



## **Futures Study in Health: A Review Study**

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### **ARTICLE INFO**

#### **Article History:**

Received: 22 Jun 2018

Revised: 23 Aug 2018

Accepted: 14 Dec 2018

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### **ABSTRACT**

**Background:** Future is being continuously created at any moment and never stops. By reviewing the future, it can be discovered, evaluated and assessed to create desirable future. The health sector is daily faced with a variety of threats at different environmental, social, cultural, economic and political scales. To deal efficiently with these threats, it is necessary to use the future as an opportunity to promote people's health by investigating, anticipating and building it, and managing it properly. Therefore, this review was conducted with the aim of determining the domains and methods of future studies in the health sector.

**Methods:** In this review article, searching was performed by terms futures study or forecasting or foresighting and health sector in four databases consisting of Two Persian databases Magiran and the Scientific Information Database and Two English ones Google Scholar and PubMed. In the first search, 531 articles were selected and retrieved. After the titles and abstracts were read and duplicate articles were excluded, and then the full texts of the remaining articles were reviewed, seven articles were included in the final analysis.

**Results:** The results of studies in the health sector show that future studies is an important tool and evidence for policy makers in almost all areas of the health system's functions, such as determining the amount and types of services needed, training specialists and other health sector's staff, allocating funds, the number of beds and other facilities, developing and constructing of hospital wards, etc.

**Conclusion:** The results of studies in the health sector indicate that futures study provide important tools and evidence for policymakers in almost all areas of the health system's functions, such as determining the amount and types of services needed, allocating funds, number of beds, expansion of hospital departments, technology requirements, the impact of policies and programs.

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**Keyword:** Futures Study, Foresight, forecasting, Health

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### **Citation**

**This paper should be cited as:** Pouragha B, Baghian N, Najafi M. **Futures Study in Health: A Review Study.** Evidence Based Health Policy, Management & Economics. 2018; 2(4): 290-6.

## Introduction

The dream of knowing and being aware of the future has long drawn many people's efforts throughout history. The future is being created as the time advances, and never stops. In all societies, there have been certain perceptions of time and the future, and its roots date back to the old past and can be found in foretellers' narrations of future events (1). Future studies is a systematic study of possible, feasible, and desirable futures that incorporate worldviews and myths that encompass any future (2). Wendell Bell, one of the major thinkers in the field, defines future studies as follows: Future studies are an independent discipline that aims to study the future systematically. Futurists seek to discover, invent, present, test, and evaluate possible, probable and better futures. They offer different choices about the future to humans and help them in choosing and founding the most desirable future (3). Future studies is knowledge and art that helps people well identify the events, opportunities and threats of the future, and cleverly select desirable and sought-after futures from among possible, believable and probable futures so that they will not construe the future as rigid, decisive, definite and unchanged (4). The crises and problems of the current time are the most justifiable reasons for thinking about the future, because if you think about obstacles and problems and take necessary measures, the problems may not turn into a crisis. In future studies, there are two concepts and approaches: forecasting and fore sighting. Forecasting refers to discovering and anticipating the future, helping eliminate the uncertainties of the future, and fore sighting refers to active and creative effort made to build a desirable future and also dialogue about the future by using an active and appropriate approach. Fore sighting also refers to deliberate, systematic and special collection of the future and the process of constructing a mid- to long-term perspective with the aim of empowering current decision making and mobilizing joint actions (5).

Futures study has entered the health sector from about the 1980s, yet this approach is still not well-known among health professionals. For any

organization, especially healthcare delivery organizations, the future is meant to achieve an appropriate space for product development and more complete and long-term access to its own goals. Future studies can help create new ways of thinking or make political decisions in the health sector, and allows organizations and individuals to work together to draw their own future (6).

The prediction of future demand in healthcare organizations is an essential element of the planning process. Understanding these differences is essential for healthcare organizations such as hospitals, medical groups, etc., to prepare a long-term care plan for the future of medical care (7). Forecasting is helpful to efficiently and effectively allocate hospital resources, which is an important issue. The ability to accurately predict the number of patients admitted, and to forecast the census in the hospital, are significant reasons for allocating hospital resources at micro levels and macro levels, for example, to improve the allocation of hospital beds, reduce deviations, deliver better hoteling services in hospitals, and reduce the incidence of medical care understaffing or overstaffing. Most importantly, the precise census forecast can potentially improve patient outcomes during the high census period (8). As approved by the World Health Summit in 1990, the World Health Organization (WHO) has been assumed to promote national future studies for health service planning and development. The WHO has begun to study the fields of future studies and obtain information about the use of futures studies to assess trends and forecast (9).

Futures study helps coordinate and adapt the requirements and capabilities of the staff. Future studies are aimed at drawing and planning for the future, increasing the participation and commitment of employees and stakeholders, maintaining and enhancing activities or organizational creativity, and changing the future. Health policy makers and health sector policy maker can gain a much clearer vision of the future by using future studies, and make necessary coordinations by identifying and anticipating

future needs and changes to prevent or reduce the incidence of adverse outcomes in the future. The (financial, human, etc.) resource limitations have necessitated the use of futures studies. Using this approach, it is possible to identify the necessary fields for investment, and to exploit resources in a manner so that the purpose(s) of interest could be fulfilled, and in the best possible way to prevent waste of resources. The results of futures studies provide important instruments and evidence for policy makers in almost all areas of the health system's functions, such as determining the amount and types of services needed, training specialists and other health sector's staff, allocating funds, the number of beds and other facilities, developing and constructing of hospital wards, etc. Therefore, this review was conducted with the aim of determining the domains and methods of futures study in the health sector.

## Materials and Methods

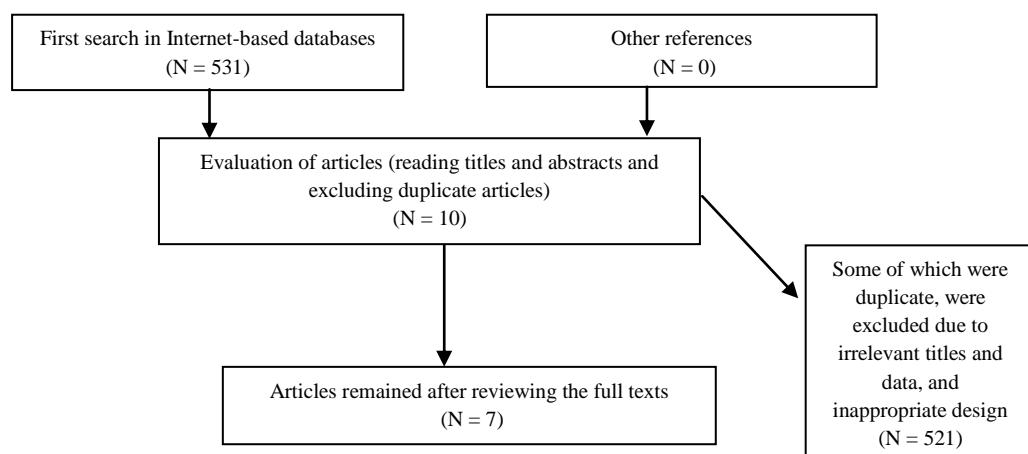
In this review article, searching was performed by terms futures study or forecasting or foresighting and healthsector in four databases consisting of Two Persian databases Magiran and the Scientific Information Database (SID) and Two English ones Google Scholar and PubMed. The eligible articles that had been published throughout a 10-year period (from 2008 to 2018) were retrieved and search was conducted on two consecutive days, 31 December 2017 and 1 January 2018. Inclusion criterion was the study of the trend and future of the health sector. In the first

search, 531 articles were retrieved (consisting of 39 articles from Magiran, 2 from SID, 80 articles from PubMed and 410 articles from Google Scholar). The evaluation was carried out in two stages; first, the title and abstract, and then the quality of the articles were evaluated by two of the authors. Seven articles were included in the final analysis. It is necessary to mention that this study tried to comply with Helsinki declaration principles.

## Results

In the first search, 531 articles were retrieved (consisting of 39 articles from Magiran, 2 from SID, 80 articles from PubMed and 410 articles from Google Scholar). In the first step, after the titles and abstracts were read and duplicate articles were excluded, 10 articles remained. In the second step, the full texts of the articles were completely reviewed by the author and then seven articles were included in the final analysis (Fig. 1).

The results of the studies have shown that future studies are generally used to identify the capacity needed to develop health policies and, consequently, identify shortcomings and deficiencies in the system as well as existing political gaps. In addition, these studies generally help predict health demands, health needs, disease trends and changes as well as technology and equipment. By identifying existing capacities and future needs, governments can provide a successful process to provide health for all people in community (11-17).



**Figure 1.** Flowchart of articles inclusion

**Table 1.** Summary of Selected Articles

Main results	Research methodology	Authors
The results indicated lack of capacity for the development of health policies. There was a significant political gap in some regions. Certain changes were reported to face the implementation of the policies. While the Ministry of Health sought to develop various regulations to arrange different aspects of the health system, there were some gaps in the regulatory framework. The poor enforcement of the rules was a challenge. In spite of the fact that the Ministry of Health has many stakeholders, the mechanism for stakeholders' participation in the planning process was poor.	Interviewing with 54 main staff of Ministry of Health and 14 stakeholders	Seitio-Kgokwe et al. (10)
One of the main scenarios presented in the study was a description of the lifestyle and addiction in 2030. Four of the mini-scenarios were described in a way that they indicated that the (possible, probable and desirable) future may be different, and that its application can lead to different social and individual impacts.	Scenario writing - The goal is to provide an initial perspective and to correct how the advancement of societies, technology and knowledge can affect our perception of addiction and lifestyle in the next 20 years.	Karlsen et al. (11)
A framework was recommended to accredit the institutes of home care for medicare.	Interviewing with leaders and main stakeholders about the future of home health care	Landers (12)
Continuous Growth/High Technology Growth, Hard Times /Government Leadership, Customers Market, New Civilization, Treatment and Medical Care. The comprehensive studies that were conducted in the Netherlands from 1985 to 1988 focused on the emerging health technologies, including neuroscience, use of lasers for the treatment of ischemic heart disease, biotechnology, new vaccines, genetic testing, computerized medical imaging and home care technology. The prediction of health resources for China was described using simulation models to estimate the demand for hospital beds and physicians between 1990 and 2010. The Statistics Canada's New "Population-health Model" (POHEM), which is based on the individual life cycle health theory, was also presented. Statistics Canada's new "population-health model" (POHEM) A system for continuous modeling was introduced by the US Department of Health, which represents the model of physician supply to predict the existing goals of the health care reform. An artificial neural network was also introduced to predict the length of hospital stay.	Scenario writing; five scenarios were outlined for health care in the United States of America	Sapire (13)
After an evaluation, 11 articles published between 2000 and 2015 were eventually retrieved. Articles were divided into two groups: Forecast articles (no.: 7) that investigated the future of health information technology within 10 years, foresighting studies (no.: 4) that were conducted by using a combination of techniques, such as scenario writing and Delphi method. The results of studies can help create realistic expectations about the future of health information technology.	Review; to review and compare studies mainly addressing the future of health information technology	Hemmat et al. (14)
The results showed that the wards of future hospitals could be divided into four classes in terms of service delivery. Public and otherwise wards spread across the country, the wards to deliver specialized and subspecialty services, which are found only in a few hospitals of the country, luxurious and unnecessary hospital wards,	Interviewing with the elites to outline the development of hospital wards	Amin (15)

and complementary medicine wards.

The results indicated that increasing or decreasing the capabilities of NGOs in Iran's health sector and public participation in nongovernmental activities will be two of the leading uncertainties facing the advancement of these organizations in Iran in 1404. Government's orientation, the role of NGOs in strengthening their own abilities and public awareness of participation in nongovernmental activities affect the future of NGOs' accountability.

Scenario writing; first, large scenarios about the future of accountability of NGOs in the were outlined, and then the accountability status and its characteristics, and the research questions were answered in each of the scenarios.

Zahedi (16)

## Discussion

A review of studies showed that many studies used scenarios or interviews with experts (10-16). The scenario can refer to describing the possible future situation, including the developmental methods that will lead to this situation. The scenario is not aimed to provide a complete description of the future, but rather to emphasize the central elements of the possible future and to draw attention to the key factors that guide future developments. Many scenario analysts argue that scenarios are hypothetical structures and do not claim that the scenarios they have created represent reality (17). Interview with experts is one of the most common methods for conducting future studies. Experts and elites help gain more similar results to the realities (18).

The results of the reviewed studies have shown that future studies are generally used to identify the capacity needed to develop health policies and, consequently, identify current shortcomings and deficiencies in the system as well as existing political gaps. On the other hand, these studies generally help predict health demand, health needs, disease trends and changes as well as technology and equipment. By identifying existing capacities and future needs, governments can provide a successful process to provide health for the whole community (10-16). The health sector policy maker are daily faced with a variety of health threats at a variety of environmental, social, cultural, economic and political scales. Emerging and re-emerging diseases, lifestyle changes, climate change, and other issues threaten the health of humans. To deal appropriately with these threats, it is necessary to identify their potential impacts on

the health area by examining their process of emergence, formation and development, and use them as opportunities to promote people's health by means of proper management (19). By thinking of the past problems and taking the necessary measures to resolve them, it is likely that the problems that have occurred not be conceived as crisis at the present time. Besides, the high speed of change, especially in the terms of technology and demographics, and available resource limitations have dramatically intensified the need for paying attention to the future. For any organization, especially health services, the future is meant to achieve an appropriate space for product development and more complete and long-term access to its own goals. Future studies can help create new ways of thinking or make political decisions in the health sector, and allow organizations and individuals to work together to draw their own future (6).

According to studies, futures studies and forecasting and building the future, is a solution to identify existing capacities and changing needs. By identifying their current capacities and future needs, organizations can guarantee their survival. As with and probably more than any organization, health sector is faced with future changes, and therefore has to identify them and take measures to deal with the future. Using techniques and methods of future studies will help the healthcare system to this end.

## Conclusion

Future studies are aimed at drawing and planning for the future, increasing the participation and commitment of employees and stakeholders,



maintaining and enhancing activities or organization and creativity, and changing the future. Health policy makers and health sector policy maker can gain a much clearer vision of the future by using future studies, and make necessary coordinations by identifying and anticipating future needs and changes to prevent or reduce the incidence of adverse outcomes in the future. The (financial, human, etc.) resource limitations have necessitated the use of futures studies. Using this approach, it is possible to identify the necessary fields for investment, and to exploit resources in a manner so that the purpose(s) of interest could be fulfilled, and in the best possible way to prevent waste of resources.

The results of studies in the health sector show that future studies is an important instrument and evidence for policy makers in almost all areas of the health system's functions, such as determining

the amount and types of services needed, training specialists and other health sector's staff, allocating funds, the number of beds and other facilities, developing and constructing of hospital wards, etc.

### Acknowledgment

Thanks are owed to the TEHRAN University of medical sciences.

### Conflicts Of Interest

There is no conflict of interest to be declared.

### Authors' contributions

Najafi M Designed research; Najafi M and Baghian N Conducted search; Najafi M, Baghian N and Pouragha B assess article by title and abstract; Najafi M and Pouragha B Review article for quality assessment; Najafi M Wrote the paper. All authors read and approved the final manuscript.

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