

## Health technology assessment in Iran: challenges and views

Alireza Olyaeemanesh<sup>1</sup>, Shila Doaee<sup>2</sup>, Mohammadreza Mobinizadeh<sup>3</sup>, Mina Nedjati<sup>4</sup>  
Parisa Aboee<sup>5</sup>, Seyed Hassan Emami-Razavi<sup>6</sup>

Received: 29 May 2013

Accepted: 7 April 2014

Published: 29 December 2014

### Abstract

**Background:** Various decisions have been made on technology application at all levels of the health system in different countries around the world. Health technology assessment is considered as one of the best scientific tools at the service of policy-makers. This study attempts to investigate the current challenges of Iran's health technology assessment and provide appropriate strategies to establish and institutionalize this program.

**Methods:** This study was carried out in two independent phases. In the first, electronic databases such as Medline (via Pub Med) and Scientific Information Database (SID) were searched to provide a list of challenges of Iran's health technology assessment. The views and opinions of the experts and practitioners on HTA challenges were studied through a questionnaire in the second phase which was then analyzed by SPSS Software version 16. This has been an observational and analytical study with a thematic analysis.

**Results:** In the first phase, seven papers were retrieved; from which, twenty-two HTA challenges in Iran were extracted by the researchers; and they were used as the base for designing a structured questionnaire of the second phase. The views of the experts on the challenges of health technology assessment were categorized as follows: organizational culture, stewardship, stakeholders, health system management, infrastructures and external pressures which were mentioned in more than 60% of the cases and were also common in the views.

**Conclusion:** The identification and prioritization of HTA challenges which were approved by those experts involved in the strategic planning of the Department of Health Technology Assessment will be a step forward in the promotion of an evidence-based policy-making and in the production of comprehensive scientific evidence.

**Keywords:** Evidence Based Policy Making, HTA, Challenges, Iran.

*Cite this article as:* Olyaeemanesh A, Doaee Sh, Mobinizadeh M, Nedjati M, Aboee P, Emami-Razavi S.H. Health technology assessment in Iran: challenges and views. *Med J Islam Repub Iran* 2014 (29 December). Vol. 28:157.

### Introduction

Various decisions are made on using technology at all levels of the health system in every country which usually include coordinating complicated medical issues with matters related to patients, organizational, economic and moral factors. Also, providing appropriate inputs for health policy-makers which depend on interactions, work division and cooperation among the health

experts, decision makers and practitioners is of prime importance. These decisions should be based on documented principles in which all the conditions and results of the decisions are systematically explained by scientific methods (1, 2). Although the concept of health technology assessment (HTA) is increasingly expanding in the industrialized world, particularly in Europe, and it has also been institutionalized in

1. Assistant Professor, National Institute for Health Research -General Director of Health Technology Assessment, Standardization and Tariff Department, Deputy of curative affairs, MOHME, Tehran, Iran. arolyaee@yahoo.com

2. (Corresponding author) MSc, MPH, PhD Candidate of Health Service Management, Medical science school, Science and Research Branch, Islamic Azad University, Tehran, Iran, shiladoaee@live.com

3. PhD Candidate of Health Service Management, School of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran. mobinreza@yahoo.com

4. MSc in Health Care Administration, Deputy of curative affairs, MOHME, Tehran, Iran. merciful.2008@yahoo.com

5. BSc in Health Care Administration, Department of Payment and Financing System, National Institute for Health Research, Tehran University of Medical Sciences, Tehran, Iran. aboeeep@yahoo.com

6. Associate Professor, Tehran University of Medical Sciences, Tehran, Iran. emami\_r@health.gov.ir

Table 1. Search Strategy in Pub Med Database

No.	Key Term	The Number of Papers
1	HTA	1956
2	(HTA) OR Health Technology Assessment	13908
3	((HTA) OR Health Technology Assessment) AND Iran	19

Table 2. Papers used in the study

No.	Author/Publication Date	Title
1	Farnoodi S/2009(1)	Presenting a Framework for Evaluation of health Technologies in health and Medical System of Iran; Case Study: Robolens Robot
2	Sivalal S/2009(2)	Health technology assessment in the Asia Pacific region
3	Palesh M/2010(3)	We noticed that suddenly the country has become full of MRI". Policy makers' views on diffusion and use of health technologies in Iran.
4	Larijani B/2000 (4)	Prioritized list of health services in the Islamic Republic of Iran.
5	Marzban S/2007(5)	A summary of HCTM report in Iran
6	Hosseini A/2007(6)	HTA Policy Paper
7	NaserHamzeKhanloo M/2010(7)	Role and Necessity of Health Technology Assessment (HTA) in Health System

Northern America, it has not yet been fully institutionalized in developing and Asian countries due to such factors as lack of awareness, lack of epidemiologic data and lack of a relationship between research efforts (3). This study aimed to help the Iranian health policy-makers to design and implement the HTA program by investigating its current challenges in the country.

### Methods

This study was carried out in two phases: the study phase and the polling phase. In the first phase, the sources were investigated from the database of Medline (via PubMed) from 2000 to November 2011; the Scientific Information Database (SID) was also searched by the key term of 'Health Technology Assessment' up to 2011 in order to obtain the Persian papers; two Persian papers were obtained. Manual search was also done through contacting the informants as well as using the Google search engine; 3 papers were retrieved; overall, 24 papers were collected. After studying the abstracts and eliminating irrelevant or repeated cases, 7 papers were finally selected.

The second phase included the polling of informants, managers and experts of health technology assessment in Iran. It should be noted that a minority of the participants were some members of the scientific committee of the health technology assessment (12 individuals) who

participated in this phase through a structured questionnaire designed by the authors for the purpose of data collection. All challenges extracted from the phase 1 were classified in a table, and the participants were asked to state their views based on the Likert scale. In addition, they were asked to state the reason for their views and solutions for the challenges as well as other challenges not mentioned in the questionnaire (in the form of open question based on the Likert scale). Data were analyzed by SPSS 16 software, and the scores given to views of the experts on the current challenges were prioritized; and then their reasons and solutions were summarized.

### Results

Twenty- two HTA challenges which were regarded as the most basic problems encountered by the health system's officials were specified from the 7 selected papers and were then used for designing the questionnaire and collecting data in the second phase. The findings of the second phase, which were collected through a semi-structured questionnaire and included the views of the experts on both HTA and its specified challenges, suggest that the participants had relatively the same views on the mentioned challenges. Strongly agreeing views of the informants on the challenges are given in Fig. 1.

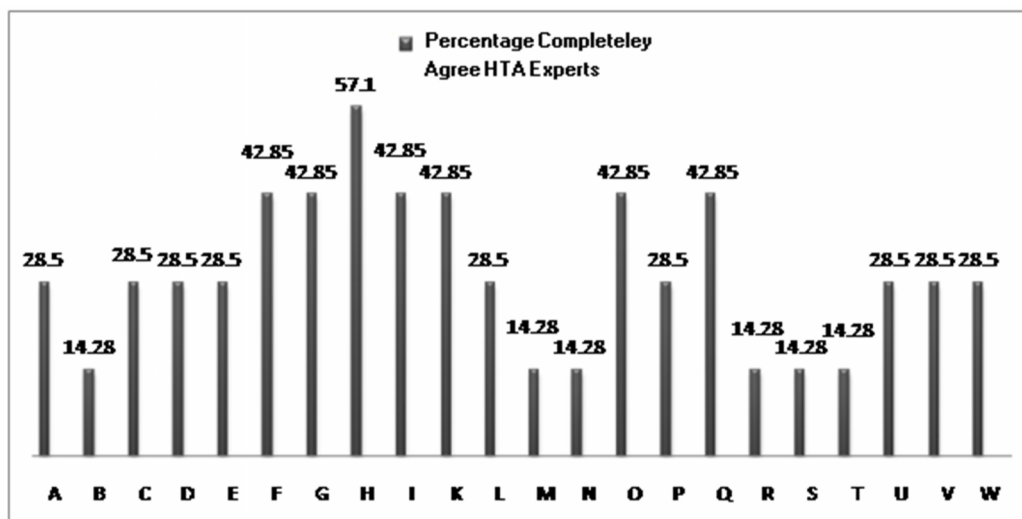


Fig.1. Informants with strongly agreeing views on the mentioned challenges regarding health technology assessment

As demonstrated in the diagram, among the 22 mentioned challenges, the participants reached the highest consensus about the factors in the area of health system management (57.1%); they also strongly agreed on important factors (42.85%) such as stewardship, stakeholders, infrastructures, external pressures, lack of coordination at the policy making level and lack of systematic structure for decision-making in the health system organization. However,

only 14.28% of the participants strongly agreed on such challenges as the involvement of partner organizations with unrelated tasks, dependence of HTA activities on periodic meetings, being passive to new technologies, lack of experts in the field, lack of feasibility studies in the process of HTA application and dependence HTA on investors and importers. The Department of Health Technology Assessment, the main organization responsible for HTA in Iran,

Table 3. The 22 investigated challenges in this research

A	Lack of integration with the country's macroeconomic policy	M	Lack of feasibility studies in the process of HTA application
B	Involvement of partner organizations with unrelated tasks	N	Lack of experts in the field
C	Lack of HTA activity in academic units	O	Lack of coordination with the HTA process at the policy-making level
D	Lack of a local model for the arrangement of related organizations	P	Inadequate understanding of policy makers with the HTA process
E	Organizational culture related factors	Q	Lack of a comprehensive (systematic) evidence based system
F	Stewardship factors such as lack of a clear boundary between the public and private sectors, reluctance to develop the private sector and ambiguous connection to the global structure	R	Influence of the investor and importer manner on the HTA process in Iran
G	Lack of a common understanding between the stakeholders and not using the potential of all the stakeholders	S	Dependence of HTA activities on periodic meetings
H	Factors related to the management of the health system such as senior executives' lack of understanding of the establishment needs in such a structure	T	Being passive to new technologies
I	Factors related to infrastructures such as lack of experts and lack of academic centers for training the infrastructures of health technology assessment	U	Lack of legal protection in the upstream documentation such as in Fifth Development Plan
K	External pressures	V	Allocation of insufficient resources
L	Insufficient application of a comprehensive framework in the HTA system	W	Lack of planning for academic training of the involved experts

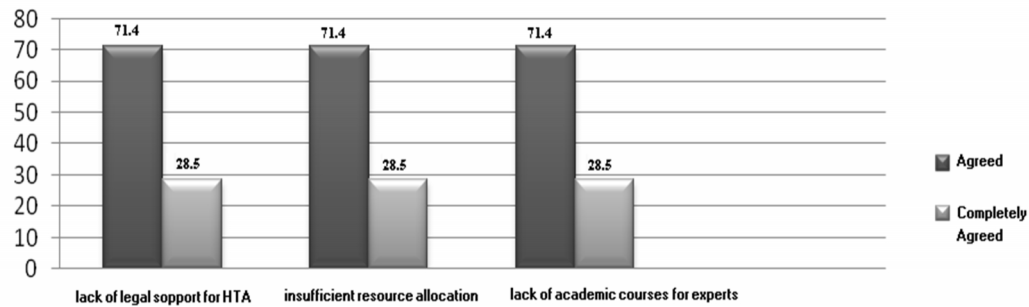


Fig.2. Views of the experts about the challenges recognized by the HTA office

has introduced three main challenges in this field as follows: the lack of legal support for HTA in the legal documentation of the national health system, insufficient resource allocation and the lack of academic courses for the involved experts; the views of the experts are presented in the following diagram:

The findings of this study imply that a high percentage of the expert participants had the same view on the three factors mentioned by the HTA department. At the same time, they mentioned the following factors as the challenges affecting HTA: lack of sufficient scientific capacity in the HTA subject at universities, lack of interaction between public and private sectors regarding HTA, conflict of interest, lack of a national organization for evidence quality control, limited access to databases, lack of a clear policy-making structure, lack of fundamental macro strategies for managing the health and education sector, weakness of intersectional organizations of the health system and lack of an integrated, perfect, evidence based structure in the health system of Iran.

### Discussion

Considering the increasing importance of evidence based policy-making, the health system authorities and decision makers have focused on the production of scientific and comprehensive evidences. In recent decades, budget constraints and the need for the effective application of health technology have doubled the necessity for their assessment and prioritization. Thus, by acknowledging the emphasis of World Health

Organization (WHO) on HTA and its key role in the promotion of evidence based policy-making, many countries such as Iran, which follow the health reforming program, pay a particular attention to HTA, the selection and application of appropriate technology within the framework of managerial and political strategies and attempt to develop HTA through government support. In addition, the accurate identification of the current challenges and obstacles as well as their prioritization may lead to the advancement of the health system reforms. Thus, studying the challenges of HTA not only helps planning the needed reforms, it can also bring about an efficient allocation of health technologies despite resource distribution. For this purpose, such factors as health system management, stewardship, stakeholders, infrastructures, external pressures, lack of coordination at policy-making level, lack of a comprehensive system for decision-making in the health system, lack of legal support for HTA in the legal documentation of the national health system, insufficient resource allocation and lack of planning for academic training of the experts involved in the program were identified as the main obstacles and have been considered in the priorities of the programs of the Department of Health Technology Assessment. Although the mentioned challenges were classified into two groups, stewardship and management, we attempted to study the challenges separately regardless of their classification. In supporting the challenges investigated in this study, Palesh (2010) introduced lack of need assessment in the process of technolo-

gy application, lack of coordination at the policy making- level, lack of experts in the field and propaganda by importers and producers of the health technologies as the barriers to the application of the health technology assessment in Iran (4). However, Sivalal stated that the lack of technical and expert forces is one of the main problems in the application of health technology assessment in Asian countries including Iran (3). Additionally, Hosseini (2007) mentioned the followings as the main challenges of health technology assessment: lack of competence and expert labor force, constant specialized personnel shift from one field to another, lack of academic centers for training infrastructures of health policy making, health economics such as HTA, lack of appropriate training of managers and experts in various sections, lack of experienced advisors in the field (5). Similarly, although South Korea has initiated HTA activities since 1990, enabling human resources was one of the main challenges of the health system of this country in 2009(6). Although HTA has not long entered into the health arena In Iran, noticeable actions have been done by the Department of Health Technology Assessment, Standardization and Tariff Department, main of which is the establishment of the HTA major at the master level. Tehran University of Medical Sciences in collaboration with the professors in this field trains many students annually in this major. Moreover, the return of HTA graduates and other related majors such as health policy-making from abroad universities has contributed to the strength and improvement of Iran's health technology assessment program. However, considering the current need of the health system, the emphasis has continuously been on the fact that HTA academic training can guarantee the application of this interdisciplinary knowledge and may improve the objectives of HTA. Hence, in order to increase the current knowledge of HTA, the department of Health Technology Assessment and Standardization and Tariff Department have tak-

en two essential steps including holding short-term HTA courses and preparing training packages to accomplish consistent and structured training courses.

The key role of the policy- makers in the establishment and institutionalization of HTA is undeniable and should not be underestimated. As mentioned, lack of coordination at the policy- making level in the health system was put at the second rate of importance (42.85%), and inadequate understanding of the HTA process by the policy- makers was placed at the third rate of importance. Sivalal has noted that there is no longer a need for convincing the policy-makers and top level decision makers about the importance of HTA in Asian countries including Iran (3). However, Hosseini (2007) stated that the followings are the main barriers and problems of HTA: no serious attempt at higher levels of management, inadequate political support, lack of attitude and belief in the macro level and lack of understanding of the establishment needs in such a structure in senior executives (5). Palesh (2010) has also argued that although the policy- makers agree with HTA, it seems that they do not have a perfect knowledge of it (4). In a study by Sampietro entitled as 'HTA History in Spain', it was revealed that the policy-makers' poor awareness of HTA prevents them from providing adequate and fixed resources for it (8). In a study by Pichon and Colleagues entitled as 'Facilitators and Barriers for International Collaboration' in Latin America, Little government support and funding and limited resources were introduced as the main problems against HTA (9). Investigating the health technology assessment development in China, Chen et al. (2009) found that the distribution and promotion of HTA theories and methods in that country is under the influence of such challenges as coordination and cooperation of policy- makers, and they also maintained that although the policy- makers may have some knowledge of HTA, they do not use it in practice (10). Investigating HTA history in Japan, Hisachi noted that health policy-

making in Japan is based on the traditional consensus approach and that institutionalization in health policies is fully based on the individual's opinion and depends on the opinion of the health system's leaders. Thus, it appears that the application and coordination of health technology assessment are considered two HTA challenges among policy-makers in Japan (11). Recently, it seems that health policy-makers in Iran have gained a relatively positive attitude toward health technology assessment and have done the necessary efforts for its establishment; and finally, it can be said that the formal structure of HTA at the macro level has been established in the Ministry of Health and Medical Education.

The second most important challenge investigated in this study was the lack of systematic and comprehensive evidence based system in the national health system. Marzban (2007) found that health technology related policies at the Health Ministry are not the integrated parts of the overall health policies of the country (Iran). He defined a national health technology assessment program with the initiation of pre-evaluation activities at the university level and then considered the complete activities of the health technology assessment in a national agency. In addition, he acknowledged the necessity of observing national strategic programs and national health system priorities in allocating technologies to develop an effective pattern. He considered designing a model for health-centered organizations and their role in supplying and demanding the evaluation necessary for health technologies (12). HamzeKhanloo (2010) supported these findings and noted that such factors as the lack of systematic structure for health decision-making, dependency on investors and importers, dependency on periodic meetings and being passive to new technologies are the main barriers of application of HTA (13). Therefore, necessary and important efforts have been done or are in the evolution stage in the Department of Health Technology Assessment and Standardization and Tariff

Department. Projects in cooperation with medical universities of the country aiming at developing a local model for the structure and process of health technology assessment is among such efforts. In addition, designing a systematic structure for the cooperation of research centers in universities of medical sciences in the country was developed by the help of one of the university professors (Dr. Yazdani) in order to provide structured, consistent and purposeful relationship between universities and high rank authorities of the health system. In this structure, the method of health technology assessment codification and medical guidelines (from the horizon scanning stage for health technologies to pre-assessment, quick review of health technology assessment and a complete technology review) have been explained in detail which is now in its initial stages of implementation. Therefore, relying on scientific and research centers and universities of the country has made it possible to produce a list of new technologies to utilize the country's health technology assessment for knowledge production. It seems that management practices can eliminate and solve such problems as lack of integration with national macro policies, involvement of partner organizations with unrelated tasks, lack of HTA activity in academic units, lack of a local model for the arrangement of related organizations, dependency of HTA activities on periodic meetings, lack of a comprehensive and systematic structure of an effective evidence, dependency on the investors and importers and being passive to new technologies and the insufficient application of a comprehensive framework in the HTA system. By considering the running programs and challenges of this field, the Department of Health Technology Assessment is going to promote and advance plans for health technology assessment in the national health system.

### Conclusion

It seems that by the appropriate use of HTA horizon scanning, the Department of

Health Technology Assessment has been able to collect relevant data and desired priorities to localize HTA in an appropriate structure and manage it properly. In conclusion, the transformation of the results reported from the HTA projects into policies will help produce practical knowledge product and will also improve evidence based policy- making. However, the main factors within the stewardship area should not be underestimated.

The support of the relevant legislators from HTA and the macro statutes of the health system including the High Council of Health decisions and Insurance Supreme Council legislations will warrant the production of scientific evidence on health technology assessment. Also, empowering the HTA experts and technical officers will improve the HTA process in the health system of Iran.

### Acknowledgements

Our thanks go to all the professors and scholars who sincerely helped us in this study.

### References

1. Farnoodi S. Presenting a Framework for Evaluation of Health Technologies in Health and Medical System of Iran; Case Study: Robolens Robot. *STP Journal*. 2009; 2 (3) :75-86.
2. Larijani B, Ameli O, Alizadeh K and Mirsharifi S.R. Prioritized list of health services in the Islamic Republic of Iran. *Eastern Mediterranean Health Journal*.2000; 6(2-3): 367-371.
3. Sivalal S. Health technology assessment in the Asia Pacific region. *International Journal of Technology Assessment in Health Care*. 2009; 25 (1): 196-201.
4. Palesh M, Tishelman C, Fredrikson S, Jamshidi, H, Tomson G & Emami A. "We noticed that suddenly the country has become full of MRI". Policy makers' views on diffusion and use of health technologies in Iran. *Health research policy and system*. 2010; 6:9.
5. Hosseini A. HTA Policy Paper 2007; Available from URL: <http://siasat.behdasht.gov.ir>
6. Chang Y. Health technology assessment in South Korea. *International Journal of Technology Assessment in Health Care*. 2009; 25 (1): 219–223.
7. Gulácsi L, Brodszky V, Péntek M, Kárpáti K, Varga S, Vas G, et al. History of health technology assessment in Hungary. *International Journal of Technology Assessment in Health Care*, 25: Supplement 1 (2009), 120–126.
8. Sampietro-Colom L, Asua J, Briones E, Gol J; AuNETS Group. History of health technology assessment: Spain. *International Journal of Technology Assessment in Health Care*, 25: Supplement 1 (2009), 120–126.
9. Pichon-Riviere A, Maria R, Briones E. HTA in Latin America and the Caribbean (LAC), facilitators and barriers for international collaboration: a survey. HTAi: Oral Presentation. Available from URL: [http://www.htai.org/fileadmin/HTAi\\_Files/Conferences/2008/Files/OralPresentations/Oral\\_Andres\\_Pichon-Riviere.pdf](http://www.htai.org/fileadmin/HTAi_Files/Conferences/2008/Files/OralPresentations/Oral_Andres_Pichon-Riviere.pdf)
10. Chen Y, Banta D, Tang Z. Health technology assessment development in China. *International Journal of Technology Assessment in Health Care*. 2009; 25 (1):202–209.
11. Akinori H. History of healthcare technology assessment in Japan. *International Journal of Technology Assessment in Health Care*. 2009; 25 (1): 210–218.
12. Marzban S. A summary of HCTM report in Iran. Available from URL:[http://www.ifw-kiel.de/konfer/esf-ifw/newtech\\_0507/marzban.pdf](http://www.ifw-kiel.de/konfer/esf-ifw/newtech_0507/marzban.pdf)
13. HamzeKhanloo N, Bazyar M. Role and Necessity of Health Technology Assessment (HTA) in Health System. *Ardabil Health Journal*. 2010; 1(2).