HOSPITAL-BASED HEALTH TECHNOLOGY ASSESSMENT IN IRAN

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Background: Hospitals with health technology assessment (HTA) programs have reported its positive effects on the management of resources and costs. This study aimed to identify the barriers faced by hospital-based HTA (HBHTA) in Iran by inductive content analysis of stakeholders' and decision-makers' points of view.
Methods: The key individuals and organizations that could provide rich, relevant, and diverse data in response to the research question were purposively selected for the interviews and focus group discussion.
Results: Twelve stakeholders from seven public hospitals participated in the interviews. Another eighteen stakeholders from twelve HBHTA-related organizations took part in the focus group discussion. Most of the hospitals' senior management team did not feel the need for HBHTA and believed that in Iran a systematic process like HTA faces many challenges.
Conclusions: The stakeholders participating in this study highlighted the significance of certain points that needed to be addressed before establishing HBHTA in Iran.

Keywords: Hospital-based health technology assessment (HBHTA), Health technology assessment, Hospital

Hospital-based health technology assessment (HBHTA) is an internationally developed methodology for improving the process of medical decision making through the provision of necessary evidence. Hospitals that have an HTA program have reported its positive effects on the management of resources and costs (1).

In a survey conducted on sixty-four members of the HB-HTA subgroup of fifty different centers in 2008 and following the synthesis of evidence in 2011, the International Union for Health Technology Assessment and the Canadian Health Services Research Foundation (CHSRF) introduced four different models for the implementation of HTA in hospitals; (a) Ambassador Model (b) Mini HTA, (c) Internal Committee, and (d) HTA unit (2;3).

Ambassador Model
Interested clinicians, who are also known to be leaders among their fellow clinicians, play the role of an ambassador to convey the messages and recommendations resulting from HTA reports to other service providers in the hospitals.

Mini-HTA
In this model, individual specialists generate evidence for administrative decision making. To generate evidence, they use a "26-item tool" that examines the various characteristics of the technology, its financial aspects, and its effects on the hospital, organization, and patients.

Internal Committee
A multi-specialist group, named as the internal committee, is assigned to assess the evidence and come up with recommendations for the hospital.

HTA Unit
The HTA unit is an organizational structure made up of HTA specialists.

Most studies on HBHTA have been carried out in high-income countries; the status of HTA in middle- and low-income countries has remained mostly unattended (4). Iran is a country with a population of 80.28 million, and a GDP (current US$) of 393.44 billion, and has been ranked as a upper middle income country based on World Development Indicators database (5). In Iran HTAs are carried out at a national level and presently, there are no active HTA programs at the hospital level. Hence, this study was carried out to evaluate the need for the implementation of an HBHTA program, and to identify its opportunities and challenges from the perspective of stakeholders.

METHODS
This qualitative study explored stakeholders' perceptions regarding the need for the establishment of HBHTA in Iran.

Sampling
The key individuals and organizations that could provide rich, relevant, and diverse data in response to the research question were purposively selected for the interviews and focus group discussion. An attempt was made to select individuals with different opinions (at times opposite) to examine different

viewpoints. To this end, during a meeting held with the principle investigators, key stakeholders (individuals, groups, organizations, and centers that were positively or negatively affected by the project, or affected its outcomes) were identified for the interviews and focus group discussion (FGD). Once they were identified, a list of their contact information was prepared. First, appointments were made to hold the semi-structured interviews at the hospitals. Eventually, HBHTA was discussed in a meeting with representatives of relevant organizations and departments.

To increase the number of the initial sampling, snowball sampling was also used. The researcher interviewed a particular participant and after recording his/her views on the topic, s/he asked the participant who to interview next to obtain greater information on the topic.

Data Collection
The main data collection tools in this study were in-depth interviews and FGD. We used in-depth interviews to study hospital managers' experiences and to explore personal and sensitive themes. We used the FGD to explore the participants' views on HBHTA programs.

In-Depth Interviews. The researchers interviewed the individual participants (hospital managers) in their workplaces from October 2013 to June 2014. The approximate length of the interviews was 45 to 60 min. To adhere to scientific principles in the interviews, an interview guide was prepared to facilitate the process and was pilot-tested. The main questions asked were: "What is the hospital's current process of decision making in the face of a new health technology? What are the opportunities and challenges of implementing HBHTA in your organization? etc.". All the interviews were recorded upon obtaining verbal consent from the interviewees. The audio-file of each interview was numbered by a special code, archived, and later transcribed.

Focus Group Discussion. With the cooperation of the HTA Department of the Ministry of Health, the FGD was held there by a skilled moderator in June 2014. The duration of the FGD was 120 min. In this discussion, the representatives of HTA-related offices or organizations were asked to state their own and their organizations' ideas on "the necessity of using HTA in Iran's hospitals, the opportunities and challenges at hand, and the necessary steps required to implement it." During the interviews and FGD, the researchers refrained from giving their personal opinions, thus avoiding the possibility of influencing the interviewees' opinions. Moreover, there was no professional connection whatsoever between the researchers and the interviewees, hence avoiding the possibility of social desirability bias as well.

Data Analysis
To attain a comprehensive and summarized description of HB-HTA in Iran, we used content analysis, a systematic and objective analysis method (6). The stages of data analysis were,

transcription of the interviews, careful and iterative study of the transcribed texts, creating 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 selected codes (7). MAXQDA11 software was used to extract the intended codes. The coding was done by two independent researchers and the results were compared. To reach consensus on conflicting coded topics, the researchers held a meeting and finalized the coding process.

RESULTS
Twelve of nineteen individuals (who had been invited) participated in the interviews and twelve of twenty-one organizations (eighteen individuals) took part in the FGD.

The interviewees were from six university hospitals and one Social Security hospital. The private hospitals did not accept our invitation to participate in the study. From the seven hospitals selected for the interview, two were single-specialty (one was a 69-bed facility and the other was 460-bed), and five hospitals were general (420, 339, 477, 520, and 812 bed). The interviewees included the senior hospital managers, administrative staff, financial and biomedical engineering departments, and directors of medical education and research departments. Experts/representatives from the following participated in the FGD: the HTA Department; Department of Hospital Management; Deputy of Development, Supervision, and Resourcing of Curative Services of the Ministry of Health; Health Insurance and Social Security Organizations; Deputy of Development of Management and Resources of Universities of Medical Sciences; and the Ministry's Deputy of Treatment.

After classifying the open codes and finding the axial codes, the main categories of HBHTA in Iran were classified into three areas, namely, the current method of decision making in Iran's hospitals in the face of new health technologies, opportunities and challenges of HTA in Iran's hospitals, and the necessity of implementing HTA in Iran's hospitals.

The Current Method of Decision Making in Iran's Hospitals in the Face of New Health Technologies
In small single-specialty university hospitals, the medical education and research department's directors are the most important people requesting new technologies and making decisions. Because the central goal of these hospitals is education, and most of these requests are evaluated from an educational perspective.

> *"Our hospital is a Tertiary-care Center for Dermatology and its Scientific-Educational Hub in the country. Hence, our goal is to train the best dermatologists here. So, whenever there's a scientific update the professors or educational council of the department inform us that they need a certain device. Subsequently, we start investigating it."*

In middle-sized and large public hospitals the responsibility of requesting new technologies lies with the heads of

departments. If a request from a doctor is accepted by the head of his/her department, it will be conveyed to the hospital manager to be brought up in the committee meeting. The requests are evaluated based on the hospital's general policies (requests related to hospital's specialized field are given priority), standards (patient safety), the need for the technology, and its profitability (costs and benefits). Most hospitals do not have a specific and complete checklist for technology assessments.

Sometimes, university hospitals accept certain technologies without a financial justification, and just to teach their fellowship residents; hence, they accept certain technologies based on educational reasons rather than financial to reach their goals in teaching fellowship residents.

Opportunities and Challenges of HTA in Iran's Hospitals

In this category, the opportunities and challenges affecting the implementation of HBHTA in Iran were analyzed. The following main codes were identified as challenges:

The hospital is a closed system of decision making in which a stakeholders individuals' authority, particularly which of physicians and managers, is very strong:

"The hospital manager has been entrusted with the power to purchase; if s/he likes it s/he'll buy it, otherwise s/he won't."
For example, the head of the hospital is a surgeon; s/he wants to complete her/his operation theatre. Or the head is an orthopedic surgeon; s/he wants to complete her/his own operation theatre. Nobody's concerned that the resuscitation equipment of the hospital is incomplete."

Physicians insist that the equipment they demand be provided:

"The responsibility of the patient lies with me; s/he is not your patient, nor the hospital's patient. If something happens to the patient 'I' am the one who has to pay for the blood money, so you must provide me with what I ask for."

Individuals' names are always decisive, and some stakeholders can break HTA process in hospitals based on the power and influence that they have over the context:

"Since you are Dr. so and so they will make the purchase for you; you don't need to fill a form or follow any procedure."

Purchasing hospital equipment is at times politically motivated:

"Mr. so and so is admitted to the hospital. That very same day a device worth 50 million is installed. Whether it is effective, profitable, or conforms to that hospital's culture no longer matters."

Specialist individuals are not responsible and do not cooperate:

"For example, we have a committee in which the academic members are also invited to investigate a certain topic and are asked to comment on it. However, many of them do not do so and are difficult to collaborate with."

We do not have sufficient and skilled human resources in HTA:

"Our current HTA human resources cannot cover our 800 hospitals."

The hospital and its board of management have not felt the need for HTA so far:

"Currently, what we are doing is the committee model, with a 70% rate of consistency."
"Our committees are moving in the same direction as this HTA."
"What we've done so far is more or less the same as HTA, but not very scientific, clear-cut or officially justifiable."

The effectiveness of national HTA and the rate of usage of reports are not clear in Iran:

"Do you think we can implement such a thing at hospital level in spite of the indicators defined for HTA? I for example, have not seen any project being implemented at national level, i.e.. I haven't seen a policy-maker adopt measures on these grounds."

One main code was identified as an opportunity:

Some hospital managers believe that they cannot offer a complete and logical answer when they are faced with a request from specialists who expect to hear a positive answer for their request. They believe that training is needed in the field of HTA, to become familiar with its terminologies.

"By developing a common language between the management & financial units and specialists, HBHTA can be very effective."

The Necessity of Implementing HTA in Iran's Hospitals

In this category, three main codes were identified as the steps needed to be taken for the implementation of HBHTA in Iran.

HBHTA must prove itself;

"Unless and until its effectiveness is not proven the system will keep resisting it."

Hospital managers and staffs must become acquainted with HBHTA and its results.

Instructions (feasible job description in the form of team work), administrative rules, and supervision of HBHTA must be made clear.

DISCUSSION

This study evaluates the need for the establishment of an HBHTA program in Iran, and identifies the opportunities and challenges of its implementation.

The threats to the establishment of HBHTA identified in this study were: hospitals do not feel the need for HBHTA; certain individuals in the hospitals have very strong authoritative power; the effectiveness of HBHTA is unclear; political pressure to impose new technologies; lack of cooperation of committee members; and lack of sufficient specialist HTA workforce.

Bearing the challenges in mind, the stakeholders participating in this study highlighted certain points before the establishment of HBHTA, such as, proving the effectiveness of HBHTA by evidence; familiarizing the stakeholders with the HTA culture; convincing stakeholders about the benefits of HBHTA; clearly describing HBHTA and all of its details to hospitals; granting authority and control for the implementation of HBHTA; and creating a system of supervision for HBHTA.

Lack of sufficient scientific capacity in the HTA subject is mentioned as a challenging factor affecting Iran's HTA, at national level, too (8;9).

A similar study in Spain (10) found the following barriers toward the establishment of HBHTA: inappropriate hospital strategy for usage of assessment results; lack of departments responsible for the assessment, supervision, and quality control of HTA reports; technologies are not reassessed after licensing; recovery of technology costs is not possible; resistance of hospital specialists toward change and the need to raise their technical knowledge on HTA; inaccessibility to scientific resources; and physical-spatial constraints. The Spanish study's recommendation toward reducing the aforementioned problems were: establishment of an association for monitoring the HTA process; training personnel; making the use of technology assessments mandatory by putting down clear rules to help the decision-making process; and putting down rules which require the existence of assessment reports for every health technology which seeks a license to enter the hospitals.

In the Netherlands, HTA is not conducted in hospitals because hospital managers need rapid and reliable reports and give limited value to HBHTA (11). However, hospital managers in the United States believe that the existence of HTA at hospital level is a necessity because their goal is to decrease costs, to increase the quality of services, and to promote equity in access to services (12). Therefore, proving the effectiveness of HBHTA is important to convince the hospital managers about its usefulness.

In Brazil, the challenges of implementing HTAs include, the lack of HTA specialists and proper decision-making methods (13), which also holds true in the case of Iran. Another example is that of Denmark, whose experience can be mentioned for clearly describing HBHTA and its full executive details to the hospitals (14).

The HTA units in Canada assume the following four steps necessary in the use of HBHTA: analyzing healthcare contexts & face to face interviewing of executive managers in each region; providing clear frameworks for examining the society's need for HTA; analyzing the resources required and economic evaluation; holding conferences for evidence-informed decision making on the uses of HTA in regional decision making (15).

Conducting interviews with the varied decision makers at different levels was one of the strengths of the current study. However, at the hospital level, apart from public hospitals, no private hospitals responded our invitation; hence, only public hospital's ideas were included in the study. To ensure trustworthiness of the study, some interviews questions were repeated in the interviews session. The thick description was also considered in the presentation of the interview results hence we noted interviewee's behavior and their context to gain the meaning of behavior within the culture itself.

CONCLUSION

Establishing HTA could provide a valuable tool for Iran's hospitals to make the most appropriate decisions but a traditional view of management in the Iran's hospitals (which creates a resistance against systematic approaches), political pressure, a need for quick answers and lack of a specialist HTA workforce are the threats to its establishment found in this study. On the other hand, as mentioned before "HBHTA must prove itself", so providing data on the effectiveness of HBHTA is important to convince the hospital managers to establish it, so we need more research on defining the effectiveness of HTA, particularly in the hospital setting.

In conclusion, to use HBHTA more effectively in Iran, and to encourage the stakeholders, policy makers, and decision makers to use this tool, the first step is to resolve the barriers that exist at different levels.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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