A Descriptive-Comparative Study of Implementation and Performance of Family Physician Program in Iran and Selected Countries

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Abstract

Background: The implementation of Family Physician Program (FPP) in Iran during the past decade, despite of its numerous achievements, has faced many challenges. We aimed to compare the implementation and the performance of FPP in Iran with selected countries, in order to analyze those challenges and suggest potential solutions.

Methods: This current descriptive-comparative study was conducted in 2015. The implementation and the performance of the FPP in Iran and six countries (Canada, Australia, United Kingdom, Denmark, United States and the Netherlands) were described and compared. The criteria for selection of these countries were the existence of well-established FFPs and ease of access to data required to conduct the research. A documentation checklist of the implementation status and FPP practice was prepared. The checklist's content validity was established by an independent 10 member expert panel, specializing in the field of Family Medicine. The conclusive checklist was finalized for each country, based on inter-rater agreement of the three researchers and used as a basis for this comparative study.

Results: This study revealed significant differences in implementation of the FPP and relatively low differences in FPP performance between Iran and the selected countries.

Conclusion: Implementation and performance of FPP and patient referral system in Iran struggles with serious challenges and burdens, in contrast with the selected reviewed countries. As such, modification of the FPP in Iran seems to be a must. Such modification may include developing educational programs for FPs, clearly defining the duties and practices of FPs, and revising their reimbursement and employment status.

Keywords: Implementation; Performance; Family physician program; Comparative study

Introduction

The ultimate goal of national health systems is to promote the public health level (1). One of the comprehensive programs by many countries in order to provide health services is the program of Family Medicine (FP) of Family Physician (FP). FP of FP is a healthcare delivery framework, which optimally results in coordinated care, in-

creased patients' satisfaction, and enhanced cost-effectiveness (2).

Each FP covers a particular number of individuals and systematically records their health status. In doing so, unnecessary referrals to higher levels of care would be restricted and much time and cost would be saved (2).

Many studies have confirmed the cost efficiency of the FPPs in various countries and FPs are responsible for directing health team and services in North America, Western Europe and Canada (3). Moreover, a positive correlation between FPs' performance and their patients' satisfaction in the above mentioned countries have been reported repeatedly (2, 4). In Thailand, the program has led to substantial improvements in their referral system (5). In Iran, FPP has been implemented to make these desired outcomes.

The health network was established in Iran in 1984, in order to achieve better health related outcomes. Although it was successful to some extent, little development was achieved in terms of individuals' access to the secondary and tertiary level of health services. In addition, the program had many pitfalls and challenges such as inappropriate incentive mechanism, lack of training programs for the general or family physicians, lack of integrity and weakness in implementing the instructions, capital inadequacy and budget allocation, deficiency of health information management system and weakness in the chain of referral, and inadequate cultural infrastructures (6). Hence, some need for reform in the health system was strongly sensed (2).

Flawed referral system, FPs' insufficient reimbursement and increasing number of populace covered are the most important parameters causing these problems (7).

One way of identifying and analyzing the flaws of FPP in Iran is to compare the country's FPP with those of the countries with successfully implemented programs. The objective of this research was to perform such a comparison with an effort to identify potential solutions from the thriving experiences of other systems.

Materials and Methods

This descriptive-comparative study was conducted in 2015, and consisted of a review of the existing literature regarding the implementation and performance of FPP in Iran and six other countries, chosen from the WHO's ranking of national health systems of 191 member states whose information about their FPP were readily available (Canada, Australia, United Kingdom, Denmark, United Sates and the Netherlands) (8). The data pertaining to these six countries were collected, classified, and compared with those of Iran.

Relevant literature reflecting the implementation and performance of FPPs in selected countries were reviewed and compared. Published characteristics were analyzed separately and the main contents were extracted. A list of key indices of FPP in six selected countries and Iran were determined by consensus of an independent 5-member panel of FPP experts, in three 75-min group discussion sessions. The panel agreed upon 23 indices. These were classified into five groups, as follows:

•Group 1. Key features of FPPs: 1. Role of gatekeeper for FPs; 2. Presence of referral system which institutionalized position of FPs as the first point of contact between people and health systems; and 3. Continuity of care.

•Group 2. Practice and performance of FPPs: 1. Individual and group status of physicians; 2. Establishment of a specific catchment population assigned to each FP; 3. Number of people assigned to each FP; 4. Access to FP; 5. Average annual admissions and consultations for each covered individual; 6. Average annual admissions per FP; 7. Scope of practice of FPs; 8. Referral rates from FPs to specialists; 9. Co-location of other health service providers, including nurses, etc.; and 10. Utilization of electronic health records by FPs.

•Group 3. Educational model of FPPs: 1. Defined roles of FPs; 2. Certification requirements for FPs; 3. Status of FPs as a distinct medical specialty 4. Length of FPs educational course.

•Group 4. Payment system and employment status of FP: 1. Employment status; 2. Average of weekly working hours; 3. Payment system; 4. Average of annual income of FPs.

•Group 5. Population vs. FPs: 1. Number of FPs per one thousand population; 2. Ratio of FPs to total number of physicians (%).

A checklist to assess and record these indices in the selected countries was developed and approved by an independent 10-member panel of FPP experts, other than those who participated in the content validation exercise. The characteristics of FPPs in each country were assessed and recorded on these forms by all three researchers. These were collated into a final, cumulative checklist which served as a basis for the study.

Results

Twenty-one checklists were completed independently by three researchers, one checklist for each of the six comparator countries and one for Iran. The inter-rater consistency proved high.

Canada used financial incentives to support the gatekeeper role of the FP. In Iran, on the other hand, the gatekeeper role was exclusive to rural areas. The United States referral system is limited to a few insurance programs. Full indices and the key features of the FPPS across among the seven countries studied are shown in Table 1.

Denmark had the highest rate of referral to specialized physicians; there was no reliable statistics in Iran in this regard. FPs in all countries provided their services along with their assistants, including nurses, etc.; except in Iran and the United States, where they worked independently and rarely sought the assistance of nurses. Utilization of electronic health records was more prevalent in the Netherlands, Australia and Denmark. Most of the FPs in United Kingdom used the health e-records and they were implementing the national electronic health information center in the country.

Table 1: Indices of the amount of attention to and realization of the key features of the FP, among the seven under-study countries

Indices	Canada	Australia	United Kingdom	Demark	United states	Netherlands	Iran
Role of gatekeeper for FPs (9)	Yes	Yes	Yes	Yes	Yes	Yes	No
Presence of referral system and rating and institutionalized position of FP as the first interaction point for people and health systems	Yes	Yes	Yes	Yes	Just in some insurance programs	Yes	Just in villages
Continuity of care	Yes (-)	Yes (over 65%)	Yes (60%)	Yes (-)	Nearly (47%)	Yes (76%)	No

Steps towards installation a nationwide health e-record are being taken in Iran (Table 2). In Iran, licensed General Practitioners are permitted to work as FPs. In all of the countries studied, FPs has completed a graduate medical education (GME) program after receiving their medical degree (Table 3). The first GME FP education programs in Iran began in 2016. Incentive payments in Australia formed 10% FPs' annual income; fee-for service payments accounted for the rest. Payments in Iran were mostly salary-based. In rare cases, FPs are reimbursed on a fee-for-service basis in Iran. In Canada fee-for-service payment constituted 50%-85% of FPs' income, while per capita model of payment was applied for team medical practices (Table 4).

Table 2: Indices related to the practice and performance of FPs in the under-study countries

Indices	Canada	Australia	United Kingdom	Denmark	United states	Iran	Netherlands
Medicine status (individual or team) [12 and 13]	Individual and team	Mostly team	Mostly team	Mostly team	individual or team	Mostly individual	Mostly team
Obligation of registry in FPs list [9]	Mostly no, except for some per capita projects	No	Yes	Yes (98% of population)	No	No	Yes
Population covered by each physician [9,14,17]	1200-5000*	750-1400	1200-2200	1561	2300	500-3000	2300
Level of access to FP in the first 24 hours of referring	41%	58%	52%	68%	48%	75%	Over 90%
The average of annual admissions and consultations for each covered individual	7.9	6.9	5	7	4		6.2
The total average of patients admitted by FP each year [9]	3164	2146	1848	1341	1601	_	2350
Obligation of FPs in observing family guidelines [19]	Yes	Yes	Yes	Yes	Yes	Partial	Yes
The average of referral to specialized physicians by FPs [17,20-23]	31.3	_	14%	14.9	9-11%	_	4%
Presence of other service providers beside FPs including nurses etc. [9]	Yes	Yes	Yes	Yes	Seldom	No	Yes
Percent of FPs used the e-files [24]	56%	97%	92%	97%	69%	_	98%

*Depending on the human resources beside the FP

Table 3: Indices of FPs' educational model Medical doctor certificate in Iran is equivalent of general practitioner in other countries

Indices	Canada	Australia	United Kingdom	Denmark	United states	Netherlands	Iran
Defined roles for FP [26-27]	Medical expert Communicator Collaborator Manager Health advocator Scholar Professional	Medical expert Communicator Collaborator Professional Leadership and management and teamwork Education	Media expert Professionalism Communication Leadership and management and teamwork Research Education and teaching Integration of a balance of technical and non-technical skills	Medical expert Communicator Collaborator Manager Health advocator Scholar Professional	Patient care Practice-based learning and improvement Interpersonal and communication skills Professionalism Systems-based practice	Medical expert Communicator Collaborator Manager Health advocator Scholar Professional	Health care provider Health promoter Researcher Educator Manager Community leader Coordinator
Required certificate for professional activi-	Family physician	General practitioner	General practitioner	General practitioner	Family physician	General practitioner	Medical doctor*
Academic degree [28]	Specialty	Specialty	Specialty	Specialty	Specialty	Specialty	General
Duration of FPs educational course	6 yr general 2-3 yr specialty	5-6 yr general 3-4 yr specialty	4-6 yr general 5 yr specialty	6 yr general 6 yr specialty	6 yr general 3-4 yr specialty	5-6 yr general 3 yr specialty	7 yr general No specialty

Number of FPs per one thousand populations varied from 2.6 to 3.6 in different countries. The rate was low in Iran and lowest in the Unites States (Table 5).

Unrefined data indicated that in Iran, out of 114000 physicians, 78000 were general practitioners and 36000 were specialists or subspecial-ists physicians. The number of general practitioners was further reduced by 8000 (registered general practitioners proved to be dead or immigrated).

About 10105 GPs worked in primary health care network and the remaining in private clinics, hospitals or non-health care centers.

Table 4: Indices of the payment system, employment and occupational status of the FPs in under-study countries

Indices	Canada	Australia	United Kingdom	Denmark	United states	Netherlands	Iran
Employment status [9]	Private	Private	Combination of private and public	Private	Private	Private	Public
Average of weakly working hours [9]	51	60	44.4	42	51.4	53.4	41
Payment method [9,29-32]	fee-for service and per capita	Incentives and fee-for service	fee-for service, salary and per capita	fee-for service and per capita	fee-for service and per capita	fee-for service and per capita	fee-for service, salary and per capita
Average of annual wage	107000	91000	118000	109000	161000	117000	19000

Table 5: Indices of FPs' frequency in the under-study countries

Indices	Canada	Australia	United Kingdom	Denmark	United states	Netherlands	Iran
Number of FPs per thousand population	2.6	3.4	2.8	3.6	2.6	3.3	0.9*
Percent of FPs to total number of physicians	44.4	49.8	29.8	19.6	12.3	39	8.86%*

According to e statistics of the country's medical recordings at Research Deputy of Health Ministry

Discussion

The FPP was one of the plans introduced and implemented in Iran's health sector in the past decade. It was part of an effort to reform the country's health system, in order to achieve health equity, establish insurance coverage, and remove barriers to access.

The FPP enhances accessibility of and equity in health services, increases responsiveness in health sector, reduces unnecessary expectations and expands health services coverage. Our review showed that FPs' services had failed to improve Iran's health system, mainly because the implementation of FPP did not embed structural adjustment of the health system or reformation of the referral system. The study also revealed that more concentration primary health care organization and proper practice of FPs would potentially enhance health outcomes, patients' satisfaction and equity.

Countries with efficient and comprehensive health systems possessed referral system and their general or family physicians played the health systems' gatekeeper role. The role of gatekeeper for family physicians increase the quality of care and reduce costs (9, 10). To achieve these goals a semi-open referral system, continuity of care with a family physician, and voluntarily participation in the FPP have been suggested (11).

The study was not able to pinpoint a systematized gatekeeper role or a referral system in Iran, despite legal obligations of the Ministry of Health and Medical Education to establish nationwide FPP by 2013 (12). Care was provided inconsistently and patients were frequently referred to specialized physicians; the referral system was not observed for outpatient specialized admissions in Iran, and the related services were provided by the private sector, outside the government-led publicly-funded health networks.

The implementation and management of an efficient referral system requires full cooperation of public and private sectors, as well as comprehensive reforms (11). To ascertain this cooperation training of health team members in order to implement the referral system, to carry out legal obligations, to provide feedback to the referring physician by higher levels of care (the so-called complete records), and to educate public on the referral system are essential (13). To surmount overutilization problems (arising from free access to specialty levels, bypassing the referral system) in Iran, it is necessary to plan and conduct qualitative researches and act accordingly.

Continuity of care, a crucial index in realization of the main characteristics of FPPs, was non-existent in Iran, in contrast to other countries studied. Studies show a meaningful relation between continuity (i.e. seeing the same physician over time) and enhancement of the health outcomes. There was relation between continuity of care and favorable quality of medical cares for pregnant women and continuity of care concluded by FPs increased patients' satisfaction (14). Santosh et al. demonstrated the relation between care continuity and reduction in health costs in New Zealand (15).

All studied countries, other than the Netherlands and United Kingdom, lack mandatory registration of patients for their FPP except for the. The compulsion in Canada is limited to some per cap-

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ita models. In Iran, however, the program was not compulsory, but the people with health insurance coverage were permitted to choose one doctor as their FP in those cities where the program had been executed (16).

The rate of the FP covered population in Iran was 40%, which is significantly lower than that of other countries with public coverage (16). In Iran, FPPs and rural insurance programs were implemented in villages and cities with populations below 20,000 in 2005 and over 20 million people (30%) were covered by rural insurance; about 10%-20% of country's population was not covered by the time of study (10).

The optimum physician-to-patient ratio may be determined based on the need for annual admissions (17). Assuming an average of three admissions per person per year, each FP will be able to care for a population of 3,000 people. Older populations require more care; assuming least 6 admissions annually, a doctor can approximately manage 1500 people each year (17). The demand for general practitioners in Iran in order to manage the FPP was 59,199 to 67,299 (18).

FPs are primarily employed in public centers in Iran, contrary to other countries. The FPs' income is much lower than that in other countries. This may be a disincentive for physicians to play an efficient role as an FP. The low salaries had led to physicians' disregard of the referral system and resulted in low quality services. The reimbursement of FPs may be based on per capita or wage models. Moreover, at 2nd and 3rd levels of care, the payment tariff becomes the same in private and public sectors and provide the health services organizations with indirect financial resources (19). A combined method payment was suggested for general practitioners, including a composition of wage, per capita, incentive and wage for specialists (if they are employed), because most of physicians in Iran contracted with social security organization (20). Most studies conducted on Iran's FPP, prior to its restructuring in 2014, have identified job insecurity, low income, high workload and shortage of experts as the main reasons for job dissatisfaction and exhaustion (21-22).

FP educational course has been defined as a specialized course of graduate medical education in all studied countries. Olsen described FP as a specialty doctor positioned in front line of health system (23).

In Iran, the course is assumed as a general course; FP is not yet a recognized specialty in Iran. In Iran, all FPs who work in health care centers are general practitioners. They have studied seven years in general medicine and have received medication certificate.

The physicians' capabilities concerning the eight-capability areas had been evaluated at good level just in 30% and at weak or moderate level in 70% cases. This made revision of the Family/general doctor training necessary (24).

In addition to their clinical skills, two important factors were required for an FP to fulfill his duties in studied countries: effective communication and medical expertise. While the former was not specified in Iran by the educational curriculum of FP course ratified in 2011. CanMed refers it as the most basic role of an FP. In addition, CanMed considers communication between doctor and patient as the fourth basic role of an FP, in ACGME (25).

A study of clinical guidelines in America showed that adherence to clinical guidelines is associated with increased cost effectiveness. To improve adherence to guidelines by Iranian physicians, it is necessary to develop clinical guidelines based on the best evidences – not merely expert opinion – and to implement them in the country's medicine system (26).

American Association of Family Physician (AAFP) has observed the above mentioned necessities with regard to the responsibilities and duties of providing the patients with health care services, using the best guidelines; and made the FPs to follow these guidelines in order to optimize quality of services. Hence, preparing clinical instructions packages for different issues and putting them in action are inevitable (27).

Finally, concerning the electronic health records, the Iran faces fundamental shortcomings both in providing the systems and making physician use the system. Overall, 23 articles on electronic

health records were assessed and applying the system would reduce documentation process time (28). Another study in the United States focused on advantages of electronic health files and revealed that the practice increased satisfaction among 85% of the FPs and 74% of them believed that it improves quality of health care (29). In Arak, Iran, the FPs' experiences in applying e-files instead of traditional files were investigated, aiming at quick access to patients' records and enhancement of quality of services (30).

Therefore, it is necessary to establish an electronic health file system in the country. Presently, Iran has a multitude of different dispersed health record systems. These need to be replaced by a comprehensive record system at the national level (31). In Iran, government is developing health electronic records. Initial efforts have not been entirely successful and the project has been conferred to the private sector.

Conclusion

Iran faces many serious burdens and challenges in establishing a referral system and FPP implementation. Realization of the goals requires structural reforms in service delivery system as well as appropriate legal and regulatory frameworks. Satisfying these requirements would result in an optimized referral system institutionalizing the gatekeeper role for FPs, as well as in improved patient satisfaction.

Concerning the FPs practice and performance, Iran needs to increase working hours of the FPs in an on-call form and to establish subrogating system among the FPs, if required. Iran also needs revision and reforms in medical educational curriculum in order to improve the physicians' capabilities and to establish specialty courses for FPs to make them responsive to the health system requirements. Iran does not differ from other countries concerning the overall goals of its FPP, but in its implementation.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or fal-

sification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Conflict of interests

The authors declare that there is no conflict of interests.

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