Strengthening evidence-based decision-making: is it possible without improving health system stewardship?

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Accepted 25 July 2011

Background
Health systems worldwide have always suffered resource constraints. Therefore, making decisions informed by scientific evidence to optimize costs and prevent wastage of resources is both important and necessary. The current study was designed to identify barriers to evidence-based decision-making (EBDM) in Iran’s health system.

Methods
Participants were purposively selected. In-depth interviews with policy-makers and focus group discussions (FGDs) with researchers were used to collect data. Thirteen in-depth interviews and six FGDs were held. Data were analysed using thematic analysis.

Results
The barriers mentioned were categorized into decision-makers’ characteristics, the decision-making environment and the research system, with each category consisting of further relevant themes and subthemes. Organizational values, criteria for selecting decision-makers, and the attitude toward EBDM were found to be important barriers to EBDM, and were related to stewardship.

Conclusion
There are various barriers to EBDM at different levels, and multi-dimensional solutions are required to strengthen the impact of scientific evidence on decision-making. Several recognized barriers to EBDM are rooted in health system stewardship, such as the weakness of inter-sectoral collaborations and ill-defined priorities. It appears that improvement of EBDM is secondary to the strengthening of health system stewardship.

Keywords
Evidence-based policy, utilization, governance, decision making, knowledge, Iran

KEY MESSAGES

- A proper, consistent connection needs to be maintained between the production of scientific evidence, policy making and practice (policy implementation) to ensure an ideal evidence-based decision-making (EBDM) process.

- Multiple interventions need to be carried out beyond either the knowledge producing or knowledge using organizations to increase EBDM; intervening in one sector alone will not be sufficient.

- There is a clear association between health system stewardship and EBDM, such that the main barriers to EBDM can be removed by strengthening the basic tasks of stewardship.
Introduction
Every year multiple studies are conducted in the field of health. The essential question is how much have these studies improved health and health equity? In the World Health Organization’s Knowledge for Better Health report (WHO 2004), this issue was the central concern. The report states that the availability of knowledge and the usefulness of health interventions form only half of the solution for health improvement; how such knowledge and interventions are used and implemented forms the other half (WHO 2004). The World Bank has estimated that in order to achieve the health-related Millennium Development Goals, 20–25 billion dollars are required annually, and that is only if decision making in the health domain is effective and evidence-based (Devarajan 2002). In light of limited resources, evidence-based decision-making (EBDM) becomes particularly important since governments do not have the resources to experiment in the policy-making process.

In 1984, medical education was integrated into Iran’s health services and this led to the establishment of a new ministry, the Ministry of Health and Medical Education (MOHME), which had a new context (WHO EMRO 2006). In principle, this structure should have been able to reduce some of the barriers to EBDM, in particular those related to the gap between research and decision making. Evidence shows, however, that there is still a long way to go in fully utilizing knowledge in Iran (Majdzadeh et al. 2010). In recent years certain interventions have been undertaken to strengthen EBDM in Iran, including the widespread call for applied research proposals, allocation of 2% of medical universities’ funds to health service research (Majdzadeh et al. 2009a), capacity building for production and adoption of systematic reviews and practice guidelines (Yousefi-Nooraie et al. 2009), and the establishment of a Health Technology Assessment Unit in the MOHME (World Bank Group 2007). All these interventions are witness to policymaking organizations’ determination to steer Iran’s health system in the EBDM direction. The question now is, in the light of the positive steps taken so far, what other steps should be taken to improve the status of EBDM?

A recent study scrutinized barriers to EBDM in six developing countries, including Iran. This study showed that the main barriers are related to communication and dissemination of evidence and the effect of the political context (Hyder et al. 2011). The present study was planned before the aforementioned study and conducted independently. Therefore, the present study could be considered as a way of validating the findings of Hyder et al.

One of the most important steps in identifying ways to promote the status of EBDM is to identify the barriers to it in decision-making organizations. The current study was designed to identify EBDM barriers in the health system in Iran, which is integrated with medical education.

Methods
Study design and sampling
We used qualitative methods to achieve the study objectives. Purposive sampling was used to achieve maximum variation. Participants consisted of policy-makers and managers of the MOHME, research managers and policy-makers elsewhere, clinical service providers and researchers. In the researchers group, the faculty members of two universities were studied: one large university (with multiple complementary fields, and educational and research performance at national level), and another peripheral university (in charge of education and research in more general programmes, and providing services to a provincial population).

Data collection
For the purpose of data collection, focus group discussions (FGDs) were used for researchers and health service providers, and in-depth interviews were held with policy-makers and managers. Since policy-makers and managers are mostly preoccupied with their work and unable to gather in one place at the same time, in-depth interviews were used to collect data from this group of participants. Each interview and FGD took between 1 hour and 1.5 hours to complete. The average number of participants in each FGD was four. The interviews continued until data saturation was achieved. The interviews and FGDs were performed by one researcher and one note-taker was present.

The interview guides included questions on the barriers to knowledge translation in Iran, their causes and possible solutions. To design the guide for the in-depth interviews and FGDs, the Tehran University of Medical Sciences (TUMS) knowledge translation model was used (Majdzadeh et al. 2008). This model shows different components of the knowledge translation process, from producing evidence to decision making. It was developed to analyse the situation of evidence production and uptake within health system organizations.

The probing question was the same in all interviews and discussions, but as the discussion proceeded, relevant topics were discussed according to each of the participants’ responses (policy-maker, manager, researcher and/or service provider).

Analysis
Thematic analysis was used to analyse the qualitative data (Mays 1996). Firstly, all the texts were read and then barriers were coded as themes. Finally, similar themes were combined and categories were created. All the themes and categories emerged from the data.

All the documented in-depth interviews and FGDs were reviewed by two members of the study group separately to ensure the reliability of the analysis. In case of disagreement, the group made the final decision on choosing the theme.

Ethical considerations
The project proposal was presented to the Deputy of Research Affairs at Tehran University of Medical Sciences, and was approved by the latter’s ethical committee. After the objectives of the study had been explained, oral consent was obtained from the participants at the beginning of each session. They were also told that the voice-recording could be stopped at any point they deemed necessary.
Results

Thirteen in-depth interviews and six FGDs were held. All of the study subjects agreed to participate in the study. For clear comprehension, the barriers to EBDM described by the participants were divided into three categories: (a) the decision-makers’ characteristics, (b) the decision-making environment, and (c) the research system. The list of barriers is given in Box 1. The participants’ quotes are presented in italics. Depending on their role in the chain of evidence production and utilization, study subjects emphasized different parts of this chain. However, the opinions of dissimilar groups of participants (i.e. policy-makers and managers, service providers and researchers) were mostly similar, and therefore we do not refer to any specific group of participants when quoting them.

Decision-makers’ characteristics

The barrier emphasized by most participants was the absence of appropriate criteria in the selection and appointment of managers, and their rapid replacement. The significance of this barrier in weakening both EBDM and the utilization of available resources is evident in the following statements:

“The university’s educational programmes don’t prepare the managers for their tasks. They only give them a general background.”

“Managers aren’t supposed to become managers through trial and error, and then make us pay for it.”

“At times the outcomes of training become fruitless with the managers’ continuous replacements.”

“Every day a new group arrives.”

Some of the participants believed that factors influencing policy-makers’ and managers’ incentives had an important role in the utilization of evidence in decision making. Some were of the opinion that the difference in pay between the public and private sectors has led to fewer monetary incentives in the public sector, and decision-makers therefore prefer to be involved in the private sector. Among other factors that affect the incentive to use scientific evidence is the lack of reward and punishment systems for managers and policy-makers who do or do not use scientific evidence when making decisions.

Some participants believed that the absence of a proper attitude and understanding of the importance of EBDM, and limited awareness among managers and policy-makers of the methods of knowledge utilization in policy making, have shaken EBDM. According to one: “Managers and decision-makers can’t believe what advantages EBDM might have.”

According to another participant, some managers will implement a programme based on their personal interest, and are so convinced that they are right that they fail to consider any scientific evidence that is contrary to their own belief. One participant said, “Everybody follows what he suggests himself”, and “Many of these policy-makers are researchers and come from the university. Everywhere is filled with VIPs; they only accept their own research.”

On the other hand, the level of access to domestic evidence and policy-makers’ awareness of domestic researchers’ abilities is undesirably low. In this context, one of the participants said, “We can’t go after researchers, because if we start looking for them and what they can do we’d automatically miss out on our own work.”

Policy-makers’ preference for international evidence has also contributed to the gap between domestic researchers and decision-makers. According to the participants, this preference results from a lack of belief in the quality of domestically produced scientific evidence.

The decision-making environment

Some of the participants believed that EBDM has not yet been incorporated as a value in the decision-making environment. According to one of the participants, “If decisions are made in the absence of the knowledge that is required for that particular task or decision, and there is no punishment for it, then deciding without knowledge may remain an unpunishable action till the end of time.”

Some believed that the lack of an open and holistic outlook in policy making, and a lack of attention to national macro plans (such as long-term programmes), are among the important barriers to EBDM. In this context, one participant stated, “You can easily translate industrial research you conduct into a marketable product or money. But it is not like this in health; we invest now and expect to see the results 20 years later. Most policy-makers don’t accept this kind of work; they say plant something we will be able to reap two years from now. Our vision is limited; we cannot see the future well.”

There are other problems that prevent EBDM in cases where the benefits of investment are clear and unequivocal. Regarding the pharmaceutical industry, participants mentioned the following reasons for poor knowledge utilization: dependence of the production sector on the import sector, the role of multinational drug companies, lack of in-depth research in the drug and biological substance production sector owing to lack of domestic support, and diminution of incentives in technical knowledge production resulting from a reluctance to allow change at national level. One participant added, “There is weak communication between research centres and pharmaceutical and medical technology industries because most of our drugs are generic, our industry is not creative, and is mostly iterative. These industries feel no need for innovation.”

Another barrier to EBDM is that decisions are influenced by non-technical issues. One participant said, “For example, imagine a place that doesn’t need a CT scanner in the hospital. That small city or province’s Member of Parliament exerts pressure on the policy-maker to build a CT scanner in the city hospital, in a town with fewer than 10,000 people.”

Some believed that at the practice level, where policies should be put into effect, the capacity to implement them is limited. According to one participant, “At the policy-making level, the environment that should follow policies and implement our programmes does not have the executive power to do so.” Another participant highlighted the importance of EBDM with regard to the execution of decisions, stating that, “If policy-makers act more realistically, executives can follow that policy more successfully too, because the policy is a real one. But when policy making is not realistic, then the executives will be constrained as well.”

Participants claimed that lack of influence on budget allocation will prevent EBDM from flourishing; and that allocation of funds to plans that have not been designed on the basis of scientific evidence will weaken EBDM. They also went on to say that the current service delivery system had not been designed to support innovation. In this regard, one participant added, “If the task is so new that it can change the system, there will be resistance
as a result of conventionality, and at the moment this is the main barrier to many of our activities.”

The dependence of plans and decisions on individuals, individual-oriented rather than system-oriented management, and ‘the change of plans with the change of managers’ were mentioned as important reasons that militate against the use of scientific evidence in decision making. Further reasons cited included not taking advantage of consultants or of think tanks.

Participants also believed that since many decisions were made at national and macro level, and required co-ordination among various sectors, lack of communication between decision-making organizations’ subgroups further weakened EBDM.

The research system

One of the items mentioned again and again by participants was the need to prioritize health needs and health research. They emphasized that health research priorities should be identified on the basis of scientific principles and in a systematic way, and that researchers should be made aware of them on a regular basis. According to one participant, “The Ministry of Health announces some things in general. It is natural for researchers to find their topics on their own, that they move in their own direction and with their own information.” One of the programme managers related the following regarding the lack of announcement of research priorities by decision-making organizations: “We have to tackle the job, then someone prim and proper comes along who will take the idea and fill his résumé with it at the end of the day. By the end of the year he’s got 10 or 12 articles published. Then what? The person will not announce the real priority because he hopes to do it himself.”

Shortage of funds for research and production of evidence explicitly for decision-makers, such as ‘health technology assessment’ and ‘policy briefs’, was also mentioned as a factor preventing the development of EBDM. Participants believed that adequate resources were essential in order to conduct high-quality research and make decisions based on the evidence, for example regarding human resources management.

An infrastructural barrier to EBDM is the lack of communication between knowledge producers and users; in the absence of effective and regular communication, removal of barriers in these two sectors individually will not improve EBDM. Reasons for weak communication between researchers and policy-makers were described as: the impact of undesirable past experiences, users’ lack of trust in the university’s ability to meet their needs, researchers’ and policy-makers’ lack of awareness of each other’s abilities and needs, absence of a common language between the health ministry’s policy-makers and the researchers, the health ministry’s lack of co-operation in giving researchers the information they require, the distance between researchers and the executive sector (e.g. absence of a research unit within health networks), and the need for rapid decisions, research for which cannot, however, be done rapidly.

The barriers were classified into three categories: decision-maker characteristics, decision-making environment and research system (Box 1). The key observation was that a proper and logical connection needs to be maintained between the production of scientific evidence, policy making and practice (policy implementation) to ensure an ideal EBDM process. When there is no correct and effective communication between these three domains, certain decisions will be made that do not reach the point of implementation.

The findings of two review studies (Innvaer et al. 2002; Mitton et al. 2007) that examined the barriers to EBDM in policy making and health management support the current study. They divided the barriers to EBDM as follows: personal level (lack of experience and poor capacity for assessing and utilizing evidence, lack of mutual trust and negative attitude toward change), organizational level (non-supportive culture, incentives stronger than EBDM, inappropriate reward systems for researchers, lack of political stability and rapid replacement of staff), communication factors (poor selection of messenger, high volume of data, unsuitable scientific language for policy-makers, absence of an actionable message, and absence of direct communication between researcher and policy-maker), time-related factors (different time-frames of researchers and policy-makers and limited time for decision making), disputes over power and financial resources, and low-quality research.

Another study conducted in South Africa examined the determinant factors of EBDM in maternal health care. This study identified similar factors as barriers, plus organizational bureaucracy and its inflexibility toward change, and absence of a ‘functioning policy network’ including the researcher, policy-maker and bureaucrat (Daniels 2008).

**Box 1 List of evidence-based decision-making (EBDM) barriers recognized in Iran’s health system**

**A. Decision-makers’ characteristics**
- A1 Criteria for selecting decision-makers
- A2 Reward and incentive mechanism
- A3 Knowledge and attitude toward EBDM
- A4 Lack of trust in domestic evidence
- A5 Awareness of researchers’ ability

**B. Decision-making environment**
- B1 Organizational values
- B2 Limited outlook in decisions
- B3 Influence of non-technical issues
- B4 Capacity of policy implementation environment
- B5 Lack of EBDM’s influence on budget allocation
- B6 Resistance to innovation
- B6 Lack of co-ordination between decision-making organization sectors

**C. Research system**
- C1 Not having systematic health research prioritization
- C2 Resource constraints
- C3 Lack of communication between knowledge producers and decision-makers

**Discussion**

In this study we examined the barriers to EBDM in the health system, from researchers’ and decision-makers’ perspectives.
Hyder and colleagues examined the obstacles to and strategies for using knowledge in developing countries (Hyder et al. 2011). Poor communication, different objectives and languages of researchers and policy-makers, lack of policy-makers' technical abilities, limited capacity for conducting policy-related research, resource constraints, organizational culture, legislative processes, and parliamentary machinery and budgetary policies were recognized as the main barriers.

Some of the barriers identified in this study appear to be the external signs of significant problems in the inner layer of the health system. Lack of awareness of researchers' abilities and not having systematic health research prioritization are examples of minor issues that can be resolved easily, if the authorities are interested. On the other hand, organizational values, a limited outlook in decision making, the influence of non-technical issues and resistance to innovation are examples of factors which are more fundamental, and which will require serious and deep-rooted efforts to resolve, including attention to health system stewardship. In the World Health Report 2000, stewardship is defined as ‘setting and enforcing the rules of the game and providing strategic direction for all the different actors involved’ (WHO 2000), with stewardship classified into three domains of ‘collecting and using intelligence’, ‘formulating policy’ and ‘approaches to regulation’.

Evidence-based policy-making (which is considered synonymous to EBDM in this article) is defined as an approach that ‘helps people make well-informed decisions about policies, programs and projects by putting the best available evidence from research at the heart of policy development and implementation’ (Davies 2004). A comparison of the definitions of evidence-based policy-making and EBDM shows that strong stewardship is a requisite of EBDM.

By comparing the basic tasks of health system stewardship (the three domains above) and the EBDM barriers recognized in this study (listed in Box 1), the relationship between these two becomes clearer. The domain of ‘collecting and using intelligence’ has two components: stakeholders’ collaboration (which is related to the barriers B7 and C3 in Box 1), and production and stewardship of information (which is related to B7 and A3–A5). In the second domain, ‘formulating policy’, a vision for the future is defined and priorities and the expected roles of different groups are outlined. ‘Formulating policy’ has itself three components: having a clear vision and a plan, policymaking and planning systems, and inter-sectoral collaboration, the first two of which are related to barriers B1–B6 and C1. The final domain, ‘exerting influence—approaches to regulation’, has two main elements: ‘system responsiveness’ and ‘appropriate organizational structure, without overlap’, which are related to barriers A2, B4 and B5 in Box 1.

Thus, by reviewing the barriers detailed in Box 1 we can see that the main barriers to EBDM can be removed by strengthening the basic tasks of stewardship. In fact, by not paying adequate attention to the roots of the problems in EBDM, we fail to notice that the real reasons behind not using evidence lie in stewardship. Therefore, the improvement of health system stewardship is fundamental to improving EBDM.

The barriers to EBDM are a sub-group of the main problems of stewardship in the health system in Iran. A 2007 review of the health sector in Iran (World Bank Group 2007) showed that strengthening of stewardship is a priority. The lack of co-ordination with other sectors in dealing with non-communicable diseases and social determinants of health are highlighted examples of failures in inter-sectoral collaboration. Decentralization and the strengthening of leadership and managerial skills are some of the improvements needed within the health sector (World Bank Group 2007). On the other hand, stewardship in the health sector cannot be considered independently. This is why, in Iran’s fourth long-term plan (2005–09), improvement of governance was a target for all ministries: ‘...aiming at elimination of imperfect and deficient effectiveness, organizationally inefficient and incomprehensive conflicts, centralization, parallel works; and to use modern technologies and efficient methods aiming at renovation, suitability, merging and reorganizing in the form of a solid, efficient and sufficient, effective and decentralized system’ (Management and Planning Organization 2004).

The World Bank’s review of Iran’s health system shows that one of the main difficulties of health stewardship in Iran is its central system of decision making and the presence of multiple foci of decision making. The review claims that the power of decision making is low in provinces and the interaction between them and the Ministry of Health and Welfare is not favourable. This becomes even more complicated when it comes to urban health, where the private sector predominates (World Bank Group 2007).

Therefore, interventions for improving EBDM must be defined within the context of strengthening the stewardship of the whole health system. In this situation, interventions in EBDM might be effective, such as presenting scientific evidence to policy-makers, informing researchers of policy-making procedures, presenting policy-making content to researchers, informing policy-makers of research procedures, presence of knowledge brokers for transferring scientific and policy-making content between policy-makers and researchers, and organizational knowledge management (Choi et al. 2009).

First and foremost among such direct interventions should be to address the value system within the decision-making environment, and to what extent it gives importance to and strengthens EBDM. In fact, if EBDM is to be incorporated and valued within the policy-making system, then the system for evaluating personnel should be set in accordance with this. Another solution—one of the most important within the ‘knowledge users’ section in Iran—is to change the decision-making culture at managerial and policy-making level. Interventions are needed that aim to empower people, create regulations and promote a culture of adherence to existing organizational plans and reduce dependence on personal decisions.

Secondly, the content and quality of ‘continuous professional education’ and official academic programmes, which can affect decision-makers’ awareness and ability, should be changed. Decision-makers need to be trained to understand, interpret and apply information. They should be able to describe and foresee events through the evidence, and therefore the determinant factors of events need to be clear to them. This is in agreement with the actions proposed by the health sector review in terms of improving managerial skills for better stewardship in the health system (World Bank Group 2007).
The most significant reason for the gap between knowledge producers and users is their lack of trust in each other. Clarification of their needs and capabilities could help to remedy this. It is inevitable that the collaboration between researcher and policy-maker is complex. Researchers and policy-makers have ‘different objectives, different attitudes toward information, different languages, different time constraints and different professional promotion paths’ (Choi et al. 2005). The absence of collaboration will affect co-operation in research. This issue was scrutinized in a quantitative study performed in the biggest medical university in Iran, with the findings demonstrating that the level of collaboration was not desirable (Majdzadeh et al. 2009b).

Other important requirements are to carry out research based on need and to improve the quality of research. Need-based research increases the chance of its findings being implemented. One of the recommended interventions that demands thorough co-operation between knowledge producers and users is to prioritize research systematically, scientifically and with both parties’ participation. If the quality of scientific evidence produced is trustworthy (which is the outcome of the research system’s performance), it will directly affect the utilization of domestic evidence and decision-makers’ collaboration with researchers. This is a further illustration of the significance of a country’s research system in achieving an ideal level of EBDM.

The main limitation of this study is that it identified the association between EBDM and health system stewardship in the final analysis of data (a post hoc finding). This conclusion was derived from the participants’ responses.

In sum, what is apparent is that multiple interventions need to be carried out beyond either the knowledge producing or using organizations to increase EBDM, and that we will not achieve our goals by intervening in one sector alone. Addressing the barriers to EBDM should be considered secondary to improving the stewardship of the health system, which should have priority.

**Funding**

This research has been supported by Tehran University of Medical Sciences, grant number 1468, 2007/11/17.

**Conflict of interest**

None declared.

**References**


