

**Physician Practice Patterns in Primary Care:
Do Ownership and Payment Mechanism Matter?**

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Abstract

Providing health services at affordable prices while balancing quality with cost has been a major challenge for health managers as well as policy makers particularly in the developing world in an era of major constraints on financial and human resources. This balance has been difficult to sustain especially in the public sector, often criticized for low levels of efficiency. On the other hand, the private sector has made strides in management efficiency and cost control. Research efforts have been focusing on financial incentives and its impact on the decision making process of the provider in terms of quantity and quality of services. This study assessed the impact of ownership, on the practice patterns of providers under different physician payment mechanisms in primary care centers in Lebanon. The results support the notion that not only payment mechanisms, but also type of ownership affects physicians' behavior. Government health centers exhibited a lower mean duration of visit and less referral patterns. In governmental centers, fee-for-service physicians reported the highest referral rate compared with salaried physicians. A mixed payment mechanism that would provide a prospective payment coupled with some risk adjustment, pay for performance, to reward value added services might be a viable alternative to current practices.

Introduction

Providing health services at affordable prices while balancing quality with cost has been a major challenge for health managers as well as policy makers in the developing world in an era of major constraints on financial and human resources. A channel frequently advocated to overcome this challenge is provider payment mechanisms (Szende & Zsolt, 2004; Huntington, Zaky, Shawky, Fattah & El-Hadary, 2010). Advocates mostly base their argument on the premise that the delivery and consumption of health care is a market in which profit is the powerful motivator of physicians' practices (Grignon, Paris, & Polton, 2002). In theory, financial incentives might affect the provision of health services by affecting the decision making process of the provider in terms of quantity (overuse or withhold) and quality of services. It has to be noted, however, that, some policy analysts favor reimbursement structures that shy away from linking provider's financial returns to practice patterns – especially those related to 'efficiency' – as these might favor less use of resources and services, and hence, potentially limit access to care (Peterson, Woodard, Urech, Daw & Sookanan, 2006; Bodenheimer, 1999).

It is well documented that there are three dominant payment mechanisms used in health care settings: fee-for-service (FFS), capitation, and salary payments (Berwick, 1996; Gosden, Pedersen, & Torgerson, 1999., 2001; Maceira, 1998). Fee-for-service (FFS) is a retrospective payment under which providers are reimbursed based on the volume and/or intensity of services provided (Maceira, 1998). This method creates favorable conditions for providers to maximize their income through use, especially in the asymmetry of information between providers and patients. Thus, under FFS, providers may be inclined to schedule more visits per patient and provide medical treatments more than what a patient clinically requires. This potentially leads to an increase in health care costs and waste of resources, and to a decrease in efficiency (Liu & Mills, 1999). The FFS model also secludes the provider from financial risk; on the contrary the payer bears all the risk associated with change in cost (Gosden et al., 2001).

Under capitation, providers receive a fixed amount of money per person regardless of the volume of services provided over a given period of time. Capitation is generally accompanied by a referral responsibility for the primary care physician (Grignon et al., 2002). In contrast to fee-for-service, capitation is a prospective payment under which providers have incentives to increase their efficiency. In that respect, since providers bear the higher financial risk, they may be inclined to reduce their personal effort through selecting healthy patients and decreasing the volume of services as income becomes directly proportional to the number of patients they see in their practice. This worries health managers since such a practice can negatively affect the quality of care (Chi-Man Yip, Hsiao, Meng, Chen & Sun, 2010; Grignon et al., 2002).

On the other hand, salaried providers are paid a fixed sum of money for a specific number of hours per month or year. Salary payments are deemed effective in containing health costs as there are no benefits to increasing the quantity of services provided (Armour et al., 2001). Nevertheless, it provides incentives to the physician to minimize personal costs and efforts, which often is translated into selecting low risk patients, making more referrals, and at times not responding to patients' needs (Gosden et al., 2001).

Several studies have examined these different payment methods and evaluated their impact on the volume, quality, and quantity of health care services either collectively or separately. Compared with FFS, studies have shown that salaried physicians have lower volumes of consultation and ordered fewer tests resulting in under-treatment (Gosden et al., 1999). One study reported that there were no significant differences in the average number of initial and follow-up visits per patient between salaried and FFS physicians. Others have showed that salary payment is associated with lower continuity of care, compared with FFS (Gosden et al., 2001). However, still the extent to which payment mechanisms actually affect physician behavior is complicated and not clear, though some evidence speaks to its impact on a physician's decisions, resource use and treatment approaches (Gosden et al., 2001). Furthermore, ownership presents the governance ultimate control and responsibility for an organization, and accountability for its actions (Crampton et al., 2004).

It is even more difficult to analyze such effects in developing countries due to both the heterogeneity among health care providers and the diversity of institutions ownership, practices, and preferences (Gauri, 2001) in the absence of strict enforcement of regulation. This variability in the organization of health care provision is very important in developing countries where the public and private systems interact leading to several effects such as quality gaps and misallocation of resources within and across countries (Maceira, 1998). Nevertheless, no studies are available on the experience of these countries in terms of the effect of ownership and payment mechanisms on physician practice patterns (Kronfol, 2012).

Lebanon is a developing country that has a mixed ownership environment but where the private sector plays a major role in the delivery of primary care (Ammar, Hamadeh, Abu, & Hamadeh, 2000). A range of non-state providers includes political parties, religious charities, community based groups, non-governmental organizations (NGOs) (Chen & Cammett, 2012). In addition, for profit institutions provide and finance some provisions of healthcare in Lebanon (Chen & Cammett, 2012).

Under the umbrella of achieving healthcare reform, the MOPH has worked on developing and expanding its primary care network (El-Jardali, Ammar, Hemadeh, Jamal & Jaafar, 2013). This network has grown from 29 to 150 primary healthcare centers, most of which belonging to NGOs, that cater to around 30,000 citizens (El-Jardali et al, 2013). Regarding the public sector, the ministry of public health (MOPH) and the ministry of social affairs (MOSA) provide health

services at health centers and dispensaries which include curative, preventive, and primary care services (Kronfol, 2006). In addition, both these ministries provide support to centers owned by not for profit (NFP) institutions and NGOs (Kronfol, 2006). For example, the MOPH provides educational material, medical supplies, drugs, trainings, and guidelines to primary care centers (El-Jardali et al, 2013). The financing of the services is done by several public and private entities with a sizeable out-of-pocket payment percentage. Thus, this system provides an experimental field to examine provider behavior under a variety of ownership structures and payment mechanisms. The purpose of this paper was to assess the association of ownership, and payment modality on the practice patterns of physicians.

Methods

This cross-sectional study was conducted on a representative sample of the health care centers in Lebanon, a random sample of 33 centers proportionally selected by geographic distribution of all health centers within the National Network of Primary Health Care Centers in Lebanon (N = 147). The sample was representative with respect to the distribution in ownership of the national primary care network in Lebanon. The sample represented the three clusters of providers in Lebanon, namely the Ministry of Public Health (MOPH), the Ministry of Social Affairs (MOSA), and the non-governmental organizations (NGOs). A list of all working physicians in these centers (210 physicians) and their schedules were obtained from each selected center. The data collection spanned over seven months and adopted a "take-all" strategy in selecting patients for this study. It included all those patients visiting the center for medical treatment and excluding those who came for vaccination, and or renewal of medication prescription.

The primary source of data was an observation sheet on the process of care for every selected patient in the health centers. The observation sheet had two different sections. One section included patient's demographic characteristics, nature of medical visit, and the time spent with the physician (time in and time out). The second section focused on diagnosis, medical recommendations, and referral to more specialized services and the indication (need) for referral. For this study, practice patterns were measured by the time spent with a physician and the physician's referral practices.

Categorical variables, such as patients' needs for referral, were analyzed using chi-square test in the bivariate model. Continuous variables, such as the time spent by the physician with the patient, were analyzed using tests of means, t-test for dichotomous variables and ANOVA, with and without covariance, for variables with more than two categories. The unit of analysis was the patient. PASW-18 (formerly known as SPSS) was used for analysis.

Results

This study observed 1346 patient consultations examined by 210 physicians. Close to 55% of the observations were conducted in community health centers (Table 1) and the rest were in public centers (MOPH & MOSA). Of all observed consultations, 72% were for acute medical conditions and 28% were for chronic conditions. A majority (59%) of the patients reported that it was their first visit to the center for the reported condition. Classified by their payment mechanisms, 45% of the physicians in the study were paid per hour, 30% on a monthly salary, and 25% under a fee-for-service mechanism (Table 2).

Table 1. Patients' distribution by age, gender, institutional ownership and medical condition

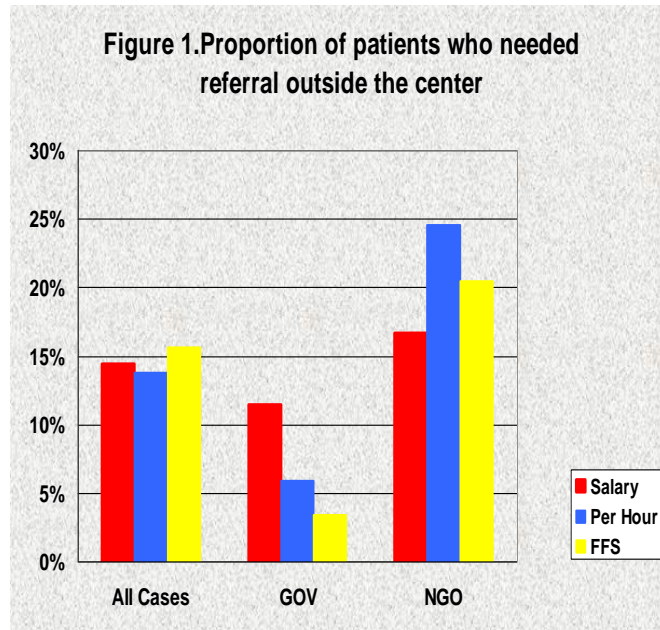
		All Patients (n=1346)	
Variable			
Age (Years)			
Mean (SD)		26.1 (22.6)	
Range		0.025-84	
		N	%
Institutional Ownership			
MOPH		316	23.5
MOSA		292	21.7
NGOs		738	54.8
Patient Gender			
Male		531	39.5
Female		814	60.5
Medical Condition			
Chronic		357	27.7
Acute		930	72.3
Nature of Visit			
First visit		782	59.0
Second visit		543	41.0

Table 2. Physicians' distribution by specialty, payment mechanism

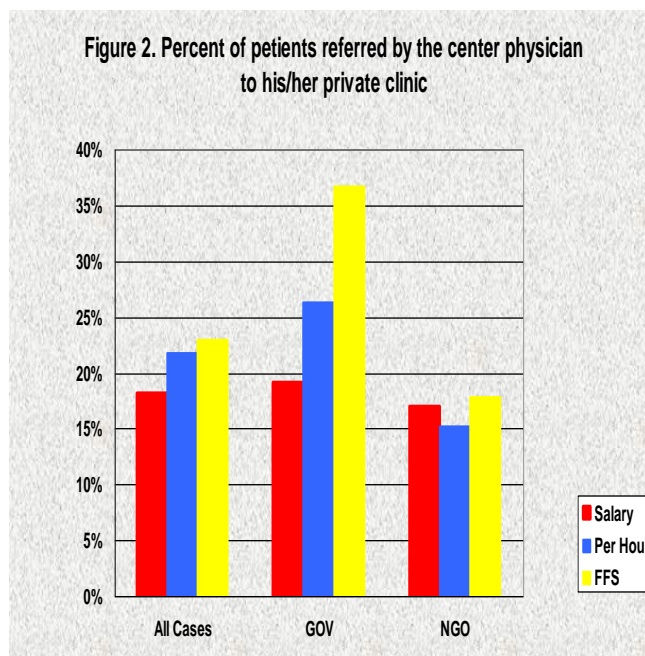
Variable		N	%
Specialty			
	GP	53	25.2
	Specialist	157	74.8
Payment mechanism(RS)			
	Monthly salary	44	21.6
	Per hour	91	44.6
	Fee for service	51	25.0
	Salary + Bonus	18	8.8

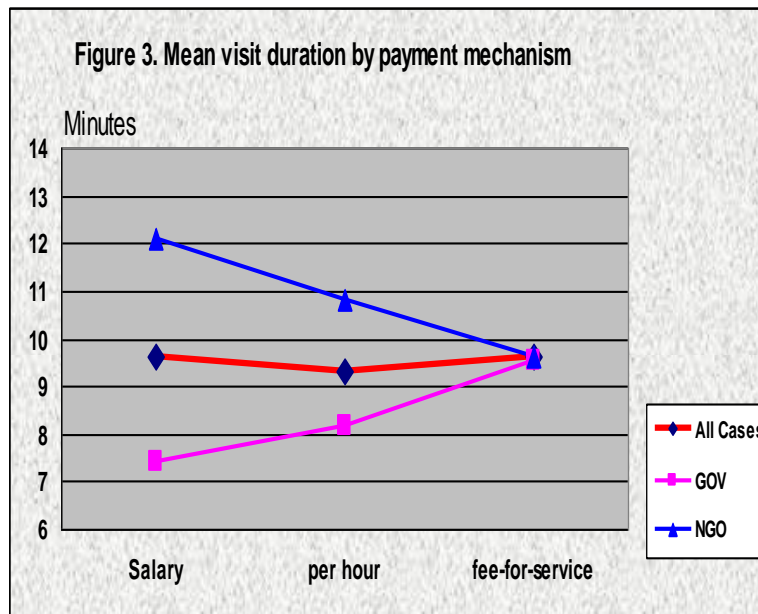
Results showed that on average 14% of patients were referred out to either a specialist (12%) or a hospital (2%). In general, there was no significant association between the physician payment mechanism and referral patterns (Figure 1). However, differences were observed between the two ownership structures which were more expressed within the public centers. Salaried physicians in public centers showed a higher rate of referrals (11.4%) than their colleagues under different payment mechanisms (5.9% for per hour physicians and 3.4% for

FFS physicians). On the other hand, NGO FFS physicians demonstrated higher rates of referral (20.4%) than their salaried NGO counterparts (16.7%).



When the patients were queried on the physicians' referral patterns, results showed that physicians in public centers tended to exhibit higher rates for self-referral (referrals to their private practice clinics outside the studied center) than their counterparts in NGO centers (Figure 2). Within that group, FFS physicians have the highest rate of referral (37%) compared with other payment schemes (26% per hour physicians and 19% salaried physicians). On the other hand, there was no significant difference in the referral rate between FFS and salaried physicians in NGO centers.





On average, physicians under the three studied payment mechanisms spent almost the same amount of time with their patients per visit (Figure 3.) However, when separated by ownership, FFS physicians in public centers spent the longest time (9.6 min) with their patients compared with other schemes (7.5 min for salaried physicians & 8.2 min for physicians paid per hour, $p < 0.02$). In contrast, NGO salaried physicians recorded the highest mean of 12.1 min per visit compared to 10.9 min for physicians reimbursed on hourly basis, and 9.7 min for FFS physicians ($p < 0.01$).

Discussion

This study aimed at examining the association between ownership and payment mechanisms on one hand and the provider's practice and referral patterns on the other hand. The results supported the well-established notion that payment mechanisms are associated with physicians' behavior, and presented organizational ownership as a significant correlate of physician's practice in primary care settings.

Results from this study showed that referral was slightly more prevalent among FFS physicians than under other payment mechanisms. This was more observed with differing ownership structures. NGO physicians had higher referral rates than their public counterparts. This could be due to their limited capacity within their centers and uncertainty of the case management effectiveness (Gosden et al., 2001) and /or their propensity to reduce workload per patient. In the latter, physicians try to limit their effort in case management to simple cases and refer more complex cases to other physicians outside the center. Further research is needed to validate this observation and its possible covariates.

Similarly, self-referral was more prevalent among FFS physicians. This could indicate tendency among FFS to request more services in an attempt to increase income. This comes in accordance with other findings reporting that an increase in the quantity of curative and diagnostic services and the number of face to face and telephone consultations was greater in PCPs following an alteration of their compensation from capitation to mixed capitation/FFS when compared with those being remunerated by capitation or FFS (Gosden et.al, 2001).

On the ownership front, self-referral was more observed among government centers' physicians. Physicians in these centers, have their own private practices (clinics), so there was a tendency among some to self-refer patients to their private practice for follow-up outside the centers. Financing in the private clinics is FFS based, which provides physicians with a better opportunity to maximize their profits without the financial control by the public agencies.

Another set of findings related to payment mechanisms. The payment mechanism did not correlate with the time a physician spends with a patient. However, ownership was correlated with time of visit. In general, government health centers had a lower mean duration of visit when compared to NGO centers. This can be due to lack of supervision and accountability within public organizations (Cram et al., 2010; El Kassaa, 2006). Accordingly, incentive schemes appropriate to public settings need to be deployed to encourage and monitor physician's practice patterns along with appropriate managerial structure which would help enforce the regulations as well as the practice.

Furthermore, the effect on the provider behavior was further accentuated when the two independent variables, payment and ownership, were considered together. The proportion of referrals in NGO centers was higher among salaried physicians than FFS physicians, whereas in public centers the reverse was observed. Furthermore, in government centers, FFS physicians' consultations were a bit longer in duration than those under per hour and salary payments. Perhaps, more time was spent to provide more services so that they increase their returns (Grumbach, Osmond, Vranizan, Jaffe, & Bindman, 1998; Gosden et al., 2001). In contrast, NGOs' salaried physicians spent more time per patient consultation which is in line with earlier research in developed countries (Wolinsky & Marder, 1982; Bjorndal, Arntzen, & Johansen, 1994).

The effect of the method of physician payment on referral needs and practice patterns was vital especially when in combination with institutional ownership. It is often argued that under a salary scheme physicians are motivated by self-interest (Pontes, 1995) and thus tend to minimize efforts by spending more time with fewer patients. In this study, physicians in community centers tended to spend less time with a patient and refer more, while in public centers, physicians tended to spend more time and self-refer. In either case, it can be safely assumed that under a salary scheme, physicians behave just like hospitals under a flat rate scheme. Both providers tend to refuse such contracts as it shifts the financial risk from the purchaser to the provider. Under these circumstances, providers tend to see less of these patients and when providing services they tend to minimize their losses in terms of effort and physical resources. This was more observed, in this study, among public center physicians who had more incentives to refer patients so as to minimize effort and perhaps for some to self-refer. On the other hand, a FFS scheme provides no incentives to the physician to reduce unit costs but rather encourages the physician to see more patients and use more resources, at times inefficiently. A suggestion based on findings relates to the need to re-evaluate the whole payment structure. Any alternative payment mechanism has to take into consideration the cost of resources used in the delivery of services. Cost containment can then be delimited by providers and payers sharing the cost of services leading to efficient use of resources. Both parties have to be cost conscious and have to bear the financial risk while at the same time ensuring the provision of quality services. Perhaps a better solution lies somewhere in between a fee for service and a salary scheme. One such alternative could be a capitation scheme.

With the risk borne by the provider, capitation has been championed as a cost containment instrument with quality equal or better than that under a FFS payment mechanism (Berwick, 1996). However, the perception of quality depends on the patients and their observation or perception of "better" quality. Furthermore, the effectiveness of capitation depends on the

healthcare system and the ability of its agents to improve. Countries have experimented with capitation at different levels of care. With the competent system in place guided by the right values, these countries were able to achieve cost containment and quality assurance. On its own, capitation might be resisted by policy makers as arguably providers might abuse the system by selecting less demanding patients. Nevertheless, with proper fee adjustment, managers and policy makers could counteract such behavior (Hausman & Le Grand, 1999). In addition, appropriate incentives could be built into providers' contracts to enhance capitation payment structures. Then, reward or penalties are made dependent on the provider meeting certain performance levels or standards. However, the caveat in this is that contracts do not incorporate all the transactions in the provision of services. For that, providers might "game" the performance measures by being selective in their performance emphasizing behaviors or tasks that would increase their payouts (Baker, 2005). Alternatively, health managers may rely on a system where the information asymmetry is in the benefit of the institution and not the physician which would then force the agent to use available information productively and to avoid engaging in dysfunctional behaviors. In other words, performance evaluation will be based on a combination of subjective and objective measures contingent on compliance with standards and protocols appropriated with some incentives. Future research will then have to test the consistency of such a measure in remunerating providers in primary care settings.

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