

# The Experience of Risk-Adjusted Capitation Payment for Family Physicians in Iran: A Qualitative Study

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## Abstract

**Background:** When a country's health system is faced with fundamental flaws that require the redesign of financing and service delivery, primary healthcare payment systems are often reformed.

**Objectives:** This study was conducted with the purpose of exploring the experiences of risk-adjusted capitation payment of urban family physicians in Iran when it comes to providing primary health care (PHC).

**Materials and Methods:** This is a qualitative study using the framework method. Data were collected via digitally audio-recorded semi-structured interviews with 24 family physicians and 5 executive directors in two provinces of Iran running the urban family physician pilot program. The participants were selected using purposive and snowball sampling. The codes were extracted using inductive and deductive methods.

**Results:** Regarding the effects of risk-adjusted capitation on the primary healthcare setting, five themes with 11 subthemes emerged, including service delivery, institutional structure, financing, people's behavior, and the challenges ahead. Our findings indicated that the health system is enjoying some major changes in the primary healthcare setting through the implementation of risk-adjusted capitation payment.

**Conclusions:** With regard to the current challenges in Iran's health system, using risk-adjusted capitation as a primary healthcare payment system can lead to useful changes in the health system's features. However, future research should focus on the development of the risk-adjusted capitation model.

**Keywords:** Payment System, Health Reform, Primary Health Care, General Practice

## 1. Background

The Iranian healthcare system is faced with a number of challenges, including rising healthcare expenses, a poor referral system, high out-of-pocket payments, the increasing burden of chronic diseases, and the expansion of the private sector. Overcoming these challenges requires fundamental changes in the health system's functions (1, 2). The pressing question is where these changes should begin to facilitate solving these issues. Other countries' experiences with these challenges has led to the introduction of a series of reform initiatives for redesigning the health system (3, 4). A review of these experiences shows that when a country's health system is faced with fundamental flaws that require the redesigning of financing and service delivery, primary healthcare payment systems are often reformed (4, 5).

In 2002, New Zealand tried to respond to health inequalities resulting from the fee-for-service (FFS) system by establishing primary health organizations funded

through a capitation payment system (5, 6). The UK general medical services capitation funding and quality and outcomes framework introduced in 2004 are considered to represent a major wide-ranging reform in this respect (7, 8). In Turkey, an important feature of the recent reforms in the healthcare system has been the use of the per capita payment system in family medicine (9). A more recent experience is that of Ghana, where the designing, piloting, and assessing of the per capita payment system for primary healthcare (PHC) was carried out to control the rising costs of healthcare and improve its efficiency (10). In general, the per capita payment system for PHC can trigger a comprehensive process of healthcare reforms and facilitate changes in the four axes of the healthcare system, namely financing, service delivery, institutional structure, and the role of the public (5).

The Iranian healthcare system is also on the verge of starting an urban family physician project; over the past three decades, this has been identified a major building block in healthcare system reforms in Iran. Thus, it is an

anticipated that the implementation of this project will have important consequences for the health sector and society (11). One of the most important features of this project is the use of a risk-adjusted capitation payment system. General practitioners (GPs) who previously worked in public healthcare centers in return for a salary, as well as those who worked in private clinics in return for FFC, enter the urban family doctor project and receive a certain monthly per capita payment for each patient registered. In return, they provide a set package of services over the year. Adjustments such as a 20% increase in the per capita amount for every elderly person, pregnant woman, and child registered are also proposed to be considered in weighting the capitation. In addition, rewards have been devised for doctors who reduce medication costs and a maximum number of visits has also been set (12).

## 2. Objectives

More than two years have passed since the urban family physician project was piloted in selected provinces of Iran. Introducing risk-adjusted capitation as a payment system in this setting created an opportunity to evaluate the effects of the capitation system on providing PHC and to identify the challenges ahead. The present study aims to contribute to the existing literature by investigating the effects of the capitation payment system on PHC and to find evidence for how the risk-adjusted capitation model should be developed.

## 3. Materials and Methods

As the conceptual framework, we used "The Axes of Per Capita PHC Payment System Impact" (5, p. 30) developed by Langenbrunner et al. (5). Exploring all components of this framework requires data associated with the set of various healthcare system beneficiaries, such as policy-makers, physicians, insurance companies, and patients. Nevertheless, as Dumont et al. noted, "[t]he labor-supply behavior of physicians is one of the major factors determining the health system's performance. What is more, physician services are provided within a multitasking environment" (13).

Here, family physicians were selected as study participants. The study samples included family physicians and 5 executive directors in two pilot provinces. Semi-structured face-to-face interviews were used for data collection. One of the researchers (RE) traveled to the two provinces to obtain permission from the universities and meet with the physicians. Fourteen physicians (four women) worked at health centers affiliated with the universities, and 10

(three women) provided family practice services in their private offices. The participants were selected using purposive snowball sampling. Only physicians with at least 12 months of experience in the family doctor program were selected. Two physicians had to be excluded due to their organizational affiliations and commitments.

To collect data through a broader perspective, five executive directors of the project (three family physicians and two specialists) were invited for interviews. All interviews were conducted in the doctors' offices between October 2013 and April 2014. Interviews took between 45 and 75 minutes and were digitally recorded with the participants' consent; the recordings were transcribed at the end of each session. The interview guide was previously drafted and contained questions that captured the physicians' views. The first two interview texts were sent to all the researchers to facilitate their understanding of the context, which led to the revision of the topic guide. Given the concurrent collection and analysis of the data, the data collection process continued until data saturation. Data were analyzed using the framework method specifically developed for the analysis of qualitative data in policymaking studies (14, 15). The framework analysis applied to the present study was adopted from Gale et al. (15) and included the seven following stages: transcription, familiarization with the interview, coding, developing a working analytical framework, applying the analytical framework, charting data into the framework matrix, and interpreting the data. Application of these stages simplified and organized working with the qualitative data; no software was used to summarize the data.

The aim and scope of the study was described at the beginning of each interview to allow participant to take part consciously, voluntarily and with consent. Participants were allowed to withdraw from the study whenever they wanted. We assigned a code to each of the participants to preserve their anonymity throughout the study.

According to Ryan et al. "rigor is the means of demonstrating the plausibility, credibility and integrity of the qualitative research process" (16). Accordingly, the present study was conducted with a focus on the four rigor-related criteria, namely credibility, dependability, transferability, and confirmability, through the following strategies: The transcripts with extracted codes were delivered to a number of participants for confirmation and feedback (16). Given their different backgrounds, all researchers participated in data analysis and adaptive debates about the editing the codes (17). We tried to report a detailed description of contextual information about the inquiry and participants (18). Data triangulation (more than one source of information) was applied in our purposive sampling (19). Final review of the manuscript was performed using the

COREQ 32-item checklist (20).

### 3.1. Ethical Issues

This study was approved by the ethics committee of the Iran University of Medical Sciences (approval code: 93/d/105/3223).

## 4. Results

We analyzed 29 semi-structured interviews that were conducted with family physicians and executive directors in two piloted provinces in Iran (Table 1). With the use of the framework method, we identified 5 main themes and 11 subthemes (Table 2).

### 4.1. Service Delivery

Physicians perceived that they were responsible for the overall health status of their patients in return for receiving capitation, and that beyond simply providing care to fleeting patients, the treatment follow-up had increased their knowledge and experience in the treatment of patients. With longitudinal treatment and care of patients, made possible through the direct stage-by-stage observation of the process of treatment of a disease and learning the patients' history affected by the physician's own previous orders, family doctors now received frequent, direct feedback from the patients on the effects of their prescribed treatments. They emphasized that this situation are conducive to increased knowledge, experience, and self-confidence for the physician:

The physician himself prescribes the medication, which is then administered by the midwife, and then the treatment's feedback, whether it is successful or not, gets back to the physician himself. I believe all these further visits are helpful reminders and learning assistance for the physician (P6).

Receiving feedback from higher levels, particularly specialists, was another instructive factor reported by the family doctors. They perceived that receiving comments from specialists could increase their knowledge and experience in diagnosing diseases:

The feedback coming from a specialist, and the emotions directly expressed to me by patients following a course of treatments, all increase my experience and improve my prescriptions (P11).

Physicians considered elimination of the doctor-patient financial relationship to be the main feature of the capitation payment system; they felt responsible for the complete treatment of the patients and perceived did one visit did not suffice. They expressed that this system has influenced their relationships with the patients in

a different way from the past, so that they spent more time with the patients and tried to diagnose them more effectively. Preventing further visits was another factor mentioned by the physicians:

I take longer with these patients than I would with a random patient and I take better care of them. Because, if their problems persist, they will come back in the future. I try to invest more time and to learn the details of their lives so that I can get into the root of their problem (P2).

In contrast, one physician reported that they provided their services to each and every patient in a responsible manner and in accordance with their professional commitments under all circumstances:

As a physician, whether I receive capitation or not, I feel so ethically responsible toward any patient entering this office. I make time for them and listen to their problems. Not everything is about money (P12).

There was a common view among physicians that health education and a more detailed introduction of care services available to the patients both play a dominant role in physician-patient interaction:

For example, I constantly explain things for every visiting patient. I prescribe Bromhexine to soften the mucus, or in layman's talk, to thin it. [So that] the patient knows why he has to take Bromhexine (P14).

With regular patients, a greater intimacy develops between the physician and the patient, and the patient allows himself to ask more questions of the physician (P29).

### 4.2. Institutional Structure

Our participants perceived that the managerial skills related to medicine, such as collaboration, teamwork, and other managerial initiatives, have gained more importance in their field now than in the past. They recognized that they are responsible for providing a package of services under the capitation contract, and this goal requires teamwork and coordination:

A specialist may never send any feedback, but I often try to maintain my relationships with them (P3).

I select the midwife myself, because her performance is effective in attracting registered patients, so I monitor her work and advise her whenever necessary (P14).

### 4.3. Financing

Participants perceived that the capitation payment system has given them a steady income that allows them to work with greater peace of mind and to allocate their time to their own initiatives as well:

With the per capita payment system, we, too, just like people in other jobs, can be sure of a steady monthly income irrespective of the number of patients we have vis-

**Table 1.** Participants Characteristics

Code	Gender	Age	Education		Workplace		Work Experience(as a GP)
			MD	Specialist	Public Health Center	Private Office	
<b>Family Physicians</b>							
P1	Male	51	*		*		22
P2	Male	32	*		*		5
P3	Male	49	*		*		20
P4	Male	49	*		*		18
P5	Male	35	*			*	9
P6	Male	50	*			*	20
P7	Female	47	*		*		16
P8	Female	51	*		*		19
P9	Male	46	*			*	12
P10	Male	34	*			*	7
P11	Male	40	*		*		12
P12	Female	39	*		*		7
P13	Male	41	*		*		12
P14	Male	47	*		*		16
P15	Male	42	*		*		12
P16	Female	33	*			*	7
P17	Female	42	*			*	15
P18	Male	37	*			*	10
P19	Male	46	*			*	17
P20	Male	34	*			*	7
P21	Female	40	*		*		13
P22	Male	51	*		*		19
P23	Male	41	*		*		9
P24	Female	37	*		*	*	8
<b>Executive Directors</b>							
P25	Male	51		*			12
P26	Male	35	*		*		7
P27	Male	34	*		*		7
P28	Male	49		*			9
P29	Male	53	*	*	*		20

ited, which puts our minds at ease and clears our heads for better work during the month (P16).

I know exactly what my range of income is, which differs from the fee for service system which I had to make estimations. But when I know exactly how much I will get paid; I can regulate my expenses accordingly (P10).

The interviewees expressed that capitation contracts encourages physician to resist patients' unnecessary de-

mands, thereby preventing additional costs from being incurred. Since physicians registered patients in their list, prolonged engagement in the patients' condition enabled information about patients' health, thus reducing the chances of duplicate care:

After years of working in the field of treatment and prevention of diseases, I feel my treatment managing has improved. I make more time for the patient, I can easily rec-

**Table 2.** Identified Themes and Subthemes

Themes and Subthemes	Frequency (%)
<b>Service delivery</b>	
Better environment for upgrading of clinical skills	12 (41)
Doctor accountability and closer relationships with patients	15 (51)
Health education and promotion	8 (27)
<b>Institutional structure</b>	
Collaboration and coordination	17 (58)
Teamwork initiatives	6 (20)
<b>Financing</b>	
Income assurance	4 (13)
Cost reduction	15 (51)
<b>People's behavior</b>	
Patient trust in doctor	11 (37)
Social participation	2 (6)
<b>Challenges ahead</b>	
Direct referral to specialists	12 (41)
Unnecessary wants	20 (68)

ognize regular ones and I can easily group emergency and non-emergency patients. I better manage a patient who comes to me and asks me to quickly order a test for them, now I tell them that they do not need it and they should carry on with the medications and the diet for a couple of months until I feel I have to order that test (P6).

You already know patient's blood sugar levels and fat over the last six months; you no longer need to write another test or to check again. This helps reduce costs (P28).

#### 4.4. People's Behavior

Participants felt that during this period, due to the greater attention of the physicians to the treatment and improved guidance and accountability toward the patients, patients' trust in the physicians had increased in such domains as sharing private issues surrounding their disease and even family issues and compliance with the physician's prescription. Physicians perceived that this change helped them provide more effective diagnosis and treatment:

An emotional relationship has been developed. In some cases, people come over and share many of their private family issues (P24).

#### 4.5. The Challenges Ahead

Physicians demonstrated a true understanding of the effects of risk-adjusted capitation; however, they

claimed that some behavioral issues were jeopardizing their agenda. Some people still preferred to be checked directly by specialists even for minor diseases, came for unnecessary visits, or requested unnecessary medications and switched doctors:

Unnecessary referrals take place a lot in my workplace. And when you want to treat them in a way as to get positive results, many of these new patients come up with the line "I am going to change my doctor (P10).

As a physician, when I want to prescribe medications in a cost-efficient way and spend more time with my patients; unnecessarily admitted patients waste my time (P17).

## 5. Discussion

This study was conducted with the purpose of exploring the experiences of risk-adjusted capitation payment in the provision of PHC by urban family physicians in Iran. Langenbrunner et al.'s framework indicates the potential effect of PHC capitation payment (5). The results of the study showed that risk-adjusted capitation payment can yield diverse changes in PHC provision.

### 5.1. Service Delivery

The results of the study showed that the capitation payment system provided physicians with a better chance of experiencing longitudinal care and directly communicating with specialists. These conditions provide physicians with an opportunity to update their knowledge and skills to make better diagnoses and decisions about the treatment of patients. A better environment is thus developed to improve the GPs' clinical skills. In partially similar findings, O'Malley and Reschovsky reported that physicians who did not receive timely communication regarding referrals and consultations were more likely to report that their ability to provide high-quality care was threatened (21).

According to the participants' statements, the risk-adjusted capitation payment increased physicians' accountability toward their patients' treatment and health. Removing the financial aspect of the physician-patient relationship and the registration of patients at physicians' offices led to the development of lasting physician-patient relationships, reinforced cognitive-emotional relationships, and deepened physicians' commitment to the patients' effective treatments. Meanwhile, predetermined weights for vulnerable groups at a greater risk of disease increased physicians' motivation. As Antonson et al. noted, "an established relationship between individual patients and a regular family doctor, or other primary-care provider, is a valuable feature of a well-functioning health-care system" (22). They claimed that the capitation system

is often employed to create incentives for health providers to take responsibility for their patients.

An increased willingness among physicians to educate their patients was reported as a reinforced aspect of service delivery. Patient education is considered a contributing factor for disease control. This result is in accordance with a study on capitated payments to primary care providers and the delivery of patient education. In that study, the authors concluded that patients whose primary care providers are paid through a capitation system are more likely to receive education (23).

### 5.2. Institutional Structure

The results of the study showed that managerial skills, such as collaboration and communication and teamwork, have now gained greater importance as part of physicians' agendas. Collaboration between general practitioners and specialists is globally recognized as a priority of health organizations and determines the quality of the coordination between the first (primary) care and second (specialized) levels of care (24). Considering the lack of a comprehensive program for developing the managerial skills of medical students in the current medical education system of Iran (25), these practice conditions allowing for the development of these skills count as a welcome event that is also indicative of the need to integrate managerial skills syllabuses in the medical education system.

Reinforcement of teamwork with other health staff, particularly midwives, was another improved domain. The New Zealand primary health care strategy changed the public funding for primary care from GP-based FFC to capitation. This reform supported a wider role for nurses in primary care and encouraged multidisciplinary teamwork (26,27). Other previous studies reported professional compensation as a main determinant of collaboration. They concluded that FFC is a hindrance to collaboration and supported moving to a capitation model for funding PHC, as well as a physician reimbursement system (28).

### 5.3. Financing

The results of the present study indicate that capitation created assurance in income and reduced physician uncertainty in financial matters, and along with the increased income it created, physicians' satisfaction was improved. The results obtained by Pena-Sanchez et al. also revealed lower levels of distress in physicians who were paid according to the Alternative Payment Plan consisting of both salary and capitation compared to physicians receiving FFC when more than 75% of their patients suffered from complicated conditions (29).

Our data also suggested that capitation contracts as a prospective payment incentivized physicians to control

cost. Physicians reported that they tried to convince patients to engage in rational utilization and prevent repeated diagnosis through prolonged engagement with the patient's condition. In a study including 448 interviews with physicians in the United States, Hibbard et al. empirically demonstrated that physicians with capitation-based remuneration were more incentivized to ensure that patients were reliant on formal care and to try to improve patient self-care (30).

### 5.4. People's Behavior

Trust is a main pillar of the physician-patient relationship and is associated with improved patient satisfaction, medication compliance, and continuity of health care. Nevertheless, there is little empirical evidence on the effectiveness of any intervention on the level of trust (31). The results of our study showed that under the capitated model, an improved physician-patient relationship and the better accountability of physicians toward patients improved patient trust in physicians. Hall empirically investigated the effect of two different sorts of health plan (capitated or mixed incentive plans) on patient trust in physician (32). Their findings revealed a small, statistically significant, increase in trust in people who were part of the capitated plan. These results conflict with those obtained by Kao et al., which indicate the lower levels of trust among patients whose physicians operate on a capitation basis, but they finally concluded that the difference in the levels of trust initiated by different methods of payment is affected by the patients' experiences of their physicians' behavior (33).

### 5.5. The Challenges Ahead

According to our participants, there were some barriers that hinder the expected effects of risk-adjusted capitation. Patients may want unnecessary procedures and referrals and will sometimes switch their physician to obtain them. Partially similar findings reported by Sorbero revealed patients with stable chronic diseases and capitated primary care physicians were 36% more likely to switch doctors than similar patients with physician reimbursed by FFS (34).

### 5.6. Conclusion

Physicians are aware of various effects associated with capitation payment. Generally, risk-adjusted capitation can create useful changes in health system characteristics. The capitation system is administered as the main payment system of PHC in many countries and is its infancy in Iran. The results of our study can help health policymakers in the process of adopting risk adjusted capitation as a PHC payment system. Future research should focus on the development of risk-adjusted capitation model.

### 5.7. Study Limitations

Given the weaknesses in the implementation of family medicine in piloted provinces in Iran, one limitation of this study was that there was not a rich setting for the establishment of the risk-adjusted capitation system. We did not consider patients' perspectives in the study. We used purposive (non-random) sampling. For these reasons, the results reported in this paper may not capture the full effects of risk-adjusted capitation and should be used cautiously.

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### Footnote

**Authors' Contribution:** Reza Esmaili was responsible for data collection. All authors were involved in the design, analysis, and interpretation of findings, as well as drafting of the manuscript.

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