

Original Article

Using an Analytical Framework to Explain the Formation of Primary Health Care in Rural Iran in the 1980s

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Abstract

Background: In the 1980s, PHC implementation promoted the health care delivery and overall health status of the population in Iran. Identifying the crucial design and implementation aspects of the PHC program can highlight the way it was implemented in a difficult socio-political environment. Using a policy analysis approach unfolds the details of implementation in a context which was not overtly convenient for a great health system reform.

Methods: We conducted semi-structured interviews with 35 key participants and collected relevant literature and documents. We used a policy triangle framework to conceptualize the study and used a thematic data analysis approach to analyze the verbatim transcribed texts and documents. Data were analyzed with regard to the context, content, process and actors of the policy.

Results: Proper use of the conditions and opportunities, during the first years after a revolutionary political change resulted in the establishment of a PHC network in Iran. Talented actors, clear content with agreed objectives and a top-down approach to the implementation in a special sociopolitical context were the main influential factors to fulfillment of the PHC policy in Iran. However, full implementation of the policy was hampered by the failure of some main components like referral system.

Conclusion: The policy triangle framework helped us to separate the different components of the PHC policy denoting that successful implementation of a policy requires attention to all related elements. Policy actors should invest in the development of an effective advocacy coalition, while giving ample attention to the implementation concerns. National health policies can be materialized even during financial hardships, if they align with the wider expectations of the public and politicians.

Keywords: Implementation, multiple streams, primary health care (PHC), policy actors, policy triangle, referral

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Introduction

Decades before the Alma Ata declaration was adopted, the need for further use of community health workers in the provision of health care in low resource setting had been identified.^{1,2} Countries like China, Guatemala and Iran experimented the use of simple health auxiliaries within primary Care projects.^{3,4} In certain countries, these ideas resulted in national programs in massive scales, with the notable example of “bare foot doctors” in China.^{4,5}

Iran has a long history of implementing primary health care (PHC) projects, especially in rural areas and small towns. The first prominent project began in the 1940s by the establishment of the “Behdar” (health officer), who received four years of undergraduate training and worked in underserved small towns and rural areas. An important enhancement occurred with the “Health Corps” law in the 1960s that enabled medical graduates to provide medical services in rural areas instead of the compulsory military services.⁶ However, a systematic approach started in 1970s

to bridge the considerable gap in access to health care services between urban and rural areas.

A turning point towards primary health care was the West Azerbaijan pilot project, which officially began in 1972 after the preliminary studies and extensive preparatory works.¹ Almost simultaneously, the government established the “Commission on the Study of Health and Medical Problems” to plan and execute a comprehensive study of the nation’s medical and health problems, resulting in a three-volume situational analysis report.^{6,7}

It was followed by further PHC pilot projects such as Kavar Village Health Worker Project, that was started in Shiraz in 1974 to train Behdar Rusta,⁸ and some other health care programs like Lorestan and Shemiranat programs with a few differences in nature and methodology.^{1,9} In 1976, WHO evaluation team approved the West Azerbaijan project among other primary care projects as the preferable model for implementing PHC in Iran¹ and was followed by a limited national implementation that was discontinued.⁹

A comprehensive PHC network did not develop until 80s. In this study, we focus on the development and national implementation of the PHC policy in Iran.

Iran is located in southwest Asia with a population of over 77 million in 2014.¹⁰ The country experienced a popular revolution that resulted in major political change in the late 1970s, from an imperial monarchy political system to an Islamic Republic state.¹¹ While the country has experienced substantial changes in demographic and health indicators through time, in the late 1970s

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population and health indices in Iran were comparable to the least desirable outcomes in an international comparison (Table 1). Although gradual improvements were observed through time, the demographic and health indicators remained less favorable up to the start of the PHC program.

In 1984, just before the establishment of the PHC program (starting in 1985) infant mortality rate was about 51 per 1000 live births.¹² Health service delivery system, especially in rural areas, was very weak, and most outpatient services were reliant on often non-existent physicians.¹⁶ Only a small fraction of physicians worked in rural areas, while just over 50% of all physicians in the country were located in Tehran and five large cities.¹³ Hence in order to tackle physicians shortages, expatriate doctors were being hired in large.¹⁴ In the year before the start of the PHC program, publicly funded primary care facilities in the whole country were as little as 1800 health houses and 2400 health centers (urban and rural),¹⁵ leaving many rural areas and small towns in shortage of access to affordable primary care services.

In 1989, four years after the start of PHC program, there had been a dramatic improvement in the number and distribution of publicly funded primary care facilities: more than 7900 health houses and 4300 health centers.¹⁶ Significant reductions in mortality rates such as infant and maternal mortality in Iran have been attributed to the development of PHC network in the country.¹⁷ Many of these reductions occurred due to effective implementation of a nationwide immunization program (from 40% coverage to over 90%), as well as educating and supporting families about the importance of oral rehydration therapy during diarrheas.¹⁸⁻²⁰ Figure 1 shows the declining trends of infant mortality in Iran between years 1974 and 1996.

Table 2 shows life expectancy at birth in comparison between the years before and after PHC implementation in Iran.²¹⁻²⁴ In this table significant changes are seen, but the most obvious rise (proportionally) in life expectancy happened between 1986 and 1990 during which the PHC program expanded throughout the country.^{13,25}

Table 1. Selected population and health indicators of Iran and some other countries during the late 1970s

Indicator	Iran	Developing Countries	Developed Countries
Life expectancy (years)	57	49-68	70-74
Birth rate (per 1000 population)	45	21-48	12-18
Natural population growth (per 1000 population)	21	14-21	0-10
Population doubling time (years)	22	18-50	69-116
Infant mortality rate (per 1000 live births)	102	65-145	0-8

Source: Perspectives on Health Care and Medical Education, MOH, Tehran, 1982

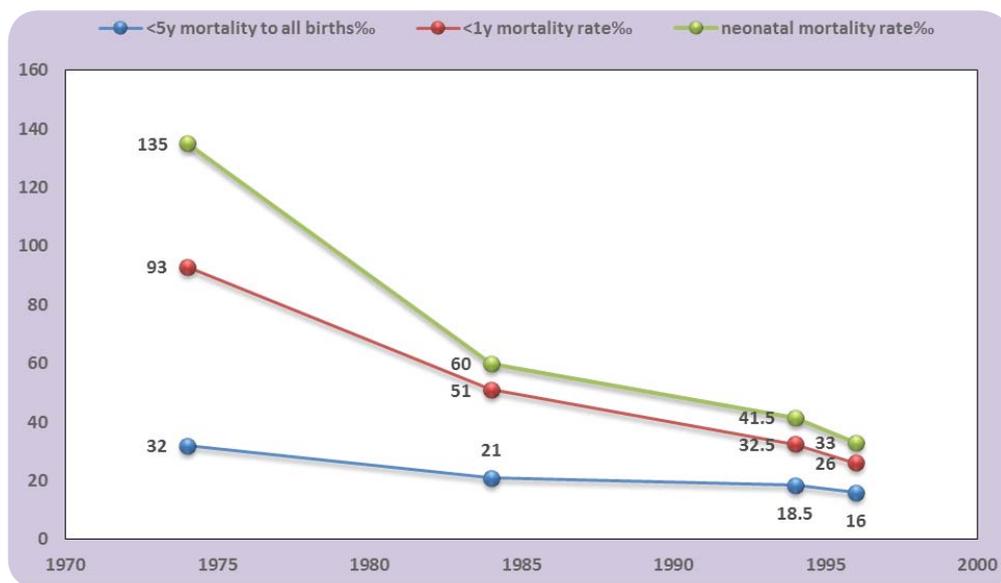


Figure 1. Trends of Infant mortality between 1974 and 1996 in Iran (Source: Asadi-Lari (2004))

Table 2. Life Expectancy at birth (years) in Iran from 1970s to now

Year	Both sexes	Male	Female	Reference Number
1976	Not available	55.8	57.4	(21)
1986	59	58.4	59.7	(22)
1990	64	63	64	(23)
1996	67.4	66.1	68.3	(24)
2000	70	69	71	(23)
2012	74	72	76	(23)

Methods

This article is derived from a qualitative study, which investigated context, content, actors and process of PHC implementation, as well as situation of the referral system in Iran from 1982 – 1989. Data were collected by individual interviews, which were audiotaped and transcribed and through an extensive data gathering from published literature and library sources. The study was a policy analysis using the policy triangle framework developed by Walt and Gilson.^{26,27} It involved an in depth assessment of the processes, content and context of the policy as well as the role of actors in the policy under study.²⁸

The study comprised of 35 participants with varying roles and positions during the development and implementation of the PHC program. The interviewees were the main designers of PHC in Iran, former and present senior MOH officials, faculty members, provincial health managers, community health workers and two of the former health ministers. All the interviews were conducted from October 2012 to July 2014. Some participants were interviewed more than once as needed. Most of the interviews were conducted in Tehran and six other cities.

The participants were selected based on the prior knowledge of the researchers about the key contributors to the program. We contacted each of the selected participants to explain the research objectives. The interviews were planned at the time and place of convenience of the participants. One or two researchers attended the interview sessions. We used a semi-structured interview guide and aimed to conduct in-depth interviews of the participants. The respondents were allowed to explain their experiences and interpretation of the development and implementation of the PHC program. Each interview session lasted from 40 minutes to two hours with an average of 75 minutes. All the interviews were fully transcribed and analyzed using the triangle model as an underlying theory of policy development. A combination of deductive and inductive framework approach was used to develop a thematic framework, code the transcribed text and analyze the data.

Results

Policy Context

Socioeconomic Context

A cursory look at socioeconomic status of Iran in the PHC formation time showed a poor development status, especially in rural areas, which were more populated than urban areas.^{3,29}

Deprivation was obvious in rural areas and activities conducted to address the destitution were mostly parallel and ineffective.²⁹ Several government agencies worked directly in the village with anarchic and overlapping activities.¹ One prominent example of such overlapping works was the existence of different kinds of health centers in the rural areas:

“In some villages there were health centers made by the Ministry of Health, meanwhile the other organizations had also made similar centers. I can remember that Ministry of Science, Ministry of Justice, the Imperial Organization for Social Services, Red Lion and Sun Society and Military forces had established medical departments in some rural areas. Nevertheless, there were other rural areas that lacked even one such department.” (A former senior MOH official)

In the early 1980s, the country had 24 provinces that in most of them rural areas did not have an electric power. Country roads, especially in rural areas were not appropriate.¹

The literacy situation was not favorable, especially in rural ar-

eas. According to the first post-revolutionary national census in 1986, total population was 38.7 million and the literacy rate was 61.7% that comprised 72% of urban and 49% of rural population.^{30,31} Many participants pointed to the low level of literacy in the country in the early 1980s that was a bigger problem in disadvantaged rural areas. They mentioned that in some areas people refused to send children - especially girls - to school.

“In some areas, it was necessary to go to the village elders and spoke with them to agree to send their children to school.” (A former health minister)

But even if the parents were satisfied, there was no school in many villages. Later, the literacy rate in the country increased during the 1980s, particularly among the rural population.³²

Political Context

Iraq - Iran war

A crucial point about the PHC program is the coincidence of its implementation with Iraq-Iran war. The war began in September 1980 and continued until August 1988. At that time, due to air strikes, Iran's oil exports dropped and the scant income should be spent foremost on war. It was difficult to establish a health care network in those difficult economic times. But the motivated actors tried to design and implement it despite all the problems.

“... but the active war and even the vast bombardments on the cities of Iran (especially Iran's capital) couldn't impede the PHC movement ahead. We designed the health care network of the country with consideration of all its aspects and dimensions.” (A former senior health policy maker)

Political disharmony

In addition to the war problems, the political atmosphere in the country sometimes made restrictions on the activities.

“I merely cared about my tasks and goals, not political affairs. There were two political groups, none of them considered me as an adherent so, I had problems.” (A former health minister)

There was another problem that some of the health officials with profound knowledge of PHC who had done good activities in previous regime were fired assuming that they were tied to that regime. But gradually they were invited back to work thanks to the compassion and foresight of some revolutionist managers.

“Doctor ... who had worked a lot on the network in the previous regime had gone after the revolution for fear of being arrested. But I invited him to Isfahan and learned very much from him.” (A senior national health official)

Health and healthcare context

Before the formation of PHC network, health staff provision in Iran was not appropriate. By the late 1970s and even early 1980s many people in need of treatment referred to the traditional medical practitioners.¹ The number of licensed physicians was low and most of them worked in urban areas.^{6,33} Because of these shortcomings and traditional thinking, many people turned to traditional healers when became ill or injured.¹ Traditional practitioners such as bonesetter, prescriber of potions and herb doctor applied a combination of prayers, incantations and potions. Most deliveries were performed by traditional midwives.

“After delivery, the traditional midwife stayed a few days at her home, prepared food for her children and took care of her family. So, villagers liked them more than they might like a young educated midwife.” (A former health care officer)

Doctor shortages

A significant number of doctors emigrated every year.^{1,33} In late 1970s, 700 medical doctors graduated from the publicly funded medical schools annually, half of whom would leave the country, causing a substantial financial burden on public.^{6,15} *“In order to compensate a lack of homegrown doctors, foreign-trained doctors were employed who were mainly from the Indian Subcontinent, costing tens of million dollars annually for their salary. Moreover, many of them might not have been qualified to practice as a medical doctor.”* (A former health minister)

Vertical delivery of services

MOH provided many of its services vertically. For example, sending mobile teams of vaccinators to remote or nearby villages and towns was the common method of vaccination. So the most important concern was maintaining the vaccine cold chain, while providing a continuous access to vaccines. *“For many years, due to the lack of awareness, vaccines were placed in the pockets of the vaccinators. Therefore, vaccine had lost its effectiveness before being inoculated.”* (A former health minister)

Policy Process

Policy Formulation

The first step to design the PHC program in Iran was the establishment of “the Programs and Organization Council of the Ministry of Health” in early 1980s. The council members included the health minister, all deputy ministers and some experts who were selected by the minister. Council meetings were held to discuss and decide on the general topics, but the details were written mainly by Drs Kamel Shadpour, Cyrus Pileroudi and Ayyub Espandar with considerable accuracy.³³ In this way, the policy content and program details developed and became ready to run.

Policy Implementation

Targeted interactions of PHC designers with local actors shaped a wide network of friends before the implementation phase. As the PHC engineering was done with their participation, they felt ownership in the implementation period.

“When the scheme was operating in an area of a district, local experts felt proud of it believing that they were involved in changing the situation.” (A former senior health policy maker)

Network Implementation steps were started by determining the location of health houses and rural health centers. To do so, the health deputy invited experts of provinces to convene consecutive meetings.

“... In those urgent meetings, decisions were made about 70,000 villages. Finally, main villages and satellite villages were determined and the locations of service delivery units were agreed.” (A former health minister)

After preparing the network expansion plan, the required budget was estimated and suggested by MOH to government in 1985. But it was omitted by Program and Budget Organization. Therefore, health minister and his team began lobbying with MPs. Consequently, MPs added a corrigendum to expand PHC network by making a budget line when approving the budget in late March 1985. The budget line amount was then more than US\$ 4.3 million.^{9,34}

In this way, it was decided to establish PHC network in one district of each province in the first year. The condition for the continuation of the program was a successful implementation during the first year.⁹

“Network setup was very successful in the first year, as parliament allocated enough budgets to develop the network in 2 new districts of each province, while we had asked budget for 1 new district of each province for the next year.” (A former senior health policy maker)

The concern of financing was somewhat relieved and country managers adopted measures to continue the program. The retention of Behvarz (i.e. community health worker) in rural areas was one of these measures. Therefore, due to a negotiation with the Program and Budget Organization, it was agreed to hire them as civil servants upon finishing the instruction period. *“Every year, we went to the PBO to determine the number of Behvarz for each province according to the expected development.”* (A former deputy minister)

Monitoring and Evaluation

National planners’ regular unannounced visits to district health centers around the country, in a serious and stringent manner, were among the most effective measures to administer the program correctly. *“We went to visit without prior notice. If the performance was satisfactory, we awarded them immediately. Conversely, if we found out their performance is not well, we changed the authorities or issued written warnings.”* (A former deputy minister)

Policy Content

Two main PHC objectives: justice and access improvement

One feature of the Islamic revolution in Iran was forcing the government to provide social services for all citizens. The mentioned claim reflected in the ideological purposes of the Islamic Republic of Iran including social justice and bridging the profound urban-rural gap, especially in terms of health services.^{11,29}

They concluded that to convert the slogan to act, health service delivery could no more depend on the presence of a physician.⁹ In this way, the notion of training Behvarz and establishment of health houses that had been raised before the revolution, evolved toward a national program. Many of those interviewed believed that PHC implementation has been an important step towards achieving equity in access. Vaccination service after deployment of Behvarz was an imaginable case.

“A father could bring children for vaccination even after daily work. He did not have to go to the city or wait until the vaccination team came from the city. This event means improving rural people’s access to health care.” (A former deputy minister)

In general, many participants believed that improving access and equity has been achieved as a result of the PHC establishment.

“We just after revolution realized the meaning of PHC. It is justice oriented approach and equitable distribution of resources including manpower, facility and equipment.” (A senior national health official)

Policy Actors

In the Iranian PHC, personal perseverance of some actors was undoubtedly an important factor in policy implementation. An interesting thing was that almost all the experienced country-level actors had spent part of their early career in the Health Corps.⁶

Some names were repeated in the statements of most of the interviewees. We can refer to the late C. Pileroudi and K. Shadpour as the main policy designers and implementers, Professor Hossein Malekafzali as the charismatic policy maker and implementer, and Professor Seyyed Alireza Marandi - the then Minister of

Health - as the backbone and powerful supporter of the policy, as the fathers of the country's PHC.

"We should justly acknowledge that Dr. Shadpour and Dr. Pile-roudi worked very hard to design the PHC program. What we've done just for one province, they have done for the whole country." (A senior provincial officer; late deputy minister)

"During the war, although country had many problems, Dr. Marandi and Dr. Malekafzali secured a considerable amount of money for the [PHC] network expansion through negotiations with the Parliament." (A senior provincial health manager)

Professor Marandi and Professor Malekafzali won United Nations Population Awards for their roles in the PHC development in the years 1999 and 2007, respectively. These 'driving' actors were accompanied by younger managers who had joined the MOH after the revolution with plenty of motivation but less experience. The presence of these two types of manpower together created a combination with a great potential to make significant changes.

"A number of the young passionate managers came to MOH after revolution. They wanted to do useful things" (A former senior health policy maker)

External actors

The role of some international organizations in support of PHC fulfillment in Iran was prominent. They expressed their admiration of the Iranian PHC in the international meetings.

"Former UNICEF president, Mr. James P. Grant, had a prominent role in introducing Iranian PHC to the world. Once at the height of the war, I accompanied him to visit Hamadan [province] villages. He was impressed by health houses performance and quality of services. Then he traveled to China where he held a press conference and stated: "I'm coming from a country that is engaged in social activity during the war, the country in which health is not neglected even at war." (A former deputy minister)

Such heartening praise made the internal actors more confident and determined in their motion.⁴

Weaknesses

Despite outstanding achievements, PHC network in Iran failed to be fully implemented. Here we mention two of the greatest weaknesses.

Incomplete network coverage in urban areas

It was one of the ambitious goals of network designers to cover urban areas with a similar publicly funded network of primary care health posts.

"One of our ideals was that hospitals accept no one except for emergency patients [or after referral]. But PHC coverage was too low in cities and people had no other choice." (A former senior health policy maker)

Health care system in urban areas lacked the intricate planning and vast supports that were granted to the development of rural PHC.³⁵⁻³⁷

Lack of a functional referral system

In the first guidelines of PHC, a chain form system called a referral system was considered for stratification of services.³⁸ People in need of specialized services could access to them through a referral system.³⁹

Many respondents believed that equity in having access to health care was subject to the establishment of the referral system.

"Equity in access further improved in countries where stratification of services was considered and they connected different levels through a referral system. But we failed to establish these relationships." (A former senior health official)

The function of the PHC concerned with referral has been very weak, as the number of those who go directly to a specialist or hospital is on the rise.⁴⁰ The situation is much worse in urban areas because no one actually plays the role of gatekeeper there.⁴⁰ The PHC system failed in achieving this target due to an incomplete coverage of PHC facilities, limited implementation of referral regulations, especially by the doctors, and low willingness of the public to abide by the limitations caused by a referral system.

"The [problem with] referral system is in fact part of the people's health culture. Prerequisite for referral system is an attitude change in both service providers and customers." (A former senior provincial manager)

Earlier, the problem was linked with the small number of doctors to rely upon for effective referrals, but as the number of doctors increased, the new problems occurred.¹⁴ The increasing number of doctors resulted to an expanded presence of private physician offices in cities that looked at the PHC as a competitor for patients. Health care insurance organizations did not enforce a referral system, hence augmenting the division between the PHC and secondary care.²⁵

"This is one of the erroneous decisions that everyone is permitted to use his/her own insurance logbook to go directly to the specialist's office. This is in fact, bypassing the referral system." (A former senior provincial manager)

Such inadequacy in cooperation between different stakeholders has also been cited as a barrier to further development of later policy reforms in Iran.⁴¹ At the beginning of the PHC program, because the implementation requirements, including staffing, structure and funding was largely in the hands of the Deputy for Health, the interviewees noted that there was limited collaborations with the other sections of the MOH, especially with the Deputy for Treatment Affairs, still for implementation. However, especially at the early stages, the Deputy for Services Support had a prominent role in securing and distributing the required funds and hardware (e.g. cars, refrigerators etc.). The limited nature of collaborations between the Deputy for Health and Deputy for Treatment Affairs was probably a notable limitation of the PHC program in the early years.

Discussion

Primary health care in Iran brought an effective model for improving health and population indices into effect. A retrospective approach to the socioeconomic context of Iran in the late 70s and early 80s showed the predisposing factors for establishment of the Iranian PHC program. Although the government and senior state policymakers encountered with a lot of constraints at that time, there were considerable stimulating factors that helped PHC network implementation in Iran. PHC network in rural areas of Iran was regarded as an "incredible masterpiece".⁴² In the certain "post-revolution politics" of Iran, international relations faced with significant restrictions. So, the hope of external assistance was replaced by enabling involvement of the people and policymakers. The country became introverted and was forced to grow on its own resources and homegrown talents. Western countries did not accept Iran as they ought to, so Iran learned how to stand on its own.

Application of 'Multiple streams' model in Iran's PHC policy

Iran's PHC network was formed in a particular context, by enthusiastic actors and under the support of the parliament. After the successful implementation of the program in the first year, the continuation was issued by parliament and the government. This event is explainable by the Kingdon multiple streams model: "Separate streams come together at critical times. A problem is recognized, a solution is developed ... a political change makes it the right time for a policy change ... these policy windows, the opportunities for action ... present themselves and stay open for only short periods."⁴³

"Kingdon denotes that the three streams sometimes trill toward each other and then a 'policy window' opens. This introduces an impermanent opportunity to a 'policy entrepreneur' to advance his premade option"⁴⁴ Kingdon's theory has been previously used to describe the family physician and rural insurance implementation in Iran.²⁵ In the formation of PHC, health related problems such as high rates of infant and maternal mortality, low life expectancy and inadequate access to basic health services urged the health policy makers to look for a solution. The problem-solving plan was set by the collective attempt of a coalition of actors which was legitimized through lobbying with the MPs and gaining their support despite the initial opposition of the Program and Budget Organization.

Of course, in the case of Iran PHC, these three streams were not as distinguished from each other as Kingdon stipulated. The political movement of the revolution boosted the boldness of health problems (especially equity concerns and the rural population plight) and attracted more attention to some ideological values which necessitated a fundamental policy solution as an action.

Actors' outstanding role

A budget line was not initially approved by the Cabinet at the start, so the minister and his team tried lobbying with the MPs to convince them to support the program. It is also pointed in the Kingdon model that sometimes policy entrepreneurs change the indication of resource allocation through proving out a priority.⁴³

The actors' common beliefs helped the intimate relationship between them which in turn led to their cooperation in the best possible way toward the PHC implementation. This reality is explainable with the 'advocacy coalitions' theory that is known as a typical form of policy communities.⁴⁵ Advocacy coalitions are recognized by a shared set of opinions, norms and policy purposes.⁴⁶ They can give special advantages to the interests of some groups and adapt or change the evidence rendered to decision-makers.⁴⁷ In the Iranian PHC, the advocacy coalitions acted as influential powers that endeavored to place PHC program on the agenda and remained together until implemented it successfully.

The importance of individual actors' roles in the policy process is not the same.⁴⁸ There are 'certain individuals' who spend their time, science, and skills in order to develop policies they yearn to implement.⁴⁹ We can attribute these characteristics to actors that Kingdon called as 'policy entrepreneur'.^{25,44,48} Enjoying political support in itself could not lead to establishment of PHC network in Iran unless 'policy champions' with enough knowledge, experience and counsel would play a pioneer role.

The implementation approach of the PHC program in Iran better corresponded with a top-down approach that realizes policy change via a hierarchical process, albeit with extensive feedback and negotiation with the front line managers and providers. Ac-

ording to Ham and Hill, policy implementation has conventionally assumed two approaches that the main difference between them is about their approach to actors' involvement in the policy cycle.⁵⁰ The bottom-up perspective proposes that peripheral actors can affect the implementation through negotiation and haggling whereas top-down approach considers little space for bargaining and interaction between different levels of policy cycle.²⁶ In the Iranian PHC, mutual contact between top-level actors and local executives filled the gap between expected goals and what happened in the reality so that the provincial agents had a sense of ownership to the ongoing PHC. In other words, the constant communications (even though through visits and monitoring) provided the advantages of a bottom-up approach for the policy implementation. But in practice everything was dictated from above and there was no space for haggling about major and minor issues. Continuing this approach probably led to some weaknesses in the long run, especially in the referral system and inadequate network coverage. Still, when it was decided later to run the family physician and rural insurance in rural areas of Iran, the existence of a working PHC network acted as a proper infrastructure for its implementation.⁵¹

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Conflicts of interest: *None.*

References

1. King M. An Iranian experiment in primary health care: the West Azerbaijan Project: Oxford University Press; 1983.
2. Rahnema M. The role of frontline health workers. *WHO Chron.* 1975; 29: 6 – 9.
3. WHO. The world health report 2008: primary health care: now more than ever. Geneva: World Health Organization; 2008.
4. UNICEF., Jolly R. Jim Grant: UNICEF Visionary: UNICEF; 2002.
5. de la Santé OM. Primary health care: report of the International Conference on Primary Health Care, Alma – Ata, USSR, 6 – 12 September 1978: WHO; 1991.
6. Rahnema M, Ziaei M, Razavi T, Shafaei A, Farman M. A route to well – being: the report of the delegation to assess health and medical care

- problems in Iran. Tehran, Iran. 1977.
7. Bahadori M. Medical Care and Education in Iran. *JAMA, The Journal of American Medical Association*. 1975; 232(9): 966 – 967.
 8. Ronaghy HA. Kavar village health worker project. *J Trop Pediatr*. 1978; 24(1): 13 – 60.
 9. Pileroudi C, Vassigh A, UNICEF. The district primary health care networks in Iran: National Library of Iran; 2002.
 10. WHO. WHO, Countries, Iran (Islamic Republic of), Statistics. 2015.
 11. Shadpour K. Primary health care networks in the Islamic Republic of Iran. *Eastern Mediterranean health journal= La revue de santé de la Méditerranée orientale= al-Majallah al-šihhīyah li-šarq al-mutawassiṭ*. 2000; 6(4): 822.
 12. Asadi-Lari M, Sayyari AA, Akbari ME, Gray D. Public health improvement in Iran—lessons from the last 20 years. *Public Health*. 2004; 118(6): 395 – 402.
 13. Aghajanian A, Mehryar A, Ahmadnia S, Kazemipour S. Impact of rural health development programme in the Islamic Republic of Iran on rural-urban disparities in health indicators. *Eastern Mediterranean health journal= La revue de santé de la Méditerranée orientale= al-Majallah al-šihhīyah li-šarq al-mutawassiṭ*. 2007; 13(6): 1466.
 14. Marandi S. The integration of medical education and health care services in the IR of Iran and its health impacts. *Iranian Journal of Public Health*. 2009; 38(Suppl 1): 4 – 12.
 15. Deputy for Cultural and Students' Affairs M. A summary of 13 years operation of MoHME. Deputy of cultural and students' affairs, Ministry of Health & Medical Education, 1992.
 16. Iran SCo. Statistical Yearbook of Iran. Tehran, Iran: Statistical Centre of Iran, 1989.
 17. Malekafzali H. Primary health care in the rural area of the Islamic Republic of Iran. *Iranian Journal of Public Health*. 2009; 38(Suppl 1): 69 – 70.
 18. Sadrizadeh B. Evidence for policy in Iran. *Iranian Journal of Public Health*. 2009; 38(Suppl. 1): 17 – 18.
 19. Gouya MM. Expanded programme on immunization in Iran: last 3 decades achievements from 1979 to 2008. *Iranian Journal of Public Health*. 2009; 38(Suppl 1): 81.
 20. Javanparast S, Baum F, Labonte R, Sanders D, Rajabi Z, Heidari G. The experience of community health workers training in Iran: a qualitative study. *BMC Health Services Research*. 2012; 12(1): 291.
 21. Comprehensive Results of the Population and Housing Census. Tehran, Iran.: Statistical Centre of Iran, 1976.
 22. Noorollahi T. Provision of Iran's population life-table in 1986. The first Statistics Conference of Iran; Isfahan University of Technology: Statistical Centre of Iran; 1992.
 23. WHO. Global Health Observatory Data Repository. Geneva: World Health Organization, 2014.
 24. Zanjani H, Shadpour K, Mehryar A, Mirzaie M. Population, Development and Reproductive Health. Tehran: Boshra; 2002.
 25. Takian A, Rashidian A, Kabir MJ. Expediency and coincidence in re-engineering a health system: an interpretive approach to formation of family medicine in Iran. *Health Policy Plan*. 2011; 26(2): 163 – 73.
 26. Buse K, Mays N, Walt G. Making health policy (understanding public health). UK: Bell & Brain Ltd. 2005.
 27. Walt G, Gilson L. Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy Plan*. 1994; 9(4): 353 – 370.
 28. Buse K. Making health policy: Open University Press; 2012.
 29. Mehryar A, Ahmad-Nia S, Mirzae M, Naghavi M, editors. Primary health care system, narrowing of rural-urban gap in health indicators and rural poverty reduction: The experience of Iran. XXV General Population Conference of the International Union for the Scientific Study of Population; 2005.
 30. Elmi ZM. Educational Attainment in Iran. The Middle East Institute Viewpoints: The Iranian Revolution at 30. 2009: 61 – 78.
 31. Comprehensive Results of the Population and Housing Census. Tehran, Iran.: Statistical Centre of Iran, 1986.
 32. Javanparast S. A policy review of the community health worker programme in Iran. *J Public Health Policy*. 2011; 32(2): 263 – 276.
 33. Pileroudi C, Shadpour K, Vakeel H. Perspectives on Health Care and Medical Education. Tehran, Islamic Republic of Iran: Education and Research Center, Ministry of Health. 1982; 297.
 34. Iran CBoIRo. Currency in different years. 1992.
 35. Kalthor R, Azmal M, Kiaei MZ, Eslamian M, Tabatabaee SS, Jafari M. Situational Analysis of Human Resources in Family Physician Program: Survey from Iran. *Materia Socio-Medica*. 2014; 26(3): 195.
 36. Khayatzadeh-Mahani A, Takian A. Family Physician Program in Iran: Considerations for Adapting the Policy in Urban Settings. *Arch Iran Med*. 2014; 17(11): 776 – 778.
 37. Moshiri E, Takian A, Rashidian A, Kabir M. Expediency and coincidence in formation of family physician and universal rural health insurance in Iran. *Hakim Research Journal*. 2013; 15(4): 288 – 299.
 38. Marandi A, Azizi F, Larjani B, Jamshidi H. Health in Islamic Republic of Iran. Geneva: World Health Organization (UNICEF). 1998.
 39. Nasiripour A, Motaghi M, Navvabi N. The performance of referral system from the perspective of family physicians of Kashan University of Medical Sciences: 2007 – 20012. *Journal Of Health Promotion Management (JHPM)*. 2014; 3(3): 58 – 68.
 40. Moghadam MN, Sadeghi V, Parva S. Weaknesses and challenges of primary healthcare system in Iran: a review. *The International Journal of Health Planning and Management*. 2012; 27(2): e121 – e131.
 41. Takian A, Rashidian A, Doshmangir L. The experience of purchaser-provider split in the implementation of family physician and rural health insurance in Iran: an institutional approach. *Health Policy Plan*. 2015; 2015: czu135.
 42. Tavassoli M. Iranian Health Houses Open the Door to Primary Care: Working in Pairs out of Modest, Village-Based Facilities, the Islamic Republic of Iran's Trained Community Health Workers, the Behvarzan, Provide Basic Health Care to Most of the Country's Rural Population. *Bull World Health Organ*. 2008; 86(8): 585.
 43. Kingdon JW. Agendas, alternatives, and public policies: Longman; 2003.
 44. Zahariadis N. Ambiguity, time, and multiple streams. *Theories of the Policy Process*. 1999; 1999: 73 – 93.
 45. Buse K. Addressing the theoretical, practical and ethical challenges inherent in prospective health policy analysis. *Health Policy Plan*. 2008; 23(5): 351 – 360.
 46. Sabatier P, Jenkins-Smith H. Policy change and learning: an advocacy coalition approach Westview Press. Boulder, CO. 1993.
 47. Rhodes RAW. Policy network analysis. In: Moran M, Rein M, Goodin RE, editors. The Oxford handbook of public policy. Oxford: Oxford University Press; 2006.
 48. Guldbbrandsson K, Fossum B. An exploration of the theoretical concepts policy windows and policy entrepreneurs at the Swedish public health arena. *Health Promotion International*. 2009; 2009: dap033.
 49. Crow DA. Policy entrepreneurs, issue experts, and water rights policy change in Colorado. *Review of Policy Research*. 2010; 27(3): 299 – 315.
 50. Ham C, Hill MJ. The policy process in the modern capitalist state: Harvester Wheatsheaf; 1993.
 51. Takian A, Doshmangir L, Rashidian A. Implementing family physician programme in rural Iran: exploring the role of an existing primary health care network. *Fam Pract*. 2013; 2013: cmt025.