System Based Practice in Iran: A Qualitative Research

Fakhrolsadat Hosseini[1]*, MD, PhD; Shahram Yazdani[2], MD; Soleiman Ahmady[3], MD, PhD

[1]Department of Medical Education, School of Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
[2]Dean of School of Medical Education Sciences, School of Medical Education Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[3]Associate Professor, Department of Medical Education, School of Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Abstract

Background: Systems-based practice (SBP) is one of the six competencies introduced to assess the competency of physicians in America. In this study, we aimed to define the characteristics of SBP for general practitioners in Iran using content analysis in order to gain maximum qualitative data.
Methods: A qualitative content analysis was conducted and the units of analysis were ministry documents, interviews with four managers, one expert and five general and family physicians. Inductive analysis process was mainly performed by open coding, abstraction, categorization, and definign themes using the iterative method.
Results: 65 codes were placed in 16 sub-categories and 7 categories. Three themes emerged: Effective role playing in inter-professional team, balanced decision between patient needs and system goals, and acting for system improvement. These themes were accompanied by meaning units that clarified their meaning.
Conclusion: The exact definition of these themes in Iran could facilitate SBP training as well as evaluation.
Keywords: SYSTEM BASED PRACTICE, ALIGNMENT, HEALTH ADVOCACY

Journal of Medical Education **Summer 2017; 16(3):123-153**

Introduction

The Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialists (ABMS) has defined the fundamental competencies residents and physicians to provide quality patient care. These competencies are as follows: patient care, medical knowledge, practice-based learning and improvement (PBLI), communication skills, professionalism, and systems-based practice (SBP) (1). The aim of attaining these six competencies is to creat a patient-focused physician who can practice within current and evolving healthcare system (2).
Among the six fundamental skills, SBP is one of the most challenging with respect to medical education, practice, and evaluation. SBP is highly important for medical students, general practitioners, specialists, and practicing physicians. In SBP, physicians should understand how patient care is related to SBP as a whole and how the system's quality should be enhanced and the patients' safety should be facilitated (3).
Before 2003, SBP was not implemented in the traditional training of residents on other forms of medical education. Until then, physicians were soloists, clinical autonomists, and occupational monopolists in this regard despite the fact that medical care is given in complex systems and in collaboration with specialist of various fields (4). This emphasis on clinical autonomy is not suitable for complex environments because they are dependent on effective processes and systems and understanding system interactions and

***Corresponding author:** Fakhrolsadat Hosseini,
Address: School of Medical Education Sciences, Tehran, Iran. **Phone:** +98 (912) 3193134
Email: fakhrihosseini@outlook.com

strategic correlations are necessary for providing optimal care and enhancing quality (5).

Medical education institutes, medical boards and specialist and general medical programs have difficalties with respect to effective training and evaluation of SBP (3). Graham as quoted by DeVellis states that: "A classic problem in assessment in general and at the crux of measuring complex domains of behavior is the need to define such ambiguous competency areas in highly specific, well-elaborated terms to clarify exactly what it is that, one is trying to measure (6)." For suitable education and training of SBP, it should be operationally defined and its principles and components be clearly identified and measured using valid and reliable tools. The aim of this study is to specifically define SBP in Iran. In our previously published study (7) using the concept analysis method, the genral characteristics of SBP were defined and five characteristics were identified as follows: knowledge of the system, effective role playing in inter-professional team, balanced decision between patient needs and system goals, Health advocacy at the system level, and acting for system improvement. Moreover, the existence of a functioning system and system thinking were identified as antecedents, and system goals were considered as the consequences of this concept analysis. In this study, we aimed to define the characteristics of SBP for general practitioners in Iran using content analysis in order to gain maximum qualitative data. As each health system and edicational context have specific characteristics, SBP should be define sepecifically for the system, but the study will help to every medical educatores to better understanding of the SBP definition and meaning.

Iran's Healthcare System

Iran's Healthcare system is an integrated system whose main trustee is the Ministry of health and Medical Education (MOHME). Since 1986, this ministry has been responsible for all aspects of designing, guiding, supervising, and evaluating medical and health-related services in the country as well as training human resources in all health levels (8). Figure 1 shows the structure of Iran's health system (9).

PHC networks started in 1981 in Iran with the establishment of health houses in rural areas. The primary healthcare network in Iran consists of city health care centers or urban health care centers and rural health care centers. The general practitioners working in these centers are responsible for managing the healthcare team. Despite the attainment of many goals in the mentioned system, this system had gradually weakened over the years and could not meet the needs of the growing population (increased prevalence of contagious diseases and etc.) that demanded higher accessibility to physicians and modern medical technology. Therefore, as a result, the system was modified using two parallel strategies; the family physician program (re-engineering service providing) and the national health insurance program (10). The family physician program was started as a primary healthcare program in 2005 in all rural regions of Iran and only three universities in urban areas (cities with less than 20000 residents) in 2011 (11). Each family physician team consisted of a midwife, physicians, laboratory service providers, and pharmacies. This team is responsible for 2000 to 4000 residents (12). Family physicians play an important role in providing effective and fair medical services. They facilitate communication between people and the health system (13). The family physician program acts as a starting point for modifying the healthcare system as a means of facilitating rapid access to health services (14).

Materials and Methods

The aim of qualitative content analysis is to attain a full and comprehensive description. The outcomes of analysis are concepts or categories that describe a phenomenon. Usually, these concepts or categories are used to form a model, conceptual system, conceptual

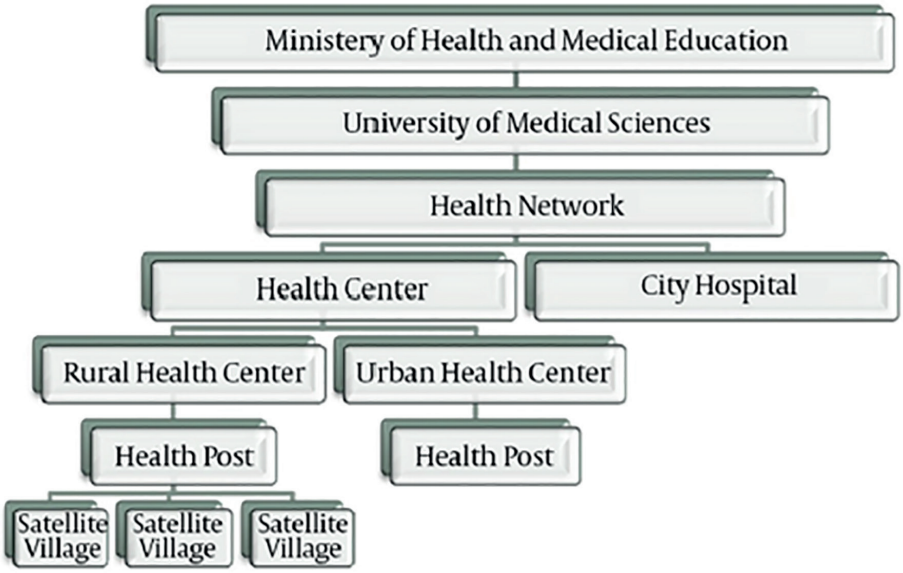

Figure 1. Organizational structure of the health system in Iran (Zanganeh Baygi et al 2015)

map or categories (15). In this study we mainly used a indeductive approach because we wanted to identify the characteristics of SBP according to the current healthcare system of Iran and conducted open coding, abstraction, categorization, and definign themes using the iterative method. The athoures (7) had been conceptualized SBP by concept analysis as a pervious study and at the end of anlysis in the study,the themes were compared with the attributes of the previous study and all of them verified but redistributed in new categories.

Data collection was done through interviews with key informants as well as by reviewing the main documents related to the system. 10 people as key informants till saturation were selected from different levels, ministry and university officials (one expert responsible for designing the family physician program in IRAN, one health deputy, two urban health network officials and one supervisor of the family physician program), managers of health centers and general practitioners or family physicians.

The general practitioners were working in healthcare centers and had more than 10 years of experience (range: 12-22 years) and were referred to as reliable physicians of the system by university officials. During the study and base on the need for interviewing general practitioners with family physician experience, two other people were interviewed with 9 years of experience in the family physician program. At the beginning of each interview, the participant was asked to introduce himself/herself and talk about his/her work experience. The interviews began with more general questions and continued based on the issues mentioned by the participants. Interviews were semi structured and framework of the interview was encompassed of the five main aspects of SBP conceptualization in Yazdani and ET all study as follows:

1) How do general practitioners perform SBP?

2) How do general practitioners defend the system during caregiving in a way that the quality of care is maintained?

3) What is the importance of knowledge of the system in SBP?

4) What do general practitioners do as advocators of health?

5) How do general practitioners improve the system?

The pre-prepared questions were used only when the answers the participants made no mention of the answers anticipated for each question. All interviews were done by the main researcher. Before the interviews the

participants were asked about their willingness to participate in the study and the interview schedule was planned according to their choice. All interviews were done at the participant's workplace privately. The interviews lasted for 45-60 minutes. All interviews were recorded and the researcher took notes during the interview. At the end of the interview the researcher's findings were reviewed and confirmed by the participants.

The used documents were introduced and indices cited by the system's managers. The documents were as follows:

• Iranian general practitioner 's tasks,

• The family physician implementation guidelines and rural insurance in 2014-version 15/1,

• and the first level health services package for urban, suburban, and rural use, winter 2014.

The unit of analysis in this study was the text of 10 interviews and three ministry documents cited by the health system. Then, open coding was done. Our approach was mainly inductive for open coding, but the previous literature was partly considered for creating themes but with new insights. The texts were read through several times in order to reach making sense of the data and context. The recordings, were transcribed word-by-word and inserted in the Open Code program, version 4.02. Each sentence was carefully read and a description close to the content (manifest content) and in some limited cases, their inferred meaning (latent content) were considered as one code. The coding was repeated several times and changed frequently until reaching sustainability in coding. All codes were checked and initial categories were derived based on internal homogeneity and external heterogeneity of categories. The list of categories grouped together under higher order heading and one main categories included several subcategories that showed various levels of abstraction. Creating categories was not simply bringing together observations that are similar or related; instead, data were being classified as belonging to a particular group and specific category which shows in table 1.

Results

In this study, 65 codes were extracted. Of these, the codes "up-to-date knowledge", "self-evaluation of the case", and "patient training" that were unrelated to the research question as well as 11 negative codes (such as "no follow-up") were omitted. The rest were classified into 7 categories, 16 sub-categories, and 3 themes (table 1).

1-The theme "Playing an effective role in the multidisciplinary professional team"

Table 2 shows the details of the theme "Playing an effective role in the multidisciplinary professional team". Three categories comprise this theme, as follows: systemic role playing, care with systemic approach, and health advocate.

Systemic Role Playing

This category consists of five sub-categories, as follows: education, communication, gate keeping, health leadership, and team working. Education consists of 5 codes: student training, individual health education, community education, family education, and co-worker education. "Patient education" seemed to belong to this category, but since it is subtotal of "patient care", it is beyond our research aims and therefore omitted. The "Communication" category consisted of "recording and documenting" and "verbal communication" codes. The codes "first contact" and "cost control" were placed in the "gate keeping" category. Based on the first level service package, family physicians are the first levels of service providing (first contact) and considered as gate keepers in Iran's health system. It means, if patients are referred through this system, they will benefit from the maximum insurance support and those who do not prefer the service will have to pay for all the health expenses personally. "Health leadership" includes 5 codes: gaining support, leadership, stewardship,

Table 1. The list of codes, categories, sub-categories, and themes

Theme	Category	Sub-category	Codes
Playing an effective role in the multidisciplinary professional team	Systemic role playing	Education	Student training Individual health education Community education Family education Co-worker education
		Communication	Verbal communication Recording and Documenting
		Gate keeping	First contact Cost control
		Health leadership	gaining support Leadership Stewardship Inter-sectoral cooperation Intra-sectoral cooperation
		Team working	Team manager Coordinator Team member
	Care with the systemic approach	Individual health care	Prevention Health follow-up Individual health services Counseling
		Patient care with PHC approach	Referral Disease follow up Report back Itinerary Screening Reporting Comprehensive care General care Continuous care
	Health advocate	Patient advocacy	Patient's right advocacy Assisting patient
		Community health care	Epidemiologic study Community health care services
Balanced decision based on the patient's need and system goals	Systemic decision-making	Balanced decision making	Balance decision based on priorities Balance decision based on cost
		System alignment	Compliance with health guidelines Compliance with policies , rules and regulations
	systemic knowledge and attitude	Systemic knowledge	System knowledge Community recognition
		Health attitude	Commitment Community orientation Health orientation Health promotion
Acting for system improvement	Evaluation and monitoring of system performance		Population evaluation Service evaluation and control
	Participation in system improvement	Feedback	Passive feedback Active feedback
		Improvement	Problem solving Giving recommendation Intervention and change

Table 2. meaning units' samples related to the theme "Playing an effective role in the multidisciplinary professional team"

Theme	Category	Sub-category	Codes	Meaning Units
Playing an effective role in the multidisciplinary professional team	Systemic role playing	Education	Student training	Participating in educational programs of interns, residents and medical students
			Individual health education	Providing recommendations about supplements and adult vaccination according to priorities and proper individual education.
			Community education	Empowering people and group clients for self-care
			Family education	Education and empowerment of parents regarding prevention of accidents
			Co-worker education	He /She must train health staff and his /her colleagues.
		Communication	Verbal communication	It is very important how I behave with my Behvarz(staff), and people who are sitting out; what to say, what not to say. It is an incredibly hard and difficult job.
			Recording and Documenting	…….the health records, which were perfectly completed for the whole family members.
		Gate keeping	First contact	These care are the first contact of the individual and family
			Cost control	Whoever is not willing to enter the health service through him/ her must personally pay for all medical expenses.
		Health leadership	Gaining support	Trying to solve public health issues through community participation.
			Leadership	He/ she is director and leader, as well .....
			Stwardship	Health management of defined population.
			Inter-sectoral cooperation	He/she solves the health issues through inter-sectoral cooperation
			Intra-sectoral cooperation	He /she solves the health issues through cross-sectoral cooperation
		Team working	Team manager	The family physician is responsible for managing the health team
			Coordinator	Main coordinator is health team manager and is a doctor.
			Team member	Also, You're (medical doctor) a member of a health team; you may be team leader or a team member.
	Care with the systemic approach	Individual health care	Prevention	Individual health services include: prevention and education
			Health follow-up	All eligible women ought to come for physical examination and follow up were done.
			Individual health services	Even before pregnancy, when they decided for pregnancy, they should undergo a series of medical examinations. These have certain sheets…
			Counseling	Counseling mothers about breastfeeding, and complementary feeding

Theme	Category	Sub-category	Codes	Meaning Units
		Patient care with PHC approach	Referrals	Family Physician must obey defined referral indications in the clinical guidelines.
			Disease follow-up	We had a case of TB, which I personally followed.
			Report back	Following the cases referred to the higher level of the system and receiving report feedback from them
			Itinerary	Itinerary. It was like the same before (that physicians go to distant village to visit rural patients)
			Screening	Screening started for all people over 30 years old
			Reporting	Correct , accurate and timely registration and reporting based on sheets
			Comprehen-sive care	Service provider should be qualified for maintaining comprehensive care and being able to provide all the predicted services.
			General care	The family physician is responsible to provide health care services based on service packages to the individual, family, and population; without discrimination of age, sex, social and economic characteristics, and risk disease.
			Continuous care	Appropriate and timely referral, following the cases referred to higher levels, receiving feedback from them, and performing the required actions based on feedback
	Health advocate	Patient advocacy	Patients' right advocacy	Hence the need to act. He /She must inform the health care center or health center director that the means which measures is out of order and have problems.
			Assisting patient	We found the fetus had dead. You know, it's a certain condition. Health insurance do not cover Afghans. We followed the case for three whole days, even we sent health workers and driver to their home, and coordinated with a certain hospital in Tehran that the mother must be hospitalized.
		Community health care	Epidemiologic study	Preventing the disease distribution through epidemiological surveys.
			Community health care services	In fact,school health was the same as student examinations (for entering to school)

inter- and intra-sectoral cooperation. "Team working" included 3 codes: team manager, coordinator and team member. General/ family practitioners are the managers of the healthcare team and are responsible for directing the team. This code was clearly mentioned many times (37 instances) by the managers and the physicians (family or general practitioners) in different sessions, which means it is an important code. The issue "health manager of defined population", that has been mentioned in the documents, can show the extent of the responsibility. Coordinator is another important role and has been mentioned 31 times alongside "manager". Coordination of sectors, evaluations, action

plans, team members and communicating with the specialists are different aspects of coordinating. The code "team member" shows that in some cases the physician should play the role of a colleague within the team rather than the manager, such as what is seen in epidemiology teams.

Care with Systemic Approach

This category consists of two sub-categories: individual health care and patient care with PHC approach. The "individual health care" sub-category included four codes, as follows: prevention, health follow-up, individual health services, and counseling. As seen, this sub-category includes many things to do in individual health care services. "Patient care with PHC approach consists of nine codes, as follows: referrals, patient follow-up, report back, itinerary, screening, disease report, comprehensive care, general care, and continues care. "Referrals" had the highest frequency among the codes (47 instances). The protocol of family physician plan states that effectiveness, efficacy, and productivity in the healthcare system should be based on the referral and leveling system. "Follow-up "with 39 repetitions ranked second in terms of its frequency. There were some differences between patient follow-up by the family physician and the general practitioner. The family physician program guideline states that family physicians are responsible for continuity of care in all services to all patients under coverage, while general practitioners are responsible for the active follow-up of the specific cases. As a result, "report back" has no relevance to general practitioners and was mentioned only by family physicians.

With respect to the "reporting" code and its difference from "documenting", one general practitioner stated: "In our delivery system, it is clearly specified which diseases need to be urgently reports, which must be reported daily, which monthly, and the surveillance system of communicable disease has been stablished clearly". In explanation of "comprehensive care "in the documents have been written "family physicians, as the first line of healthcare services, are responsible for the first level healthcare services and have responsibilities such as: presenting all required or requested healthcare services (by patients) which include, health promotion, disease prevention, diagnosis, treatment and management, rehabilitation, therapeutics, and long-term home-based care of chronic illnesses. All these services are guaranteed throughout life (from birth until death) within the health system". In defining the "general care" code, the expert stated: "You have to visit a patient without considering their sex, age, etc. I think that general care has a systemic meaning. Why? Pediatricians visit children, geriatricians visit the elderly, urologists visit men, obstetricians visit women, I(system) want someone who visits everyone. That person is the family physician, because I (system) want someone to be my first line". He said also: "continues care is defined in several forms and one of them is based on catchment area and define population which would be guaranteed care continuity. Each person has a family physician and each family physician has a defined population under coverage".

Health Advocate

This category has two sub-categories: "patient advocacy" and "community health care". Patient advocacy consists of patient's rights advocacy and assisting patient codes. The patient's rights advocacy code hadn't been mentioned in any of the assessed documents and has only referred by direct questions in interview and wasn't spontaneously discussed. In answer to a question on whether the participants ever had conflicts between system advocacy and patient advocacy and what they did, one of the physicians said: "I am really in favor of the patient. We are here in the public system to give service to the patients". The assisting patient code was similarly extracted through direct questions. In the assessed documents it had been mentioned: "caring

about medical prescriptions and guiding patients". The community health care sub-category consisted of "epidemiologic study" and "community health care services" codes. With respect to the epidemiologic study code, the physician's responsibilities are "disease outbreak evaluation and prevention from spreading of disease through epidemiological studies". The community health care services were defined as "population-based services (public health), including workplace health, school health, injuries, prevention, and health promotion" in the assessed documents (Appendix 1).

2-The theme "Balanced decision based on the patient's need and system goals"

This theme consisted of two categories systemic decision-making and systemic knowledge and attitude.

Systemic Decision-Making

The "systemic decision-making" category consists of two sub-categories of "balanced decision-making" and "system alignment". The "balance decision-making" sub-category consists of two codes: balanced decision based on priority/limitations and balanced decision based on cost. With respect to the balanced decision based on priority/limitations, one of the managers stated: "they (health ministry) defined a pharmaceutical package and this package was more than 220 or 270 items. They told you could prescribe one of these drugs and only these drugs should be available in our pharmacy. If my physician prescribed one of these drugs, it would be paid, if not, it wouldn't be paid". With respect to the "balanced decision based on cost" code, there were no evidence in the documents, but the general practitioners, the family physicians, the mangers and the experts, all of them, had been mentioned it clearly. For example, one of them said: "If you don't consider costs, you won't treat the patients well". In the "system alignment" sub-category, we extracted two codes: compliance with health guidelines and compliance with health policies, rules and regulations. With respect to the compliance with health guidelines, we saw the following statement in the documents: "All referrals by the healthcare team should be made based on the clinical guidelines and protocols". The compliance with health policies, rules and regulations code with 33 repetitions was one of high frequently codes. We found this code in all the documents, as well as in all groups of interviews, which could indicate its importance. An example for the policies is: "The family physician is responsible for providing services within a defined service package" (table3).

The Systemic Knowledge and Attitude Category

This category consists of two categories: "systemic knowledge" and "health attitude". Systemic knowledge consists of two codes: system knowledge and community recognition. In the assessed documents, the system knowledge was mentioned as follows: "identifying the work flow of the health center and activities of each unit within the center". The community recognition code was defined in the "first level service package "document as: "identifying the geographical area of service providing, the population under coverage (their age and sex), and the limitations and problems affecting the health in the area and its population". The health attitude sub-category consists of four codes as follows: health promotion, commitment, community orientation, and health orientation. in the documents, with respect to the health promotion code had been stated that "operational planning is required for the health promotion of the target population in different setting included; educational, occupational, rural, urban, and provincial settings. Also, it is required to promote healthy life styles with more focus on nutrition, physical activity, stress and narcotics, attitude awareness and community performance related to

Table 3. The theme:" balanced decision based on patient's needs and system goals"

Theme	Category	Subcategory	Codes	Sample meaning units
Balanced decision based on patient's needs and system goals	Systemic decision-making	Balanced decision making	Balance decision based on priorities	Where these goals in conflict with themselves, the patient, or his class, he/ she is able to establish a proper balance. / They were told that they should only prescribe these 270 drugs.
			Balance decision based on cost	If you do not consider the cost, you have not treated the patient well. For example, a prescription costing 150,000 Tomans that the patient cannot afford it, it is definitely your mistake.
		System alignment	compliance with health guidelines	Indications are defined in clinical guidelines and protocols. All referrals must be based on these by health care team.
			compliance with health policies , rules and regulations	When everything is fine, suddenly, a project is planned in the last minute with many problems. And you should implement it. Other physicians who do not adjust themselves with the system cause trouble. They must be trained and justified. It must be clarified who they are capable to this work or not. This is the health system.
	Systemic knowledge and attitude	Systemic knowledge	System knowledge	Identifying the center's work cycle (health care center) and activity of different units at the center
			Community recognition	identifying the geographical area of service providing, the population under coverage (their age and sex), and the limitations and problems affecting the health in the area and its population
		Heath attitude	Commitment	If the training is well, they will consider the problem their own problem and consider themselves a member of the system, if it is not implemented well, they get upset. Usually doctors who cooperate, do this.
			Community-orientation	While I am at the (health) center, (I must know) how many patients are at risk of diabetes? What should I do that people do not get diabetes? How many people are covered by the (health) center, have kidney disease? And (I must) look for the whys; why has this patient acquired kidney disease? Is there a genetic factor? Or drinking water problems? Or environmental condition?
			Health orientation	Sometimes even (health view) overcomes the treatment view. It means they look prevention over treatment of the patient.
			Heath promotion	Promoting healthy lifestyles with an emphasis on aspects of nutrition, physical activity, stress and smoking

risk factors.". We found no mention of the commitment code in the documents. However, in the interviews one of the managers stated that "the physician considers the problem as his own problem and considers himself as a member of the system. If he/ she doesn't do well, he/ she won't feel good." With respect to the community orientation code, one of the family physicians stated that "in my opinion, this is what distinguishes us (from general practitioners). In our country, family physicians not only consider the social context of the individuals during practices, but also they are responsible for providing services at the community level". With respect to health orientation code, one of the managers stated

that "my physician should see beyond the treatment plans. They should also consider which will enhance their health population level and what he/ she should do for increasing vaccinations…..he/ she must have a high health believes. (table 3)" Appendix 2 shows the details of the mentioned codes.

3-The theme "acting for system improvement"

The "acting for system improvement" theme consists of two categories of evaluation and monitoring of system performance as well as participation in system improvement.

The Evaluation and Monitoring of System Performance Category

This category consists of two codes (without subcategory): population evaluation and service evaluation and control. With respect to the population evaluation, the expert stated: "health interventions could be discussed at the individual and social level. I (physician) have to perform a population-based assessment and identify health risk factors and burden of disease". With respect to the service evaluation and control code, in the general practitioner tasks document has been stated: "the general practitioners are responsible for the analysis and evaluation of healthcare activities" (table 4).

The Participation in System Improvement Category

This category consists of two sub-categories: feedback and improvement. Feedback consists of active feedback and passive feedback codes. With respect to the passive feedback code, one of the physicians stated that "they give feedback when there is a disorder in the system… we want them to do so". With respect to active feedback, one physician stated: "but when the program was initiating, feedback is definitely active and they will do spontaneous feedback." The improvement sub-category consisted of three codes as follows: problem solving, giving recommendation, and intervention and change. Regarding the problem solving code, in the first level service package reads: "operational planning for the health promotion of the target population…stage 3: defining major goals, target groups, and specific objectives…. stage 4: determining strategies, activities, and specific resources". Regarding the giving recommendation code one general practitioner stated:" (We) presents special appropriate offers for establishing, developing and improving the services (to our supervisors)". With respect to the intervention and change code, the expert stated: "I(physician) should consider improvement at own microsystem level as part of my responsibilities" (table 4). Appendix 3 shows the details of these codes.

System Based Practice Competencies for Iranian General Practitioner/Family Physician.

Based on the categories and subcategories obtained in this study, we developed SBP competencies and sub-competencies for Iranian general practitioner/ family physician. We should emphasize that patient care is out of our study base on ACGME 6 competencies. But some part of patient care which has systemic nature has been included. These competencies are:

1- play their role effectively in the multidisciplinary professional team.

• Provide individual and family care with systemic approach.

A) Provide Individual and family health care consists of prevention, consultation, individual health services, and follow-up.

B) Provide patient care with general, comprehensive, and continuing approach.

• Play their systemic roles effectively (except for care).

A) Train colleagues, clients, families, and community.

B) Establish oral and written communication with colleagues and whole society.

C) Act effectively as a gate keeper of health.

D) Lead the health in the defined population.

E) Coordinate the healthcare team as its manager

Table 4. The acting for system improvement Theme

Theme	Category	Sub-category	Codes	Sample meaning units
Acting for system improvement	Evaluation and monitoring of system performance		Population evaluation	Operational partnership planning to promote health of the target population in educational centers, work centers, district, village, town, province. Step 2: Current situation evaluation
			Service evaluation and control	Monitoring and evaluation of services which health care team delivers based on existing guidelines.
	Participation in system improvement	Feedback	Passive feedback	Some plans have this. That is, after a period that it runs, they want feedback from us.
			Active feedback	If there are defects in the guidelines, they must look for the shortcomings and express them to the higher levels and tell their comments.
		Improvement	Problem-solving	You expect that they see the system problems as their own problems, solve the problems and tell the solutions.
			Giving recommendation	…… they say, write your suggestions. Suggestions that we write have score point in the final evaluation at the end of the year.
			Intervention and change	Operational partnership planning to promote health of the target population in educational centers, work offices, district, village, town, province. Step 3: Determine the goals, target groups and specific objectives. Step 4: Determine strategies, activities and specific resources. Step 5: development of indicators, Step 6: A review of the designed action plan. Step 7: Implementation of the plan.

• Advocate for patient and population health care.
A) Advocate for the patients' rights.
B) assist the patients for haelth promotion
C) Participate in epidemiologic studies
D) Provide community health services
2-Balannce decision-making based on patient's needs and system goals
• Modify care based on systemic decision making.
A) Practice within defined limitations of the system
B) Provide cost effective care
• Show alignment with the system when providing care
A) Practice based on formal health protocols and guidelines.
B) Obey system rules and fiscal regulations
• Shows that he has system knowledge and attitude
A) Show that he is familiar with the workflow of healthcare center, its different units, affiliated sectors, health programs and insurance protocols
B) Show that he is familiar with the geographical area and covered population, their age and sex, as well as the potential health problems
C) Practice with Community orientation
3-Stive for improving the health system
• Evaluate and monitor the health system

performance continuously
• Strive for health promotion in patient and population and system improvement through:
A) Monitor health care services which provide by staff under his/her supervision and evaluate their outcomes continuously.
B) Give active and passive structured feedback to the health system appropriately.
C) Investigate problems related to his/her practice, their reasons, and ways to solve them and take under observe their consequences.

Discussion and Conclusion

The aim of this study was to identify the themes related to systems-based practice among general practitioners in Iran. In this regard, we found three themes: Playing an effective role in the multidisciplinary professional team, balanced decision based on the patient's need and system goals, and acting for system improvement. the "following policies, rules, and regulations" code was the only code referred to in all the documents with a frequency of 33 times. This could indicate its importance and may show that it is a core concept of SBP competency. The other six themes and codes (following health guidelines, recording and documenting, service evaluation and control, individual health services, and community health services) were referred to most unit analysis (six of the seven) which may be indicative of the importance and are in the second place. The first three codes are themes that could apply to any health system, but the last two codes should be defined specifically for each health system. Some of the codes were not mentioned in the documents and were only mentioned by interviewees, which show the importance of collecting data from multiple source; for examples the codes commitment, community orientation, verbal communication, leadership, patients' rights advocacy, active feedback, passive feedback, itinerary, balance decision based on priorities/limitations, and balance decision based on costs. By given emphasis the interviewees on these codes, we recommend to be revised the documents. On the other hand, there are some codes that were mentioned in the documents but not in the interviews such as first contact, cost control, co-worker training, family training, prevention, health follow-up, and problem solving. This could be related to the overlap between these issues and other concepts which the interviewees haven't mentioned directly or they haven't been fully emphasized in practice by the system.

The codes population evaluation, general care, continuous care, epidemiologic study, and community recognition were among the codes that were mentioned in both the documents and by the experts and managers, but not by the general practitioners or family physicians. Therefore, it is important to be reviewed or emphasis these codes for the service providers. Compared with our previous study, the results of this study confirmed all the themes with a few minor changes. The three main themes of playing an effective role in the multidisciplinary professional team, balanced decision based on the patient's need and system goals, and acting to system improvement substituted by the five previous themes. Although the two themes of health advocacy and knowledge of the system were also seen in this study but they were placed in other categories. This change in categorization resulted from lateral subjects and themes, for example system knowledge alongside with health attitude created a meaningful subcategory of systemic knowledge and attitude. Also, the systematic knowledge alongside with systemic decision making can make better sense for balanced decision between "patient's needs and system goals". Or the patient advocacy alongside the community care code reflects another role called health advocate and was grouped together and placed in the "playing an effective role in the multidisciplinary professional team" category.

SBP competency in ACGME model consists of four sub-competencies as follows: Provides Cost-Conscious Medical Care, Emphasizes

Patient Safety, Is an Advocate for Individual and Community Health, and Coordinates Team-Based Care (16). Contents such as consultation, coordination, general, comprehensive, and continuous care, health care, personal and community health improvement, and follow-up are issues mentioned in the competencies of family physicians in America in the patient care category. This difference could be due to differences in viewpoints during categorization. Moreover, communicating with the community is placed in the "communication skills" category which may show taste of organizers. The "reporting and documenting" code could be the equivalent of "using technology to optimize communication" in the American version depicting the type of documenting in that country. Some issues of the system improvement have been placed in the practice-based learning improvement (PBLI) category and of course community evaluation is not seen in the USA competencies. Issues such as gate keeping (first contact and cost controller), health leadership (getting support, community health advocacy, inter-sectoral cooperation, and inter-sectoral cooperation), and systemic knowledge (knowledge of the system and the community), system alignment (following health guidelines, policies, rules and regulations) alongside student, community, and coworker training are subjects no seen in the American version (16). This shows the difference in roles and health systems between Iran and America. Moreover, in comparison with the Canadian model (CanMEDS) we found that these competencies are more match with the Canadian roles of collaborator, communicator, manager, health advocate, and scholar (17)which is alongside with the more prominent role of GP practitioners in Iran and Canada that are affected by the health system. These differences show that SBP differs among different countries and must be localized.

The SBP Iranian competencies can be used by educators for GP curriculum planning and sample meaning units can guide instructors to make sense better of them.

The primary assumption of this study was that reality is interpreted in many different ways based on the individual. Such interview and observation based studies are based on the context, background, and values (18). In this study, we spent enough time for data collection to increase the depth and accuracy of the data. To increase the validity of the study, we checked our data with the participants at the end of each interview. Moreover, all interviews and the process were reviewed by the other researchers as supervisors. This process continued until reaching optimum accuracy. The selection of participants with different experiences and at different levels in the healthcare system increased the validity and reliability of the study. We also matched the results obtained from the interviews with the documents to increase precision. However, we also found that some codes in the interviews did not match the documents and vice versa, which depicted lack of clarity in those sections.

Conflict of Interest

The author declares no conflict of interest.

References

1. Swing SR. The ACGME outcome project: retrospective and prospective. Medical teacher. 2007;29(7):648-54.
2. Chan EY, Deziel DJ, Orkin BA, Wool NL. Systems-based practice: learning the concepts using a teamwork competition model. The American Journal of Surgery.209(1):40-4.
3. Johnson JK, Miller SH, Horowitz SD. Advances in Patient Safety Systems-Based Practice: Improving the Safety and Quality of Patient Care by Recognizing and Improving the Systems in Which We Work. In: Henriksen K, Battles JB, Keyes MA, Grady ML, editors. Advances in Patient Safety: New Directions and Alternative Approaches (Vol 2: Culture and Redesign). Rockville (MD): Agency

for Healthcare Research and Quality (US); 2008.
4. Panek RC, Deloney LA, Park J, Goodwin W, Klein S, Ferris EJ. Interdepartmental problem-solving as a method for teaching and learning systems-based practice. Academic radiology. 2006;13(9):1150-4.
5. Brennan TA. Physicians' professional responsibility to improve the quality of care. Academic medicine : journal of the Association of American Medical Colleges. 2002;77(10):973-80.
6. Graham MJ, Naqvi Z, Encandela J, Harding KJ, Chatterji M. Systems-based practice defined: taxonomy development and role identification for competency assessment of residents. Journal of graduate medical education. 2009;1(1):49-60.
7. Yazdani S, Hosseini F, Ahmady S. System based practice: a concept analysis. Journal of advances in medical education & professionalism. 2016;4(2):45-53.
8. Sadrizadeh B. Health situation and trend in the Islamic Republic of Iran. Iranian Journal of Public Health. 2001;30(1-2):1-8.
9. Zanganeh Baygi M, Seyedin H, Salehi M, Jafari Sirizi M. Structural and Contextual Dimensions of Iranian Primary Health Care System at Local Level. Iranian Red Crescent Medical Journal. 2015;17(1):e17222.
10. 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 and planning. 2011;26(2):163-73.
11. Zanganeh Baygi M, Seyedin H. Imbalance between Goals and Organizational Structure in Primary Health Care in Iran-a Systematic Review. Iranian Journal of Public Health. 2013;42(7):665-72.
12. Kalhor 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):195-7.
13. Atun RA, Kyratsis I, Jelic G, Rados-Malicbegovic D, Gurol-Urganci I. Diffusion of complex health innovations--implementation of primary health care reforms in Bosnia and Herzegovina. Health policy and planning. 2007;22(1):28-39.
14. Hatam N, Joulaei H, Kazemifar Y, Askarian M. Cost Efficiency of the Family Physician Plan in Fars Province, Southern Iran. Iranian Journal of Medical Sciences. 2012;37(4):253-9.
15. Elo S, Kyngas H. The qualitative content analysis process. Journal of advanced nursing. 2008;62(1):107-15.
16. The Family Medicine Milestone Project. Journal of graduate medical education. 2014;6(1 Suppl 1):74-86.
17. Frank JR, Danoff D. The CanMEDS initiative: implementing an outcomes-based framework of physician competencies. Medical teacher. 2007;29(7):642-7.
18. Lincoln YS, Guba EG. Naturalistic Inquiry: SAGE Publications; 1985.

Appendix 1

Systemic Role Playing Category

In the role playing category, there are five sub-categories, including education, communication, gate keeping, Health leadership, and team working.

The educational subcategory

Table 2.4.1.1. The education subcategory

Codes	first level health services package	Iranian general practitioner's tasks	The family physician implementation guidelines and rural insurance	Managers	General practitioners	Family physicians	Experts
Students training		*			*		
Individual health education	*	*					
Community education	*			*	*	*	
Family education	*						
Co-worker education		*					

* shows that this code is mentioned in the unit of analysis

In this study**, the education subcategory** included five codes: student training, individual health education, community education, family education, and co-worker education. The Code "patient education" was a code that seems to should be included in this group, but since it was placed under patient care, it was beyond the scopes of the study and was excluded. Five educational codes have been mentioned in the first level health services package and/or Iranian general practitioner 's tasks; family and community education have been confirmed by managers and general practitioners /family physicians.

Student training code is included in the Iranian general practitioner 's tasks and emphasized teaching, if necessary. According to a general practitioner, "It's a few years that we have medical students".

The individual health education code is included in the first level health services package, and mentioned as "empowering individual clients".

Community Education Code is repeated in this subcategory more than others (21), mentioned as "community empowerment", "empowering people and group patients", and "community education" in the first level health services package and includes the following types: education of proper nutrition, prevention of drug abuse and drug use, life skills, and self-care education, etc. One of the general practitioners said, regarding this code: "Education for clients, and volunteer health workers. For example, I had education of tuberculosis for volunteer health workers". Another manager said: "We have physicians, who go and speak with people in mosques and educate them", and one of the family physicians considered this type of education to distinguish his job from a general practitioner and said: "The third difference, I want to mention, is that we have a duty to educate people that is monitored. It is considered a part of our monitoring."

Family Education Code ,regarding this code, it is stated in the first level health services package

that: "Each household should, at least once a year, receive education to prepare against disasters, based on the designed educational package". Other types of this education include "Education and empowerment of parents on prevention of accidents" and "Education and empowerment of parents on parenting principles".

Co-worker education code is included in the Iranian general practitioner's tasks that: "Supervision and training of technical, health care or clinical staff" are mentioned as their duties and managers have also emphasized it in their dialogues.

The communication subcategory

Table 2.4.1.2. The communication subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance	Managers	General practitioners	Family physicians	Experts
Recording and Documenting	*	*	*	*	*	*	
Verbal communication				*		*	

* shows that this code is mentioned in the unit of analysis

The communication subcategory contains two codes: "Recording and Documenting" and "verbal communication".

Recording and Documenting is included in all documents and was mentioned by all groups interviewees, except experts, (total of 21) that shows the eminence of the task. In the criticism of the task and its interference with others, a general practitioner said: "We did not do it, the expert came and objected that all physicians must do it. You should educate patients, fill the checklists, and then monitor and examine them, and etc."

The verbal communication code was emphasized by managers and family physicians, but was not specified in any of the documents. For the importance of this communication, a manager said: "The proper customer treatment is important in our system. If we do not have the right attitude towards patients and good communication with them, who are kind of customers to our system, they will refer to the private sector, they will resolve their issues, but our goals (health promotion goals) will not be met there".

The gatekeeping subcategory

Table 2.4.1.3. The gatekeeper subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	family physician program implementation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
First contact	*	*					
Cost control	*	*					

* shows that this code is mentioned in the unit of analysis

The gatekeeper subcategory includes two codes: The first contact, and cost control.

Depending on first level health services package, family physician is the first level that provide services **(First contact)** and is considered health system's gatekeeper, because if the customers enter the system through him, they can have maximum benefit from financial support of insurance and, of course, "whoever is not willing to enter the service system through him, is required to personally pay for all medical expenses". The importance of this role is stated in the family physician implementation guidelines as: "The effectiveness, efficiency, and productivity should be in the health network and must comply with the leveling and referral system". Also, it is stated that "if the price of the prescription exceeds 102,000 IRR, the prescription should be evaluated at the end of each month by the urban health center and if the price is unduly high or a huge number of prescriptions of a particular physician have high price, it should be investigated and if there were no specific reasons, the physician is challenged and it will affect the physician's performance coefficient".

The Health leadership subcategory

Table 2.4.1.4. The health leadership subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Gaining support	*			*	*		
leadership				*		*	*
Stewardship	*		*	*		*	*
Inter-sectoral cooperation		*		*		*	
Intra-sectoral cooperation	*			*		*	

* shows that this code is mentioned in the unit of analysis

Health leadership is another subcategory that includes five codes: Gaining support, leadership, stewardship, inter-sectoral, and intra-sectoral cooperation.

Gaining support code is listed in the first level health services package, is highlighted by managers, and general practitioners are familiar with it, but family physicians did not mention it.

leadership code is not mentioned in the documents, but was emphasized by experts, managers, and family physicians.

Stewardship code is derived from the first level health services package, family physician implementation guidelines, and also mentioned by experts, managers, and family physicians.

Inter-sectoral cooperation code is mentioned in the first level health services package and also by managers and general practitioners, but not by family physicians.

intra-sectoral cooperation code is mentioned by managers and family physicians and is included in the first level health services package, in the Iranian general practitioner 's tasks (its examples), but general physicians (GP) have not mentioned it. As it can be seen, although managers have referred to all the codes in this sub-category, family physicians also stipulated it, some of its examples is mentioned in the Iranian general practitioner 's tasks, and it's even explicitly mentioned in inter-sectoral coordination that "It's not the duty of physicians and is only the responsibility of the doctor in charge of the center".

Teamworking subcategory

Table 2.4.1.5. The teamwork subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Team manager	*	*		*	*	*	
Coordinator		*	*	*		*	*
Team member		*		*	*		*

* shows that this code is mentioned in the unit of analysis

The team working subcategory consists of three codes: team manager, coordinator, and the team member.

Team manager code is commonly cited (37) and mentioned both by managers and physicians, including general practitioners and family physicians and also stated in the first level health services package that indicates the transparency of the role among other items.GP/family physician are director of the health team and are responsible for managing the team. The issue *health manager of the covered population* is mentioned under this concept in the first level health services package that can reveal the extent of the responsibility. Coordinator is another important role (31 repetitions) that have been repeatedly mentioned by managers that indicates the importance of the role among other types, which include coordination with other sectors, coordination in the implementation of health investigations, coordination of operational plans, coordination with other team members in the health center, and coordinating with the specialist. This issue is mentioned in the family physician implementation guidelines and the responsibility of the coordination is on the family physician and the midwife cooperates in this regard with the physician, but GPs had different views regarding this type of coordination and their responsibility that could define vagueness of GP' responsibilities in this section. Family physicians, managers, and experts have also mentioned it. The importance of the role has been specified by experts as: "The importance of coordination is different for various physicians and has the importance of defining for family physicians..... Coordination is in PHC, ie even before the family physician concept was formed, in a rural and urban health center, coordination team was with you(physician) .... We observed coordination in GP service in the public sector (our NHS) as coordination and management of PHC team. On the outside of that, it did not exist. In family physician's discussions that has been now defined, the coordination debate has been more seriously seen in family physicians..... Family physician is called family physician due to this coordination function".

Another role, obtained in this study, under teamwork subcategory, was **team member,** which was mentioned in the Iranian general practitioner 's tasks and also managers, general practitioners, and experts have pointed it out. This code confirms that the physician should sometimes cooperate with other people as a team, not as a manager, but as a team member; similar to what happens in epidemiologic teams, where more than one physician act in team, or in coordination with other specialists or other health sectors and it is required that the physician acts appropriately as a team member.

Care with systemic approach category

Care with systemic approach Category consists of two sub-categories: individual health care and patient care with primary health care (PHC)approach .

Individual health care subcategory

Table 2.4.1.6. The individual health care subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Ex-perts
Prevention	*						
Health prevention	*						
Individual health services	*	*	*	*	*	*	
Counseling	*				*	*	

* shows that this code is mentioned in the unit of analysis

Individual health care subcategory has four codes: prevention, health prevention, individual health services, and counseling. As can be seen in this classification, all codes look like individual health care and has been tried to be separated great information in this section. Pregnant mother care, family health, and youth, which are considered the major health activities in individual health services sector, are stated in all documents, and are mentioned by general/family physicians, and managers. The cases of prevention, health follow-up, and counseling include other forms of this type of activities that were only included in the first level health services package with such titles and only counseling was mentioned by general and family physicians. This type of health services is introduced by a general practitioner as: "We have a series of referrals on primary health care services that are referred to us from family planning unit, child unit and recently from the elderly, and seniors' programs. We have some referrals like that". The kinds of counseling that physicians defined were: "One of the defined tasks are counseling. Because counseling is specialized function. A part of it includes genetic diseases counseling that is now being done, or behavioral disorders, HIV counseling, HIV, hepatitis and sexually transmitted diseases (STDs)".

Table 2.4.1.7. The patient care with PHC approach subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician im-plementation guidelines and rural insur-ance (2014)	Managers	General practitioners	Family physicians	Experts
Referral	*		*	*	*	*	*
Disease follow-up	*		*	*	*	*	
Report back	*			*		*	*
Itinerary				*			
Screening	*			*	*		*
Reporting	*	*			*	*	
Comprehen-sive care	*		*	*		*	*
General care	*		*				*
Continues care	*		*				*

* shows that this code is mentioned in the unit of analysis

Patient care with PHC approach sub-category is a large sub-category with 9 codes, including the following: referrals, disease follow-up, report back, itinerary, screening, reporting, comprehensive care, general care, and continues care.

Referral code with the highest frequency (47 repetitions) is included in the first level health services package, and family physician implementation guidelines, but not in the Iranian general practitioner ‘s tasks. It is also included in the interviews of GPs/family physicians, managers, and experts, and in all cases stated spontaneously (not in direct question). The importance of it is stated in the family physician implementation guidelines as: “The effectiveness, efficiency, and productivity should be in the health network and must comply with the leveling and referral system”. As far as a family physician stated the difference between GP and the new family physician as: “The second difference with the previous system is that the patient was left to select somebody on their own, and go and change his/her physician. But, here, we send the patient to a specialist ourselves”. A general practitioner described the situation as: “Do you know how awful the referral system is, ie. in case of the referral system, we don’t know what we should do. We cannot refer the patient everywhere, as the patient does not have the money. But, he still asks where should I go?”

Disease follow-up code is the same position of referral code and ranks in second place in terms of repetition (39 times). This code is included in the first level health services package, and family physician implementation guidelines and is emphasized by general/family physicians, and managers. There were differences in the concepts of patient’s follow-up between family physicians and general practitioners. This difference is stated in the family physician implementation guidelines as: “The responsibility of continuing follow-up will be on him (family physician)”. And this responsibility is true in all cases of the covered population. While one of the general practitioners explicitly stated that “Active follow-up is only for certain patients”. And this issue was even confirmed by managers in response to the question, “If a patient with a communicable disease did not refer, does the physician (GP) has the responsibility to follow or not?” They stated: “No..... The system has not anticipated any responsibility for him”. Also, the Iranian general practitioner ‘s tasks has mentioned nothing in this regard. The discussion is completely vague regarding GPs. One of the GPs said in response to the question of whether or not it is the duty of the physician: “There are no written responsibility, but they actually do it”. Someone said quite opposite that “The physician cannot do it with all the workload he/she has. It is wrong expectation. Another person must be defined next to him/her”.

Report back code is included in the service package and has been considered by one of managers (chief executive of family physicians), family physicians, and experts, but there was not a trace of it in the Iranian general practitioner ‘s tasks and other managers and GPs have not mentioned it, as well. To justify this situation, we should point out to the previous comments on referral and follow-up codes which confirms the previous issues that this code is not relevant for GPs and is only placed in the family physician program. Of course, there are some problems in this regard that can be seen in family physicians’ quotes: “Unfortunately, the Ministry of Health is a bit lax. That is, I am the person who should know the status of my patient, the final follow-up is to see the medication in his hands..... it is still not well understood”.

Itinerary code is an issue that is listed only by chief executive of family physician and was not stipulated in any of the documents in this study. Of course, there were concepts in the documents, such as provision of services in rural areas which could be interpreted to provide services to remote villages, but because such a latent interpretation was not used in this study, such a code was not obtained. The interesting point about this code is that the chief executive stated that: “Before the family physician program, it was the same (for itinerary). But physicians might not

have regularly gone, as the car was not available. It means that everything has priority to itinerary. But in the family physician program, this is an obligation. “

Reporting code is included in the first level health services package, and family physician implementation guidelines. It is also noted by GPs and managers with a frequency of 13 repetitions, thus, it can be said that this responsibility was well known by GPs. In recognition of the differences between this code and documentation, it can be said, as quoted by a GP: “In our care system, we have a clear list of report that specified which diseases should be immediately reported, which daily, and which monthly. Our communicable disease surveillance system is well defined.”.

Screening code with 12 repetitions was mentioned in the first level health services package, and in interviews with managers, experts, and GPs, but was not noted in Iranian general practitioner ‘s tasks.

Comprehensive care code with 30 repetitions had a high frequency. This code is also included in the first level health services package, family physician implementation guidelines and was mentioned by managers, experts, and family physicians, with, of course, some differences in expression. This code has been defined as presented in the first level health services package in family physician definition as: “The family physician with at least doctorate degree, has a valid professional license to medical practice. He /She is responsible for delivering the first level of medical care, with responsibilities includes: paying attention to provide comprehensiveness and coordinated all health care need or individual request (patient/client’s request). These services include a spectrum of health promotion care, disease prevention, diagnosis, treatment and management, rehabilitation, and palliative care, and long chronic care at home which is guaranteed by different levels and units of health system for the whole life (from birth to death)”. The great part of the first service package is related to this type of services which defines limits and duties. The importance of this code, as to an expert’s comment is as follows: “Comprehensiveness has a heavy systemic load, in my opinion ..... You are saying that every common service should be visited by the first person at a lower cost. At PHC level, he should know rehabilitation”. Managers only use the phrase “common diseases”, in defining this concept for GPs and defines it as regional diseases, in fact, what he has observed through outpatient visits. For example, he/she must know tuberculosis, brucellosis, and know Pediculus humanus capitis, and knows things that confronted him/her”. As in this definition, the management of tuberculosis that is considered a specialized job, by many, is the responsibility of the GP in the system that can be considered a part of comprehensiveness, and of course this has been defined more accurately in family physician program.

General care and continues care codes with 4 and 9 repetitions, respectively, had a low frequency, which perhaps due to the defined nature of these concepts. General care code has been expressed by experts as “You should visit the patient, regardless of age, gender, etc..... General care has a systemic load, in my opinion. Why? ..... The pediatrician visits children, the geriatrician visits the elderly, the urologist visits men, the obstetrician visits women; I want a person who visits everyone. This person is definitely the family physician, because I wanted one person in the first line. I cannot have four first lines. So, it seems that these general attributes definition of general practitioner have all systemic loads”. Such a definition is stated in the first level health services package as: “The family physician is responsible for delivering health care in therange of service package..... All age groups: infants, children, teenagers, middle-aged, elderly, pregnants and lactating wemen, etc”.

Continues care code is defined by experts as: “Care continuity is defined in different forms. One aspect is the catchment area and the defined population, which are methods that guarantees care continuity. Each person has a family physician, and the family physician has a covered population. This means that I see a family physician and family physician has a covered population

that gets familiar with it ... again I think this is systemic feature". This issue has been mentioned in the service package as: "It is the responsibility of the family physician to record data and manage personal health data and the covered population". It is also stated in the family physician implementation guidelines that "The continuous follow-up of services is on him … if necessary, he should refer the patient and follow him from the entrance to the system until the end of the treatment and after for post treatment care". However, the practical problems in referral and report back system, mentioned previously, shows impairment in the current situation.

The health advocate category

This category includes two sub-categories: Patient advocacy and community health care.

Patient advocacy subcategory

Table 2.4.1.8. The Patient advocacy subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance	Managers	General practitioners	Family physicians	Ex-perts
The patient's rights				*	*	*	*
Helping patients		*		*	*	*	

* shows that this code is mentioned in the unit of analysis

Patient Advocacy category includes two codes: Patient's rights advocacy, and assisting patient. Patient's rights advocacy code was not observed in any of the documents and was only mentioned by family/general physicians, managers, and experts and have been mentioned in response to the direct question and not directly discussed. One of the physicians said, in response to the question of what he does in case of the conflict between the interests of the system and the interests of the patient: "I am really for the patient. In public system, we sat to give service to the patients. ... We really attach to our oath and human issues." As mentioned, this issue was not mentioned by the interviewees and was not normally discussed in their talks. It seemed that the issue hasn't been basically explained, as another person replied: "Patients interests... but what does the private sector do? it takes its own interests, and takes patients interests into consideration, as well". It seems that in this hypothesis, the system's interest is not considered by the physician at all and in fact, this equation has one-sided with patients' interest, but in private sector, it is two-sided for the private sector and patient (not system). In this case silence of documents must be questioned. In confirmation of this challenge, it is notable that one of the managers even stated that "Our staff have not such view, they only say that they (physicians) aren't enough for the population and they have insufficient time to investigate all…They are saying this for themselves… For example, what happened this year, because their salaries increased significantly, none agreed to have two physicians. Why? Because they get their salary based on the total population…". or elsewhere he said "for example, they would not be against the system for patients' claims, because the system provided their salary. I have never seen such a thing."

Assisting patient code was also obtained after direct questions, like patient advocacy code, and was mentioned in the Iranian general practitioner 's tasks as "care for using medical prescriptions and health orders, and guiding patients". A GP said: "For instance, a pregnant patient refers with headache. I should write it in her medical records that she should be visited by midwives, but I know that she would not go, if I refer her. I will, for sure, go and talk to the midwife on the phone

and call her tomorrow to see if she referred to her". And, actually, another GP described it as "It is personal .... No one tells you that it is your responsibility that the patient reaches her goal".

Community health care subcategory

Community health care subcategory includes two codes: epidemiologic study h, and **community health services.**

Table 2.4.1.9. The community health care subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	The family physician implementation guidelines and rural insurance	Managers	General practitioners	Family physicians	Ex-perts
epidemiologic study		*		*			
community health services		*	*	*	*	*	*

* shows that this code is mentioned in the unit of analysis

Epidemiologic study is mentioned in the Iranian general practitioner 's tasks as: "Study of the disease which causes epidemics. Preventing of the spread of diseases through epidemiological surveys". This code, in addition to the document of the family physician implementation guidelines, was also mentioned by managers. One of managers said, in this regard: "The epidemiologic team manger is not the head of health center, he is a physician who goes with 5-6 people and assess the epidemics."

Community health services code with 22 repetitions was in cases with high repetition that was mentioned in the first level health services package, and family physician implementation guidelines. In the guideline, it is stated that "Community-based services (public health) include work and environment health services, school health, trauma, prevention, and health promotion, aimed at the community." This code was referred by managers, family physicians and GPs. One GP pointed to this activity as: "Our school health was the issue of the students' examinations. Now, college students are also added". Or one manager expressed his expectations as: "he/she has to think about the health of the people. They require interventions that would affect them much. These not only include medical aspects(intervention). There are other sectors, such as agriculture that shares the food supply or he/she should go to the municipality that provide a range of people's needs and makes roads paved every day."

Appendix 2

Balanced decision based on patient's need and system goals consists of two categories: systemic decision-making and systemic knowledge and attitude.

Systemic decision-making category

Systemic decision-making category consists of two sub-categories: balanced decision-making, and system alignment.

Balanced decision-making subcategory has three codes: balance decision based on priorities and balance decision based on cost.

Balanced decision-making subcategory

Table 2.4.2.1. The Balanced decision-making subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Ex-perts
balance decision based on priorities				*	*		
balance decision based on cost				*	*	*	*

* shows that this code is mentioned in the unit of analysis

Regarding **balance decision based on priorities code** (8 repetitions) nothing was observed directly in the documents, but GPs and managers had mentioned it following direct questions. One of the managers stated limitations as follows: "They have a defined package; in the first years, the drug package was more than 220 items, about 270 items. They told that they can only prescribe these 270 drugs and these should be included in the pharmacies (of health center) ...They (health ministry) would pay the money, only if the physician prescribed these 270 items. But if they were other than these, they would not pay for them. However, physicians did not always consider these limitations and believed that they should prescribe a specific drug, when the patients' life is based upon it, so they prescribed it, and the patient bought the drug, as well. It is not the case that they cannot prescribe."

Balance decision based on cost code (12 repetitious) had neither direct referrals in the documents, although the limitations in cost control can indirectly be assigned to them. This code was explicitly expressed by all interviewees, including GPs, family physicians, managers and experts: "For sure, if you do not consider the cost, you have not treated the patient well. For example, a prescription costing 150,000 Tomans that the patient cannot afford it, it is definitely your mistake." Nevertheless, another person considered it a personal preference and said: "I personally do this and pay attention to these issues. For example, if the patient can get better with amoxicillin, we prefer to give that due to its lower price rather than co-amoxiclave with a higher price ..... maybe if I work in a private clinic, I won't do that."

System alignment subcategory

Table 2.4.2.2. The system alignment subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Compliance with health guidelines	*		*	*	*	*	*
Compliance with policies, rules, and regulations	*	*	*	*	*	*	*

* shows that this code is mentioned in the unit of analysis

The system alignment subcategory includes two codes: Compliance with health guidelines, and Compliance with policies, rules, and regulations

Compliance with health guidelines code (23 repetitions) is included in the first level health services package, and family physician implementation guidelines and it was noted by GPs, family physicians, managers, and experts. In the service package document reads: "The indications has been defined in the clinical guidelines and protocols. All health team references must be based on it." Or regarding the types of them, noted: "Integrated child health care (Appendix 2) with emphasis on prevention of diseases and the most common risks in infantile and childhood, with regard to priorities, and proper education to parents, accurate and timely diagnosis and treatment, prevention of complications, and possible disabilities, treatment of complications, based on the clinical instructions and guidelines, timely referral to higher levels". Off course, GPs and family physicians have also stated that it's not a definite requirement; for example, a GP pointed out that "I choose on my own. Guidelines help me, but not necessarily someone asked us."

Compliance with policies, rules, and regulations code with 33 repetitions was one of the frequent codes, listed in all documents of the study, and emphasized in statements of all interviewees, including GPs, family physicians, managers, and experts that support the importance of the issue. An example of policy, in the first level health services package document, is that "The family physician is responsible for health services within the defined package (service package) ..." Or a manager stated regarding regulations: "This is not the definition of family physician. You are 8AM-4PM at our service and should not work after that, even if you can!"

Systemic knowledge and attitude category

Systemic knowledge and attitude category consists of two **sub-categories: systemic knowledge,** and **health attitude.**

Systemic knowledge subcategory

Table 2.4.2.3. The Systemic knowledge subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
System knowledge	*			*	*	*	*
Community recognition	*			*			

* shows that this code is mentioned in the unit of analysis

Systemic knowledge subcategory consists of two codes: **System knowledge**, and **Community recognition**.

System knowledge code with 29 repetitions had a relatively high frequency. The code is mentioned in the first level health services package as a "Knowing the work cycle of the center and activity of different units in the center." It has been emphasized by all the interviewees, including GPs, family physicians, managers, and experts. In this case, the expert noted that "The family physicians should know the upstream goals." Or a manager pointed out that: "The first thing he needs to know is the processes that happen there." A family physician said in this regard: "very (important). If I do not know the working cycle process of a patient with rabies, bitten by dog, I will lead the patient to death." Another manager stressed that "So, you have to know the so-called programs (health programs) that are designed continually and sent to the center and should be informed about them."

Community recognition code with 17 repetitions had medium frequency, but its importance has been emphasized. In the first level health services package, this knowledge is defined as: "Identification of the geographical environment who should serve it, the covered population in terms of numbers, based on age and gender, identification of the issues and problems affecting health in the area, and recognition of the covered population in terms of impact on the health." Another manager described: "except to say he/she must know the system, must be sensitive to cultural-social differences, and know them" or "If there are immigrants, he has to figure out where they come from?" For the importance of this knowledge, a manager said: "Even he should know about new-emerging diseases, and recognize potential health problems, so, for example, if such situation happened, he can think of the background and know the potentials."

Health attitude subcategory.

Table 2.4.2.4. The health attitude subcategory

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Health promotion	*		*	*			*

Commitment	*	*			
Community orientation	*				*
Health orientation	*	*	*		

* shows that this code is mentioned in the unit of analysis

Health attitude subcategory consists of four codes: **Health promotion**, commitment, community orientation and health orientation with medium repetitions in all cases (10-17).

Health promotion code is stated in the first level health services package as: "partnership practical planning for health promotion of the defined population in educational centers, work centers, the neighborhood, village, city, and province, encouraging healthy lifestyles with emphasis on aspects of nutrition, physical activity, stress, and smoking, increasing the knowledge, attitude and function of the community, considering the risk factors." Or as noted in the family physician implementation guidelines: "Coordinated delivery of all required health services or individual's request (patient/client) includes a range of health promotion care ...)" and as to the expression of a manager: "In addition to the disease treatment, your physician should think on health and its promotion." The expert also referred to this code.

Commitment code was not mentioned in any of the documents and was mainly addressed by managers; GPs have also mentioned it. A manager said in this regard: "Whether there is an head in that center or not; it is just the physician who should see what's happening to the health of people. He/she should not say that it is not his/her responsibility." Or someone else pointed out: "He should place the sense of responsibility above all things" or "He knows the problem and considers himself/herself as a member of the system. He/she cares, if it's not performed well."

Community orientation code was referred by managers and experts with no direct reference in documents, but can be inferred indirectly from the social care codes. The expert described it as: "It is included in literature in the world and in developed countries; when there is a man living in a place, you(physician) in your individual practice, should observe the social setup around him. This is what you see and also stated in the European definition (of family physician)." Also he said in regarding its difference with Iranian family physician: "Yes, in my opinion, this is a distinction for us.... In our country, not only the family physician should look at the person's social setup in practice, but is also in charge of providing services at the community level as a steward" or a manager said: "When I think about the health aspect of the physicians, no rooms come to my mind. As the activities and medical responsibilities in health area are not restricted to his room. Ten percent of his work is in that room; ninety percent of the work is outside that room and is in the field. We expect our physician to be active in social contributions, go to schools and give education, about preventive programs … A physician who goes beyond this, has innovation, enters the society, and takes part in social contributions."

Health orientation code is not mentioned directly in the documents of the study, but stated in the statements of family physician, GPs, and managers. A manager said: "The physician should see beyond treatment. He should think about what he can do for increasing people's health level, for increasing the number of people who come for vaccination..., he/she should be have a high health belief" or a family physician said: "Thus, we see beyond treatment, we have a health orientation beside that" and a GP said: "Sometimes, it even overcomes the treatment view, ie. we look at prevention and health more than merely treatment. The patient comes with common cold; he/she should not only get any medications and leaves. The physician should see whether he/she is an elderly or child, what he/she requires, and what he/she needs in this age."

Appendix 3

The theme "acting for system improvement" includes two sub-categories: evaluation and monitoring of system performance, and participation in system improvement**.**

Evaluation and monitoring of system performance category

This category consists of two codes (without subcategory): population evaluation and service evaluation and control.

Evaluation and monitoring of system performance category

Table 2.4.3.1. Evaluation and monitoring of system performance category

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Population Evaluation	*						*
Service evaluation and control	*	*		*	*	*	*

* shows that this code is mentioned in the unit of analysis

The population evaluating code had 15 repetitions. This code is frequently repeated in first level health services package under the operational planning. Step one includes: "participating operational planning promote the health of the defined population in educational centers, work centers, the neighborhood, village, city, province ..... Step 2: Assessment of the current situation." The expert stated: "Health interventions can be discussed at the individual and the community level. I (physician) perform population-based assessment, pulling out the health risk factors and disease load."

Service evaluation and control code (20 repetitions) is included in the first level health services package, as well as in Iranian general practitioner 's tasks, and expressed by all the interviewees, including GPs, family physicians, managers, and expert. In the first level health services package has been stated: "Monitoring and evaluation of health team services based on existing guidelines" and in Iranian general practitioner 's tasks stated: "Analysis and assessment of health and medical activities" is the responsibility of the GP. One of the managers said, in this regard: "The physician is a connector between city health center and higher levels that is responsible to supervise, as well as the lower level, who should establish balance and monitoring. All policies are brought as regulations, and guidelines, ... that they should monitor them." Or a GP used the term "technical executive" in this regard and believed that "Responsible for overseen the work, supervising (health) clinics, and all health activities". Whatever happens to the visitor at the family health room will be responsible for him/her, too, and even complained of the lack of governmental support for liability insurance in the clinic.

Participation in system improvement category

participation in system improvement **category** includes two sub-categories: feedback, and improvement.

Feedback sub-category

Table 2.4.3.2. Feedback sub-category

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Active feedback				*	*	*	
Passive feedback					*		

* shows that this code is mentioned in the unit of analysis

Feedback category includes two codes: active, and passive feedback.
Passive feedback code (6 repetitions) was not mentioned directly in any of the documents of this study, but as it naturally occurs, a GP stated that "It happens naturally. As they are the executor. When there are irregularities in the program, they will say it, and actually, as they are expert, and physician, they will state anything they see during work. They say and we ask them to, as well." **Active feedback code** (9 repetitions) was stated by GP as: "But when the program wants to be executed, it has definitely an active role. In fact, it is now running so with an active role." Though, a family physician expressed the opposite: "No, this was not included in the health system. They didn't want to give negative feedback to the Ministry (of health)." A manager believed that "The head of center is responsible. But, they have not asked a typical physician as an active member of the system, and he/she will not criticize, or challenge them. There is no such a thing"
Improvement sub-category

Table 2.4.3.3. Improvement sub-category

Codes	first level health services package	Iranian general practitioner 's tasks	family physician imple-mentation guidelines and rural insurance (2014)	Managers	General practitioners	Family physicians	Experts
Problem-solving	*						
giving recommendation		*		*	*		
Intervention and change	*s					*	*

* shows that this code is mentioned in the unit of analysis

Improvement sub-category includes three codes: problem solving, giving recommendation and intervention and change.
Problem-solving code (41 repetitions) is frequently mentioned in the first level health services package under operational programs that: "Participating operational planning to improve the health population.... Step 3: Determine the overall objective, target groups, and specific objectives. Step 4: Determine the strategies, activities, and specific resources....

Giving recommendation code (repetitions) is explained in the Iranian general practitioner 's tasks as: "Providing necessary suggestions for establishment, development, and improvement of services." One of the physicians confirmed: "Yes, we have something that tells us to write down our suggestions that has a score in our final evaluation at end of the year." There were also several opposing views; a GP said, "There is no such an expectation. It is very personal..." And a manager believed that: "It is ideal if it happens. Right now, we do not have it…. Some physicians are (like that). .... But some avoid it."

Intervention and change code (19 repetitions) is frequently stated in the first level health services package under operational programs as: "Participating operational planning to improve the health population .... Step 7: Program implementation". The expert said: " knowing that the improvement in minimum level at my micro-system is my job." Opposing views in this regard included: "Regarding the system's improvement you believed that is personal. It was not clear and was not appreciated." A family physician believed that: "Not specifically, because the indices were calculated. It was expected that the percentage, and the coverage increase. But there was no monitoring for the job."