



## Electronic Health in Perspective of Healthcare Managers: A Qualitative Study in South of Iran

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(Received 25 Nov 2013; accepted 15 Mar 2014)

### Abstract

**Background:** The important role of electronic health as well as importance of health care systems awareness and readiness may lead to develop the essential infrastructures for electronic health especially in developing countries. This study aims to investigate goals, gains, applications, challenges and other important issues related to success performance of electronic health.

**Method:** This research proposed a grounded theory in a qualitative design and a purposive sampling was used to select participants which consisted of 28 hospital managers and staff field managers working in deputy of health and curative affairs of Medical Science Universities in south of Iran. Semi structured interviews were conducted using a topic guide and intended themes derived from the results using Max QDA software during five steps.

**Results:** Nine themes through interviewees' viewpoints were made up as followed: Electronic health definition, necessity and importance of electronic health, electronic health advantages, relationship between electronic health and internet, physicians' opposition to electronic health, prerequisites for electronic health, solutions for applying electronic health plan, factors affecting electronic health acceptance in society and electronic health system challenges.

**Conclusion:** It seems that there are good circumstances in the south medical universities about settlement and implementations of electronic health and their managers are aware of its advantages, importance and necessities. The present findings implicate that these organizations should consider the user friendly and probable resistances of the present clients, in this regard it is suggested that the used technology must be accepted by users, having standard base, inexpensive and simple enough while less vulnerable in response to changes.

**Keywords:** Electronic health, Health systems, Information and communication technology

### Introduction

Current age has been called news age and undoubtedly each nation and government which is aware of more news will be pioneer in third millennium (1). News age is the age of marvelous speed, ascendancy and change in knowledge. In fact thanks to genius of people who has entered the computer into human life and linked to the

internet world, current global village announced a new millennium that enthusiastic for change and evolution in health system management must also welcome that (2).

Other evidence shows that recent progresses in information and communication technology has significantly increased the possibility of infor-

mation store and flow (3) as far as the use of these technological capabilities in health care systems of the countries has resulted in electronic health systems development (4) that in turn has provided a new and unique opportunity for universal health improvement in the whole world to the extent that a scenario which was inaccessible and unimaginable ten years ago, now due to the existence of electronic health has become a reality: the patients in Africa often from long distance are treated by a physician in other country or continent via using of telemedicine. Electronic health vision is increasingly changing and for shaping this change regional, national and international cooperation is needed (5).

However, what is certain is that health and education along with information technology consider as basic pillars for nations development. So in complex age prevention and treatment are not the only health systems challenges yet, but speed, accuracy, quality and finally less cost allocation for more health achievement have got more manifest priority. In this regard one of the basic strategies for health system management is application of information and communication technology in health system, in a brief statement, embarking on the electronic health path (6) and its reason as Michael Porter's words, expensive costs, adverse quality and limitation of healthcare services access have resulted in frustration and anxiety in all health system practitioners (1).

Electronic health is defined as a customer oriented model for providing health services thus the citizens are place in the center of services and are able to interact with health specialists who watch their health needs (7). Moreover, electronic health covers all health strategies include prevention, treatment and rehabilitation (8) and on the other hand considering citizens, patients, health specialists and politicians simultaneously is essential (9). Besides, electronic health as an integrated and multi-disciplinary field can relates main following areas: health systems strategic planning and electronic marketing concepts, all electronic medicine forms related to health professional specialists, team actions and widespread ventures of health technology management (10).

Now after years of discussion and interlocution, a general consensus has been built that information and communication technology is a tool which could be useful and effective for targeting health system challenges in developing countries. In this regard one of the World Health Organization's recommendations to the member countries is strategic plans preparation include rational frameworks and infrastructures in order to ensure successful implementation electronic health (5). It is expected that electronic health involves in development of new methods of providing health services and effects on structure of health services delivery systems. Not only Electronic health contains technologic development and progress but also includes reengineering of healthcare process and in fact it focuses on technical-social aspects of design and development of wants and demands (2).

While different studies emphasize on the importance of electronic health specially in the hospitals and its relevant applications and advantages(7-10), there are no evidence of Iranian health care managers viewpoints about this concept containing their understanding and knowledge about the topic, its significance, applications, ways of settlement and possible resistance to acceptance, its priority comparing with the other infrastructure, advantages and disadvantages for our country as a developing one.

So this study has been conducted to investigate goals, gains, applications, challenges and other important issues related to success performance of electronic health in order to citizens health improvement from health system stewards in Iranian southern universities of medical science.

## **Methods**

This qualitative study was carried out in 2012. Population study was teaching and curative hospitals managers and staff field middle managers working in Deputy of Health and Curative Affairs of Medical Science Universities in south of Iran. Purposive sampling was applied which has the most usage in qualitative researches with the

aim of data gathering from the most informed individuals (11) and 10 managers of teaching and curative hospitals that HIS system has already run in their hospitals and they were involved in the process and also 18 staff field managers working in deputy of health and curative affairs that were experts in the field of electronic health and health information system were interviewed and with this sample size data saturation reached. The inclusion criteria was working experience more than 10 years, being a manager in a hospital with the above circumstances or deputy of health and curative affairs of the Universities of Medical Sciences in the south of Iran (Fars, Hormazgan, Boushehr, Khoozestan).

The interviews were semi structured and done through Topic Guide Form that consisted of numbers of general question in order to clarify study objectives (Box1). In designing the questions, in addition to literature review, the viewpoints of two experts in the field were assessed. In the next step, meaningfulness of questions from respondents was determined through interviewing with three of staff field experts in healthcare departments of one of these universities and necessary defects reform constructed.

In order to avoid possible problems during the interviews, the meetings topics were recorded via two electronic devices and implementation of the records was done immediately after finishing each session. Note taking of important words of participants simultaneously with doing the interview by interviewer has been done yet. Noted contents as well as key issues extracted from each interview recorded in a special form in brief. This form consisted of basic specifications of interviewee, location of doing interview, corporate post of interviewee in the university, date and time of interview as well as nonverbal reflection and emotional states related to interview and other necessary information. Finally in order to use of this form in analysis process, mentioned forms were seen and verified by the interviewees.

The interview sessions time was predetermined and coordinated with proper people and meanwhile clarification of interview target through the coordination, ensured them that their data and

words will be kept completely confidence and all participants were interviewed informed and voluntary after getting verbal consent. Meanwhile in order to do interview as much as possible a quiet and outside the work congestion location was considered to avoid distraction and cancelation of the session cancelation due to client arrivals and departures and ringtone. Meantime each interview's duration was 45 minutes in average and the standard deviation was 5 minutes.

In order to data analysis, the researchers determined key issues and concepts after being familiar with wide range and variety of topics, on the other words, The initial thematic framework and codes were developed using the interviews, prior thoughts and literature and based on them, the thematic framework was set. In the next step, all writings from the interview summary forms based on thematic framework were reviewed and annotated and arranged in accordance to proper theme source. Finally intended themes by comparing the observed relationships, concepts, contrasts and opinions derived from the results using current Max QDA software.

Meantime in order to avoid of conflict of interests in data analysis, all steps of analysis of themes from the study were done by two researchers with no work or employment relationship with Universities of medical sciences in south of Iran.

## Results

The results of analysis of individual interviews with hospitals managers and staff field middle managers working in deputy of health and curative affairs of southern Medical Science Universities resulted in nine main themes (Table1). The discussion about resulting themes has been considered in the following:

- I. *Electronic health definition:*** The interviews results indicate that the participants' general interpretation of electronic health (26 participants/93%) is application of information technology types in order to health improvement and

healthcare services delivery. In this regard one of the most comprehensive definition was stated by one of the interviewees that: "Nowadays electronic health is defined as application of communication and information technology regional and in long distance that provides a same opportunity for public health development. Health systems reinforcement through electronic health helps to the enjoyment of human fundamental rights such as improvement of equity, quality of life and care (P4).

## II. *Importance and necessity of electronic health:*

The majority of participants in the interviews (26 persons/93%) described a positive and obvious role of electronic health on the care quality while some (2 persons/7.1%) believed that its role has not been known and considered adequately. About the importance and necessity of electronic health programs application, one of the participants acknowledged that: "...the reasons for the usage of electronic health programs are a lot such as concerns about medical errors, progress in patient-oriented treatment systems, rationalize care and increase its effectiveness versus costs (P7). In accordance to the participants' opinions in sum it seems that electronic health is a key factor in order to care quality enhancement that its effect and importance on services delivery methods expressed as following general characteristics:

- 1- Efficiency: One necessary and significance aspect of electronic health is the improvement of efficiency level and costs decrease in health sector.
- 2- Quality improvement: All aspects of quality improvement of services delivery in all steps from diagnosis to patient follow up are taken to account that the most important dimension is direct relationship with patient and grant of the option to patients.
- 3- Increase of assessment credit: Applying the electronic health system causes a more simple, efficient and effective methodical assessment system.
- 4- Increase the access and privileges field: Through applying electronic health system, patients' access to medical information, electronic records and internet are doubled.
- 5- Persuasion of communication: Establish a new and mutual relationship between patient and healthcare personnel in order to resolve patient problems through collaboration.
- 6- Education: The physician via internet system can provide necessary training to his patient that this in turn improve the patients' awareness level.
- 7- Empowerment: Exchange of information and communication in a standard way empowers the health system in providing optimized services.
- 8- Services range development: Electronic health enables patients to access global healthcare services providers simply and with no limitation. The range extent of these services include from a simple consultation to necessary drug and equipment purchase.
- 9- Customer satisfaction: Since the electronic health causes acceleration of providing some services to patients, it can increase their satisfaction.
- 10- Equity: Electronic health through providing appropriate and rapid access is considered as one of the instrument of justice. But here according to three of the interviewees' opinion, one point that should be taken to account is whether electronic health in poor communities or lack of access to information and communication technology is also toggle justice.

- III. *Electronic health advantages:*** There is a lot of evidence in the electronic health effect on optimizing healthcare systems. In this regard one of the participants mentioned one amazing experience: "In a hospital there has been set a plan for diabetic patients through electronic health for four years that its results are surprising namely it caused \$510000 saving in one year" (P11), this informed participants in other part of his words pointed: "...other same plan has been set for heart attack which includes remote supervision and education of patients and has resulted in reduce patients length of stay due to readmission from 30 days to zero and 90 days patients length of stay in hospitals decreased by 83%" (P11). On the other hand in addition to these economic benefits about 75% of the participants believed that one of the main advantages of electronic health development in communities is improvement of the citizens' awareness level of their public health and subsequently increase of their responsibility level for their and community wellness and health.
- IV. *Electronic health and internet:*** The majority of participants (24persons/85.7%) believed that the access to the health information is one of the most common reasons for the usage of internet, however national health officials focused on a mixture of electronic health services such as electronic health records, patient electronic records, ....Therefore the exceptions of internet are different. In this regard one of the participants stated: "between 56% and 79% of internet users in the United States seek health information".(P5).On one other hand the participants believed that internet potentially has potential to empower patients and stimulate patients involvement and on the other hand internet application also faces to potential risks such as releasing inaccurate information and inappropriate usage of it. In this regard one of the participants said "... the people who seek health information via internet often report that convenience, anonymity and high information volume which they access them online are valuable" (P18).
- V. *Physician opposition to electronic health:*** Unlike what is discussed about the necessity and importance of electronic health so far, some participants pointed out the physician opposition to the development of electronic health application and internet information acquisition about health and illness by users. One of the participants justified the reason of this issue as followed: "It seems that there are two reasons. One is power and the other is risk issue. Power means that physicians want to control medical initiatives themselves and risk means that they want to control the initiatives and decisions which they are responsible for" (P25). The other physicians' concern may be the increasing number of sites that advice treatment implicitly and these treatments and drugs are not always necessarily effective and may increase self-treatment with plant treatment, use of high doze supplements, homeopathy and ..." (P28). So according to summation of opinions it seems that despite undeniable advantages of electronic health development, there are lots of concerns related to the quality of available information and potential risks related to improper application it around the world.
- VI. *Electronic health prerequisites:*** All participants unanimously believed that specific prerequisites for successful applying electronic health are needed for instance: "telecommunication is a infrastructure and essential prerequisite for access to internet and finally for electronic trade for example Singapore which is considered as a pioneer country in establishment of perfect infrastructures for



electronic health, enjoys a wide bandwidth so that covers up to 98% of offices and homes “(P4). Therefore according to summation of the participants opinions it could be enumerated for important and essential prerequisites for any successful electronic health innovation as following:

1. infrastructure of information and communication technology includes telephone lines, route fiber, underwater cables, satellites, ground stations, access to computer, wide band width and services related to site download and...

1. Standardization policies, protocols and procedures so that in fact standardization is considered as an essential key for achievement of complete and comprehensive electronic health coverage and it should become obvious and clarified from the beginning.
2. Users access that in turn includes two dimensions, one is access to internet services and other is access to electronic services, in this regard the governments are responsible for this obligation in order to modify the cost of regional demand, rent, subscription and others somehow for their citizens.
3. Governmental supervision and control: According to the significant challenges in applying electronic health such as these plans` cost-effectiveness and practicability and easy application of them for the users, and according to specific nature of health care and health information and data sensitivity as well it is necessary that the governments not only have supportive supervisions for facilitate the exchange of healthcare records between various health stakeholders but also ensure patients rights privacy and secrecy.

**VII. Implementation of electronic health program:** 22 of participants (80%) believed that legal sponsorship from health sector is necessary for implementation of electronic health patterns in state and na-

tional level, so that is obvious there are also challenges in national development of such plans for instance one of the participants acknowledged that “...development and education in electronic health system, electronic health monitoring and assessment system and its legal status, electronic health structure, definition of state macro policies and related strategic plans and finally electronic health financing system are the most important challenges in nationalization of this system” (P26). Moreover, through summation of the participants opinion about issues in the field of establishment and implementation of this system in national level, considering six categories of issues is necessary as followed:

1. Communication and information technology and electronic health: Information management for maintaining the quality of healthcare is necessary. If a patient`s prescription is wrong, his condition is not diagnosed properly and he does not have access to healthcare regularly, whatever we commiserate with the patient, there is nothing to do. The range of information and communication scope begins from the use of this technology by primary healthcare team for patients` management, electronic medical records and prescription and extends to information acquisition by healthcare specialists. Electronic health can also be used for medical education continuity.
2. Standards and electronic health: According to the standard definition “determine the desired minimum”, in order to implementation of electronic health system, considering standards are so important. In this regard determination of communication standards and their methods, appropriate equipment and their safety, number of personnel in each position, re-

- quired information and physical structures are the fundamental steps.
3. Laws and regulations and electronic health: What is certain is the spent time behind the computer screen belongs to patient and more importantly is the measurement of arrangements that an electronic system would be able to protect personal information security.
  4. Medical records and electronic health: The main component of electronic health is preservation of electronic records related to individual health condition. Development of electronic health records provides the possibility of sharing medical records between healthcare providers and patients regardless of used system that includes: determination of patient identification index, domain and range of access to patient information, method of patient access to health records, method of physicians and health personnel access to health information, categories style and quality of available information.
  5. Hospital and electronic health: However electronic health does not result in providing appropriate healthcare to all the patients, it may play an important role in improvement of healthcare. However, provided that the implementation of electronic health accompanies with understanding basic processes of healthcare. Hospitals use communication and information technology for logistic planning, patients management, nursing, pharmacy, radiology, laboratory information completion, electronic messaging between hospital and other healthcare personnel in order to clinical connection and information management, telemedicine and being aware of the other views in each field.

6. Remote education and electronic health: This wide range in electronic health not only include holding training courses for physicians and health-care team but also play major and fundamental role in increasing patients awareness level. When a patient of citizen uses the electronic health services that demand online information, he also obtains required information from this instrument in order to his illness management practices.

**VIII. *electronic health acceptance:*** According to summation of the participants opinions and words (25 participants/88%) four categories of main factors as the most affecting factors on electronic health were identified:

- 1- The effect of health technology education on electronic health: With this explanation that health consumers who have been more educated in the field of information technology, they have more motivations to opt electronic health.
- 2- The effect of society illness rate on electronic health: If illness rate in a society is less and simultaneously that society awareness of electronic health is higher, the possibility of electronic health innovations acceptance increases.
- 3- The effect of socio-cultural factors on electronic health: Considering cultural dimensions is required in order to successful implementation of electronic health initiatives since socio-cultural factors would have moderating effect on electronic health initiatives in every country. One of the most important of these factors is language difference in various countries that would have double impact especially in evi-

dence based medicine publication and option.

- 4- The effect of global economy position on electronic health: All governments are aware of the significance and fundamental role of the internet in countries economy. Electronic health would also has potential to countries economy strengthen and future growth however poor physical structures accompanied with bureaucracy and corruption would create major barriers to successful electronic health initiatives development.

**IX. *Electronic health system challenges:***

More than half of the participants (17 persons /60 percent) believed that however globalization of electronic health has benefits such as increase the level of access to healthcare services, quality improvement and also making the services cost effective, it faces to problems and challenges in its operational process. According to summation of opinions of the participants in this study, the problems and challenges were identified as followed:

- 1- Electronic health system development has led to required personnel number reduction in some fields that resulted in creating a wave of concern between personnel and even some of personnel expulsion.
- 2- The necessity of improvement of personnel knowledge and awareness level and their empowerment in order to use of a new technology is considered as one other challenge in the most organizations. Among these plans it can be pointed out to

providing basic training for optimum performance, education continuity in order to improvement of skill and ability to implement it, as well as updating individuals information.

- 3- Paying attention to education method, time and content are also considered as the concerns of the organizations that have proceeded to use health system technology since the customer awareness range in health system field is so wide and covers from an illiterate patient to an expert and specialty physician.
- 4- Lack of financial support and poor economic vigor as well as lack of awareness and ability to use the computers would cause not taking advantages of many available possibilities in electronic health field in most of the countries.
- 5- Considering the principle of confidentiality, security and confidence in this system and lack of regular framework for information confidentiality assurance and patients trust attraction are other points that were identified by the participants as the challenges.
- 6- The challenges related to optimal working relationship development between consumers and other stakeholder groups in healthcare should also be targeted.
- 7- Standardization faces to absence and shortage in many health fields and this absence in electronic health is more obvious.



**Table 1:** Participants` opinions about electronic health

Main themes	Sub themes
Electronic health definition	-
Importance and necessity of electronic health	<ul style="list-style-type: none"> <li>Efficiency</li> <li>Quality improvement</li> <li>Assessment credit increase</li> <li>access and privileges field increase</li> <li>Persuasion of communication</li> <li>Education</li> <li>Empowerment</li> <li>Services range development</li> <li>Customer satisfaction</li> <li>Equity</li> </ul>
Electronic health advantages	-
Relationship between electronic health and internet	-
Physician opposition to electronic health	<ul style="list-style-type: none"> <li><b>Power</b></li> <li>Risk</li> </ul>
Electronic health prerequisites	<ul style="list-style-type: none"> <li>Infrastructure of information and communication technology</li> <li>Standardization policies and protocols and procedures</li> <li>Users access includes access for internet services and access for electronic services</li> <li>Governmental supervision and control</li> </ul>
Solutions for implementation of electronic health program	<ul style="list-style-type: none"> <li>Communication and information technology and electronic health</li> <li>Standards and electronic health</li> <li>Laws , regulations and electronic health</li> <li>Medical records and electronic health</li> <li>Hospital and electronic health</li> <li>Remote education and electronic health</li> </ul>
Affecting factors on electronic health acceptance in society	<ul style="list-style-type: none"> <li>The effect of health technology education on electronic health</li> <li>The effect of society illness rate on electronic health</li> <li>The effect of socio-cultural factors on electronic health</li> <li>The effect of global economy position on electronic health</li> </ul>
Electronic health system challenges	<ul style="list-style-type: none"> <li>required personnel number reduction necessity</li> <li>improvement of personnel knowledge and awareness level and their empowerment necessity</li> <li>Paying attention to education method, time and content necessity</li> <li>Lack of financial support and poor economic vigor and lack of awareness and ability to use the computers</li> <li>Lack of principle of confidentiality, security and confidence</li> <li>The challenges related to optimal working relationship development between consumers and other stakeholder groups</li> <li>Lack of adequate standardization</li> <li>Hardware limitation</li> <li>A few numbers of communication and information technology specialists and technicians</li> <li>Existence of cultural barriers</li> </ul>

- 8- Limitation in hardware such as computer is also another facing problem and challenge.
- 9- High costs of information obtaining and electronic health system establishment especially in remote areas.
- 10- A few numbers of communication and information technology specialists and technicians for equipment maintenance and protection or users education.
- 11- The acceptance of communication and information technology occurs slowly since it considers a cultural change.

## Discussion

This study indicates that electronic health definition, importance and necessity of electronic health, electronic health advantages, relationship between electronic health and internet, physician opposition to electronic health, electronic health prerequisites, solutions for implementation of electronic health program, affecting factors on electronic health acceptance in society, electronic health system challenges are determined as the main themes from managers' viewpoints.

According to international conditions especially globalization of trade and communication, in the world today, countries political and military authority depends on economic, social, cultural and above all productive technological coordination development. Obviously in the meantime a series of changes in health sector would be seen. On the other hand, electronic trade has been considered as the most important business aspect in the twenty first century and also a strategic necessity for countries till they can achieve economic and commercial welfare as well as social success through electronic trade tools (12). One of the most available areas in electronic trade is electronic health that has not achieved its complete potential yet in many countries due to low speed of health sector adaption of communication and information technology (13).

Electronic health has affected infrastructures, financial and executive issues of healthcare system greatly and reduced the administrative costs largely while the participants in this study also believed that electronic health is a key factor in healthcare quality improvement. In other words, the results of current study revealed that from the participants' viewpoint efficiency level improvement, cost reduction, services quality improvement and access area increase can be considered as electronic health system characteristics and this issue is consistent with three principles of quality, access and economic profit that were considered as justification for implementation of electronic health system (14). However in this regard it is suggested to use appropriate assessment implements in order to monitor the rate of approaching to the mentioned characteristics.

Current results have pointed out numerous challenges and problems in electronic health field versus mentioned characteristics and advantages that of which required personnel numbers reduction due to establishment of electronic health system, necessity of personnel's knowledge and awareness level improvement and empowerment as prerequisite for services delivery, Lack of financial support and poor economic vigor in some communities and inland areas, as well as lack of awareness and ability of some people in use of computer, lack of appropriate standards, information confidentiality and data security problems, limitation of hardware power,... can be mentioned while other scientific resources have depicted four categories of technical, social, economic and political challenges for electronic health (15) and among them focused on problems related to information confidentiality, access limitation, poor technological awareness etc. more than before.

Other current study results are based on people who have more educated in information technology, would have more motivations for electronic health choice. On the other hand other studies point understanding of electronic health would increase health awareness, improve decision making effectiveness, develop positive relations between consumer and provider and increase in-

volvement of electronic health and health services delivery network (6).

In other part of current study results in the discussion above electronic health system challenges, the participants pointed low speed of communication and information technology acceptance due to cultural issues, in this regard international studies on electronic trade have shown that electronic health choice is widely affected by cultural dimensions (16). As an example a comparative study between various cultures showed that Indian's score of the item of uncertainty avoidance has been reported high in comparison to western counterparts. As a result Indians do not accept changes simply and do not have high flexibility in response to innovation [11], so according to recent results it seems that risk aversion and lack of entrepreneurial thinking addition to other socio-cultural dimensions may effect on success or failure of innovation in a country. In electronic health and internet theme, the results indicated that access to health information is one of the most common reasons for using internet and health national officials focus on various applications of internet in the form of combination of electronic health services such as electronic health record, patient electronic records and etc. In this regard statistics indicate that in 2003 about 62% of American internet users have searched the internet for obtaining health related information. But in some cases, citizens use general search engines in order to access for health information instead of appropriate and related websites. In the meantime in the same year, 40% of European users have used the internet in order to access for health information and services (7). In this regard White and Bootz showed that 20% of 93 patients had used the internet for health information obtaining (17). After one month patients follow up, more than 50% of them have had access to internet and 82% were interested in accessing the websites with related medical information (18).

On the other hand, a study by Holiday and Tom showed that more than 90% of patients have expressed interest in communication with physicians via electronic post but the physician were unwillingness to this issue. The physicians stated that

their unwillingness main reasons were confidentiality of physician-patient's relationship, time limitation and fear of medical errors and also these results are somewhat similar to mentioned results in physicians opposition to electronic health theme in this study (19).

This study has some limitations as follows: the restricted number of participants, lack of possibility in designing a mixed method study and triangulate the qualitative data with the quantitative one, lack of possibility in selecting various participants from the other parts of the country and also private sector like private hospitals.

Considering all the above it seems that there are good circumstances in the south medical universities about settlement and implementations of electronic health and their managers are aware of its advantages, importance and necessities. The present findings implicate that these organizations should consider the user friendly and probable resistances of the present clients, in this regard it is suggested that the used technology must be accepted by users, having standard base, inexpensive and simple enough while less vulnerable in response to changes.

## **Conclusion**

Universities of Medical Sciences in south of Iran are situated in a suitable condition implementing and applying electronic health as a tool of health improvement in the country.

## **Ethical considerations**

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

## **Acknowledgment**

Authors would thank all the 28 participants from universities of medical sciences in south of Iran. There is also declared that no funding support or conflict of interest was existed.

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