



## Analysis of Iran's National Medical Education Evolution and Innovation Plan using the Michelle and Scott's model of policymaking

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### Abstract

**Introduction:** Lack of a clear policy for the development of health human resources has created inconsistencies. These imbalances are threats to the health system to achieve its goals. Therefore, the development of human resources through proper performance of higher education health system is an important part of the policy development process of the health sector. The present paper aims to introduce the methods applied for the compilation of evolution and innovation program of medical sciences training as well as the most important directions for evolution and innovation.

**Methods:** In this study, we evaluated the methodology for designing packages of Iran's higher education health system evolution and innovation. For this purpose, the evaluation of the policy process was conducted based on Michelle and Scott's policy process models. This policy evaluation model starts by problem identification and definition and continue by agenda setting, policy formation, legitimation, implementation, evaluation, and policy modification, using the proper feedback. Qualitative content analysis method was used as a research method for subjective interpretation of the content of the text data.

**Results:** Twelve policies, 68 strategies and their translation in the health system were adopted in a comprehensive plan for higher health education. Eleven practical packages were also developed in order to implement these policies as packages for reform and innovation in medical education. These packages were organized based on the IPOCC pattern.

**Conclusion:** The lack of a comprehensive look at each project or program could bring about irreparableness consequences. However, the MoHME of Iran, relying on the integration of health higher education with health care system and comprehensive method used for transformation and innovation plan in the field of health higher education could take an important step towards improving the nation's health.

**Keywords:** Health, Medical education, Manpower, Policy, Evolution

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Please cite this paper as:

Pourabbasi A, Akbari H, Akhvan AA, Haghdoost AA, Kheiry Z, Dehnavieh R, Rahimi H, Noori Hekmat S, Larijani B. Analysis of Iran's National Medical Education Evolution and Innovation Plan using the Michelle and Scott's model of policymaking. *J Adv Med Educ Prof.* 2019;7(1):20-26. DOI: 10.30476/JAMP.2019.41041.

Received: 10 April 2018

Accepted: 28 October 2018

## Introduction

The growing trend of inequality in the health status, access problems and reduced yield of investment in health care and difficulty in controlling the costs have forced the countries to reform their health systems (1). The impressive number of manpower in the health sector and dependency of this department's performance on competent and motivated workforce result in the importance of issues related to human resources in health sector reforms. At the same time, supporting the labor force to ensure successful performance of the reforms is of great importance (2).

Now in many countries, inadequate human resources in terms of the number have not been properly allocated to different occupations and geographic areas. Lack of a clear policy for development of health human resources has created inconsistencies. These imbalances are threats to the health system to achieve its goals. Therefore, the development of human resources through proper performance of the higher education health system is an important part of the policy development process of the health sector (1).

The realization of an effective, accessible, sustainable and high-quality health care system is highly dependent on the status of medical education and training of related human resources (1, 3, 4). The quality of human resources trained in the medical education system is influenced by various factors such as educational policies, funding, monitoring mechanisms, etc. (5). These factors are different in different countries, so significant differences exist in the manner of training human resources in health systems around the world.

Higher education health system in Iran through integration with the servicing system has a unique structure. Iran's Health Ministry in 1982 implemented the sanitation network system across the country in order to provide primary health care. However, the inadequate number of manpower was the main problem in the process of implementation of this program. At this time, the Supreme Council of Cultural Revolution decided to secede the universities of medical sciences from the Ministry of Science and combine it with Health Ministry in order to increase the number of health students, especially medical students. Finally, in 1985, the strategy was approved by the parliament. Following the implementation of a combination strategy, the entire educational programs including research plans and services of universities of medical sciences were brought under the inspection of Ministry of Health and

Medical Education (MoHME). Since then, the universities of medical sciences were established (at least one university in each province) (6, 7). Much of the authority of the Ministry is education and training of human resources in health care in Iran (8, 9).

After integration, Health Higher Education in Iran has brought about significant achievements for the country's health system. Undoubtedly, training thousands of skilled workers in different levels of medical sciences has played a significant role in the health promotion and self-sufficiency of the country's advanced medical services (7). In addition to these achievements, Iran's higher education health system has confronted challenges such as inadequate coordination and alignment with the health care system, lack of clarity of the indices indicating the level of quality of medical education, weakness in decision-making and evidence-based policy, distribution and extent of decision-making centers, weak monitoring and evaluation of approved policies and programs, and weak supervisory regulation (10). In addition to these challenges, the rapid growth of science, rate of changes in the health system and public needs, changes in the demography of the country, and emergence of new and advanced technologies make the environment more complex.

The emergence of such challenges has enforced the higher education health system in Iran to implement the reforms, while those of this sector are followed as one of the most important health reform program in Iran. Iran's MoHME has begun the reform program in the health sector since 2014. In this regard, the fourth step of the project in Iran is the transformation of the higher education health system. Firstly, a comprehensive program of higher education health system of this country was compiled based on national macro documents including Iran's Vision Policy of 2025, holistic scientific map of the country on health and health reform plan (11). The holistic scientific map on health demonstrates the major goals and the strategic plans of the MoHME in the scopes of education, research and technology (12). Then, in order to plan for the implementation of policies and strategies which have been targeted in this map the packages of Iran's higher education health system evolution and innovation were compiled and implementation of these packages nationwide was transferred to universities of medical sciences (11). The present study aimed to introduce and evaluate the methods applied for the compilation of evolution and innovation program of medical sciences training as well as the most important directions for evolution and

innovation.

## Methods

In this study, we evaluated the methodology for designing the packages of Iran's higher education health system evolution and innovation. For this purpose, the evaluation of the policy process was conducted based on Michelle and Scott's policy process models. This policy evaluation model starts by problem identification and definition and continues by agenda setting, policy making, legitimation, implementation, evaluation, and policy modification using the proper feedback (13).

In problem identification and definition stage national macro documents of the Islamic Republic of Iran were precisely examined by seven experts in the field of medical education at the level of ministries and the universities of medical sciences, using qualitative content analysis method. National macro documents included Iran's Vision Policy of 2025, documents of Supreme Council for Cultural Revolution, holistic scientific map of the country and comprehensive scientific map of health and major policies of the health system reform plan.

In agenda setting stage, the primary version of higher education health system program was compiled, using a panel of experts consisting of seven experts of medical education. The agenda was set based on national macro documents of the Islamic Republic of Iran.

After compiling the strategic planning as a policy agenda, the medical education evolution and innovation packages were developed in forming policy stage. At this stage, a panel of experts was held consisting of administrative managers of education in MoHME and several experts as consultants. The packages were organized based on Input, Process, Output, Context, and Control (IPOCC) pattern. Based on this planning model, higher education health system has a series of inputs in which the system output requirements will be met by the implementation of a set of processes on them. Obviously, these activities occur in a specific framework or context while monitoring, evaluation and control measures govern the entire processes and sections of higher education health system.

In legislation stage, the primary version was discussed to provide feedback in the board of directors of Education Deputy of MoHME. After considering the views of the board of directors, the second version was drafted. Then, the second version was discussed at a meeting by deputies and superior managers of the MoHME of Iran. Corrective feedback was gathered again and the third version was compiled based on it.

Finally, after approval of the deputy council in the Ministry of Health, Treatment and Medical Education, the third version was communicated to universities of medical sciences and other institutions of higher education. In this regard, the universities and higher education institutions were asked to compile university action plan for the realization of the programs of this policy. Evolution and innovation packages, after taking feedback from the experts in ministries and universities, were finally ready to be run after thirteen editions.

In order to cover all aspects of implementing the medical education evolution and innovation packages, goals and operational actions were defined in Legitimation stage. These assessment and evaluation systems are designed based on these goals and operational actions. Also, to ensure the implementation of the second and third stages, strategic monitoring of major policies in the field of education and monitoring plan and supervising the implementation of evolution and innovation packages were considered.

### Participant selection

The selection criteria for the experts included participation in management or policy making of Iran medical education or health. The panel of experts was held in the ministry of health and a total of 14 experts participated in these panels.

### Data analysis

Qualitative content analysis method was used as a research method for subjective interpretation of the content of the text data. A systematic classification process was used to summarize the raw data related to the field of medical education in national macro documents based on interpretation.

## Results

As mentioned, the Iran's National Medical Education Evolution and Innovation Plan evaluated the use of Michelle and Scott's policy process models. Based on these model stages, the results are described.

**Problem identification and definition:** Review of relevant documentation shows that the MoHME has defined the necessity of evolution in higher education health system as though Minister of Health and Medical Education pointed to the necessity of "*Revising the training process of human resources section due to fundamental changes in the country's prevalence of diseases especially the increase in non-communicable disease burden, emergence of new and advanced diagnostic and therapeutic technologies, and changes in the*

population pyramid of the country, etc.”.

**Agenda setting:** In the instruction stage, given the relative importance of each topic, the system decides on what issue or issues to focus. The policies of MoHME in recent years have shown that changes in higher education health system are amongst the subjects which must be more seriously considered. “*Change in the system of medical education with an emphasis on the priorities of the country was introduced as the country's fourth step in the health care reform plan, while the Ministry of Health is committed to its effective fulfillment*”.

In a comprehensive program of higher education health system based on the duties of the health system in upstream documents, the main missions of this field and outlook attainable in 2025 have been demonstrated. Then, 12 policies and overall direction were taken in order to fulfill the assigned missions which define the general policy of moving towards Vision 2025 in the field of higher education health system. Table 1 demonstrates the comprehensive program of macroeconomic policies higher education program.

**Forming policy:** At this stage of the policy process, the factors related to the issue or problem were analyzed based on experts' advice. The result of these activities was the achievement of desired options and solutions to address the problem which resulted in information, compilation, and development of policy, considering all aspects of the problem.

To implement the 12 policies, the major strategies of health higher education for each policy (68 strategies) and interpretation of these policies were conducted in the reform plan of the health system. Then, to plan for policy implementation and strategies for development of higher education system health, evolution and innovation packages were developed in the third step based on which annual operational programs

and projects were implemented. These packages were organized based on IPOCC (Input, Process, Output, Context, and Control) pattern. The programs in education deputy of MoHME and programs which must be developed in the future under the title of content-based packages supplied the system inputs. Measures considered for implementation and expansion of these programs were classified as process-oriented packages. The set of inputs and processes finally resulted in the realization of an output-oriented package of medical sciences. The actions related to the promotion of professional ethics were considered as background packages. Measurements related to the assessment and accreditation were placed in monitoring and evaluation based packages (Table 2).

However, due to the nature of these packages, an overlap existed between them and complete separation from each other was not so rational. For example, responsive and equity-oriented education is regarded as the output of the education system; however, justice as the background package along with professional ethics could provide research purposes. Each evolution package includes the related policies, expected outputs and subject of the package.

**Legitimation:** Legitimation is generally defined as alignment and compatibility with acceptable principles and standards. The policy has the necessary legitimacy which is compatible with the constitution or laws. Assessment of the legitimacy of evolution and innovation policy of higher education health system indicates that this policy has necessary legitimacy because this policy is based on the country's upstream policies and has considered the attitude of the main beneficiary groups. Besides, adequate time was given to legislators for assessment and interview.

## Discussion

Various countries take action to implement

**Table 1:** Major policies of the comprehensive program of Iran's medical education system

No.	Policies
1	Institutionalization of accountable education approach in the health system
2	Expansion of equity in higher education of health
3	Development of modern science with an emphasis on interdisciplinary fields and focus on new sciences and technologies
4	Participation in regional and global educational areas
5	Networking in Medical Education System
6	Organizing Educational Hospitals and Centers
7	Institutionalization of professional ethics
8	Utilization from new technologies in higher education of health
9	Human resources improvement in higher education of health
10	Decentralization in the health education system
11	Knowledge based wealth creation in the field of higher education of health
12	Production and localization of credible scientific evidence for the promotion of higher education of health

**Table 2:** Organization of packages of Iran's higher education health system evolution and innovation based on IPOCC model

Process packages	Foresight and scientific authority in medical education
	Development of health higher education programs
	Promotion of assessment and tests
Input packages	Internationalization of medical education
	Development of virtual education in medical sciences
	Land use planning, mission orientation, decentralization and improving the ability of universities
Output packages	Responsive and equity-oriented education
Contextual packages	Promotion of professional ethics
	Moving towards the third generation universities
	Development of medical education infrastructure
	Responsive and equity-oriented education
Control packages	Promotion of testing and assessment of medical sciences
	Accreditation of institutions and educational hospitals

the reform plans for several reasons (14, 15). Considering the reasons for reforms in other countries, we could say that their reforms will respond to one problem based on the challenge. However, the main reason for reform in Iran is the healthcare reform plan which is based on the opportunities for the achievement of Iran's Vision 2025 (14). In this regard, Iran's higher education health system which has the responsibility of educating competent human resources for the health system and plays a significant role for the realization of the objectives of healthcare reform in Iran.

Although higher education health system had many achievements in Iran, still it faces important challenges and concerns. Thus, evolution and innovation program in the field of higher education health system has been designed in order to meet these challenges and create an appropriate context for the qualitative and quantitative promotion of higher education in the field of health in this country. The method used was able to demonstrate the map of a clear road for development in higher education health system.

In this experience, in methodological terms, a content analysis method was used to analyze the upper national documents, and a panel of experts was used to design the programs. Analysis of upper national documents made it possible to accurately assess the attitude governing the higher education of health and strategies which will be adopted and developed, leading to the achievement of upstream purposes. To analyze upstream documents, we applied a qualitative content analysis that is a type of research methodology to interpret the data content. This method was common in the twentieth century as a scientific technique in which data were interpreted through the systematic classification processes, coding, theming or designing the known patterns (16).

To compile evolution and innovation plan for

health higher education, we used the panel of experts' method. The panel of experts consists of a group of people who gather to discuss, analyze and combine their knowledge in a particular field. These panels could be at local, regional, national or international level. This method is amongst the 10 superior methods in Europe for foresight studies (17). The panel of experts' method could be useful in the following situations: a complex and/or controversial issue, conflict in opinions, presence of differing opinions and existence of possible legal implications (18). In the experiment, the panel of experts' method helped to collect the experts' ideas about health higher education at different levels and design a comprehensive program based on the needs of the country. Among the steps taken in compiling packages, the following cases could be mentioned:

Development of the primary version by a group of experts, provision to the Board of Managers of Education Deputy Ministry and review of the packages in 4 sessions, 3 discussion meetings about the packages in the Council of Advisors, provision of the packages in education deputy meeting of the universities of medical sciences across the country and taking their feedback, provision of packages in the meeting of presidents of the universities of medical sciences across the country, scientific conference of medical group associations on education evolution and innovation packages, provision of packages among the members of examining board, assessment of clinical specialty, and subspecialty fields and seminar of the members of the academy of medical sciences about educational evolution and innovation development.

The method developed for evolution and innovation in higher education of the health system has several strong points:

The first strong point of this method was special attention to the health sector's documents in Iran. Investigation of high level and major

documents of Iran revealed that higher education has an important position in the country's health status in a way that almost 30% (4 cases of 14 overall policies) are amongst the general policies of the health system issued by the leader of the Islamic Republic of Iran.

The second strong point of this method was mutual interaction existing between general policies and orientations of a comprehensive program and operational packages in a way that implementation of each package has provided the area for the fulfillment of at least one policy, and at least one operational packet has been developed for each policy.

The third strong point of this method was the compilation of the interpretations of 12 policies in the reform program of the health sector. Because of the specialty in the field of higher education concepts related to the health system and their intangibility, visible outputs and achievements in the short, medium and long-term time scales were explained in simple, understandable language for different levels. Thus under each policy, its interpretation in the health reform plan was compiled containing the outputs of policy implementation.

Obviously, compilation of the operational packages is not the end and implementation of goals and policies through macro-packages depends on the interpretation of operational packages in the form of obvious projects and actions. These projects could demonstrate the way to the realization of the package and the objectives. Finally, by their implementation, we will witness the implementation of operational packages at the level of headquarters and universities of medical sciences in Iran.

One of the limitations of developing evolution and innovation packages in the medical education sector is participation of all stakeholders such as society and student groups. One of the reasons for this is the lack of a clear mechanism in the health sector for the participation of such groups.

## Conclusion

It is obvious that disregarding health higher education in the health care reform, as one of the most important parts of the health system in Iran, could make obstacles in the way of implementing the program and cause irreparable damage to the health system of Iran. However, the MoHME of Iran, relying on the integration of health higher education with the health care system and comprehensive method used for transformation and innovation plan in the field of health higher education could take an important step towards improving the nation's health.

## Acknowledgments

This project was funded by the educational deputy of the Ministry of Health and Medical Education. The authors would like to thank Hasan Emami Razavi, Saeed Asgari, Mohammad Abdollahi, Shahram Yazdani, Ali Hosseini, Gebraeil Nasl Saraji, Naser Ostad, Ramtin Hadighi, Ahmad Khalegh Nejad Tabari, Seyed Mohsen Rahimi, Jamshid Hadjati, Parvin Pasalar, Abtin Heidarzadeh, Tahereh Changiz, Shahram Ejtemaei Mehr, Mohammad Pourkazemi, Ali Bidari, Farshad Farzadfar, Seyed Mansour Razavi, Zohreh Ghomian, Seyed Mohammad Tavangar, Mohammad Ali Mohagheghi, Nima Rezaei, Reza Majdzade, Farshid Alaedini, Solmaz Naghavi and Amin Ghasem Baglou for their support and contribution in developing the project.

**Conflict of Interest:** None declared.

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