believed that hospitals and private companies must have their own HTA units and the Ministry of Health must only act as a supervisor.

In order to befit the reports and decrease the time to produce them, various solutions were proposed by the interviewees. These solutions include providing specialized and sufficient work-force, encouraging group work, making the reports appropriate for policymakers by prioritization and localizing, providing education in HTA for those who are currently involved

One of the interviewees believed that preparing procedures and criteria for prioritization of technologies and topics will make the choices more relevant and will increase the possibility of HTA findings to be utilized.

It has also been proposed that 'horizon scanning' to be utilized in order to identify technologies; this will bring about appropriate reaction time and will causes the topic choices to be made based on needs.

*Professional level*

There are significant proposals in this category such as making the language of HTAs appropriate for service providers and providing clear information on HTA reports by creating open websites all stockholders.

*Public Level*

One of the participants pointed out that, after all, the main benefit of HTA is for people. Thus, specialized associations acting on behalf of people can bring public opinion into the prioritization, conduction, and decision-making processes.

"We should establish an open website for people to present their ideas and views."

"Reports must be written appropriately for different groups. For example, they can be turned into 2- or 3- page brief brochures to be put in pharmacies for people."

## Discussion

Health technology assessment, like any other kind of scientific enquiry, is useful only if it is of high-quality and is prepared in the right time and with an appropriate language for its audience. Since the audience of the HTA reports is a wide spectrum of stakeholders, each acting in a different context, culture, with different purposes and languages. It is not surprising that the decision made by any of them about utilizing a HTA recommendation can have a major impact on the amount and type of utilization of the reports. Thus, in this study the barriers and the solutions are divided into three levels of policymakers, specialists, and common people. The barriers specified in this study are very similar to other studies, especially on the professional and public level. So, the Iranian HTA experiences could help implementing national HTA programs in other countries located in Eastern Mediterranean Region (EMR).

In 2000, Drummond et al.(7), in a literature review, identified factors such as the existence of different views toward the definition and importance of HTA, inappropriateness of language, and unseemliness of the reports as the main barriers in the policy level. In 2000, Milbank Memorial Fund(8) reported that low quality of the reports and their inability to be used in real-life problems are the main reasons of HTA reports' disuse or limited use by health investors in England and America. Similarly, in 2008, Kahveci et al.(9), after interviewing the key actors in Ministry of Health of Turkey, found policy instability as the main thread facing HTA programs. In 2011, Rajan et al. (10) identified lack of financial resources for conducting HTAs as the central barrier against HTA in countries with middle and low income. The current study adds factors such as absence of legal obligations for the implementation of HTA reports, lack of frameworks and plans for health technology management, and lack of administrative and/or supervisory systems, to the list of the identified barriers.

The policy level barriers identified in this study are similar to those of 'evidence-informed policy making' - also mentioned in other studies -such as having insufficient knowledge of using scientific evidences in the process of policymaking, financial deficiencies, lack of legal obligations for using evidence in policy making, policy instability, effects of political factors and pressures (11,12). Thus, it seems quite obvious that as soon as the obstacles on the way of evidence-informed policymaking are removed, the problems facing HTA programs will be solved.

For this reason, this study recommends planning implementation policies, making rules and regulations for the implementation of the reports, and preparing the reports while considering different perspectives as the most important solutions to the barriers in the political level for promoting HTA. Note that in 2008WHO Regional Office Europe (13) also stated a solution for increasing the effect of HTA as clarification of the process of assessment and decision making, obliging the decision makers to use HTA reports, and providing necessary resources for the implementation of the reports. It must be mentioned that the

nature of utilization of HTA is different in each and every country; in some countries such as United Kingdom acting in accordance with HTAs is obligatory while in many others it is only recommended (14). Although, in Iran, HTA program is still in its infancy, the decisions on whether the implementation of HTA reports is mandatory or not has to be made soon; because this decision will help the stockholders to adapt their organization to consider the HTA recommendations.

Among other solutions to increase the utilization of the HTA reports, Fattal et al. (15) emphasizes taking strategies to invite and encourage stakeholders to get involved in the process. These recommendations are similar to the solution proposed in the professional and public levels of the current study – providing clear information on HTA reports and making the language of the reports appropriate for stakeholder.

Finally, this study aimed to identify the obstacles on the way of HTA and offer solutions for increasing the usability of the reports produced in Iran by qualitatively analyzing stakeholders' and decision-makers' points of view. Although, the barriers and solutions specified in this study are similar to other studies, but this study is the first study that is divided the barriers and the solutions into three levels of policymakers, specialists, and common people. Furthermore, in this study explicit definitions, examples and coding rules for each deductive category, were based on Iranian stakeholders' and decision-makers' points of view. Then it would be helpful to empower Iran's Health Technology Assessment program.

## Conclusion

In order to eliminate the barriers on the way of production and utilization of HTAs, a systematic and all-covering approach which at the same time involves people, brings about culture, improves infrastructures, and boosts supervision on the performance is needed.

### *Implications for policy makers*

In this study, in order to explore whether more could be done to increase the implementation of health technology assessment (HTA), the main elements of a successful implementation strategy are defined based on numerous barriers to the implementation of HTA findings at the public policy, healthcare professional, and general public levels. These include changing the role of Ministry of Health in large-scale HTA policymaking by clarifying the roles and responsibilities of the various parties in producing a HTA report, deciding about the utilization of HTA recommendations (obligatory or optional) by identifying the implementation mechanism and writing tailored HTA reports for different groups.

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