ORIGINAL ARTICLE

COST ANALYSIS OF PRIVATE PRIMARY CARE SERVICES IN THREE URBAN CENTRES IN MALAYSIA

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ABSTRACT

A study was undertaken amongst private primary care providers in three urban centres of Malaysia to understand the organizational structure of the facilities and to assess the cost of running such services. A total of 150 clinics were involved in the study. Data was collected through interviews with owners of the clinics using semi-structured questionnaires. Solo-practitioners owned 64.7% of the clinics while 35.3% of them were owned by group practice. This study showed that the mean number of patients visited the clinics daily was 49.3 with the average operating hours of 79.4 hours/week (range 28.0 - 168.0 hours/week). Group practice clinics operates 23.9 hours longer than solo-practice clinics. Group practice clinics were more likely to offer 24 hours service than solo-practice clinics. Most of the clinics were manned by a single doctor (57.3%), 30.0 % had two doctors and only 12.7% were run by more than two doctors. On average, group practice employed greater number of supporting staff than solo-practice clinics (6.0 vs 4.3 people). The mean annual cost to run each facility was found to be RM 444,698. The mean cost per patient was found to be RM 32.09 for solo-practice clinics and RM 38.55 for group practice. Wages represented the highest proportion in the recurrent cost (61.1%) followed by drugs (29.2%) and consumables (2.7%). Building cost (67.9%) and equipment cost (25.9%) were the major capital costs for the clinics. This study could serve as a basis to reimburse private primary care providers in the future health financing scheme in Malaysia. To improve efficiency and contain cost in primary care settings, efforts should be targeted towards cost of wages and drugs utilised by the providers in their daily practice.

Key words: Private practice; primary care; costs; Malaysia.

INTRODUCTION

In many countries in the world, private clinics are important health care facilities providing primary care services to the community. In some countries, they may become the main provider and help to supplement the services provided by public providers which are usually plagued by the lack of human resources. The high number of private clinics, long operating hours and availability of doctors during most of the operating hours are among the reasons that enhanced their roles. Yet, information on organisation and operation of private clinics in many developing countries is very scarce. Usually private clinics are not involved in the health management information system of the country

which gather data for health surveillance and planning purposes. Furthermore many private clinics are for-profit in nature and providers are usually unwilling to share financial information with the government.

Currently, many Asian countries, including Malaysia are in the process of introducing health financing scheme. Issues of reimbursement of primary care providers in the scheme are usually difficult to solve due lack of information on the operational cost of private clinics. In countries where national insurance scheme has been started such as in Japan, Taiwan and Korea, discussions on appropriate reimbursement for private primary care providers take a centre stage. While the insurers tried various ways to pay primary care providers, the doctors complained about inadequate fund at their disposal to render effective services to the community.

This study was undertaken to understand the organisation as well as the cost of operating private clinics in three urban centres in Malaysia. Empirical evidence from this study could be utilised by policy makers and health financing scheme planners to formulate appropriate reimbursement scheme for primary care providers. In many developed countries, solo-practitioners were encouraged to form group practice which are supposed to provide

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more efficient service due to among other things the economies of scale. With this background, the study compared the cost of solo-practice clinics and group practice and hypothesized that group practice clinic has a lower unit cost than solo-practitioner clinics.

MATERIALS AND METHODS

This is a cross-sectional study done in three urban centres in Malaysia: Kuala Lumpur, Ipoh and Penang. These three areas, all gazetted as cities, were selected because they have many private clinics providing primary care services. The total population in all the three areas was estimated to be around 2.5 millions which is about 11% of the total population in the country (Table 1). There were 5,192 private doctors in the country in 1995, 12.4% of them work in these three urban areas. Since private doctors and not their clinics are registered in Malaysia, the actual number of private clinics is not known. However it was estimated that there are around 4,000 private clinics in the country. Using this figure, it is estimated that about 16% of them are in these three areas.

Private primary care clinics included in this study were all private clinics providing only primary care services. Hence, Private Specialist Clinics which sometimes provide both primary and specialist care were excluded.

To select the clinics for this study, we used the list of doctors maintained by the Malaysian Medical Council which register the doctors and issues annual practice certificate. The list consisted of names of the practitioners, clinic addresses, qualifications and other personal information. From this list, all private doctors who gave their clinic

addresses in these three areas were selected. Based on the information on the doctors' qualifications, private specialists were excluded. Subsequently, based on addresses in the register, list of private clinics was prepared. It was found that there were 639 private clinics in these three areas. Due to limited resources and time for the study, a total of 150 clinics were randomly selected. Initially, letters were sent to these doctors to introduce the study. Subsequently, researchers contacted the doctors to explain further about the research and to obtain their consent. If a doctor refused to participate in the project, the nearest private clinic was taken as a replacement. When consents were obtained, trained interviewers visited the clinics to interview the doctors using semi-structured questionnaires.

Both solo-practice clinics and group practice were included in this study. Solo-practice clinics in this study is defined as clinics which are wholly owned by one individual doctor. All the equity in the clinics are owned by him but he/she may employ other doctors as assistants but they do not hold any equity. A Group practice is defined as clinics which are owned by more than one doctor, each of them hold equity in the clinics.

In the costing analysis, life span of medical equipment is assumed to be of five years and discount rate of 5% was used in calculation the annual cost. Annual rental cost was used to estimate the actual cost of building. This is because many private doctors has been in practice for quite some time and they could not provide accurate data on the purchase price of their clinics. The renovations done to the clinics was assumed to have 10 year life span and again 5% discount rate was used in imputing the annual cost.

Table 1: Background information of three urban area selected for the study

Urban Areas	Population	Private doctors	No. of private clinics	Nos. of clinics selected
Kuala Lumpur	1,324,015	548	409	101
Penang	541,980	199	102	25
Ipoh	599,360	251	128	24
Total	2,465,355	998	639	150

RESULTS

Response

Out of 150 clinics selected in this study, 101 clinics were in Kuala Lumpur, 24 in Ipoh and 25 in Penang. A total of 35 clinics in the initial sample in which their doctors refused to participate were replaced with the nearest clinics in the same locality. Confidentiality in their financial data is the most common reason for rejection although some private

practitioners gave reasons that they were busy with their clinic schedules.

Clinics operation

Ownership

A total of 97 clinics (64.7%) were owned and run by solo-practitioners while the other 53 (35.3%) were clinics in group practice.

Operating Hours

Generally the clinics operate around 12 hours per day. Group practice clinics operate 23.9 hours longer than solo-practitioners clinics (Table 2). Twenty-four hours clinics were more common among group practitioners than solo-practitioners. It was found that 26.2% (11) of group-practitioners clinics operate for 24 hours compared to only 6.2%(6) amongst the solo-practitioners (Table 3).

Manpower

Most of the solo-practice clinics (86.5%) were run by the owner themselves. However some solo-practitioners employed assistant doctors to help them. Group practice clinics in this study were mostly run by two doctors. Only two group practice clinics were run by a single doctor (Table 4). These two clinics were subsidiary clinics in a group practice network. On average, the number of doctors in solo-practitioners clinics was 1.2 and in group practice clinics is 2.5.

Supporting staff is defined as non-doctors who work and assist doctors in the clinics. The solo-practice clinics employed smaller number of supporting staff than group practice clinics. The percentage of solo-practice clinics with more than 5 supporting workers was only 15.4% but about a third (37.7%) of group practice clinics had at least 6 supporting staff (Table 5). The average number of supporting staff in solo-practice clinics was 4.3 and in group practice, 6.9.

Workload

The group practice clinics which have more doctors and supporting staff managed 1.6 times more patients per year than solo-practice clinics (Table 6). Assuming that in a month the clinics were opened for 26 working days, the average number of patient visited the clinics daily was 49.3; 40.8 for a solo-practice clinic and 64.9 for group-practice clinic. The study also showed that in group practice doctors could share their workload and probably give more attention to their patients. This can be seen when workload per doctor was computed. Despite of

having more patients in total, doctors in group practice saw less number of patients individually than those in solo-practice clinics.

Cost Analysis

The annual cost to run private clinics in these urban areas was RM 444, 698. The recurrent cost of the clinics accounted for 90.4% of the total annual cost. Salary of doctors and staff represented the highest proportion of the recurrent cost followed by drugs and consumables (Table 7).

Salary formed 61.1% of the recurrent cost. Drugs which formed the second major expenses accounted for 29.2% of the recurrent cost. Utilities costs which cover electricity, water and telephones bills formed 2.1% of the recurrent cost. Consumables such as bandages, catheters, syringes and other disposable items accounted for 2.7% of the recurrent cost. Maintenance of equipment and buildings absorbed only 0.7% of the recurrent cost. The private clinics purchased laboratory and X-ray services from other providers; this consists of 1.3% of the recurrent cost. Other costs which formed 2.9% of the total cost includes stationary, staff uniforms, laundry services and professional administrative services hired by the clinics such as accounting and auditing services.

Capital cost accounted for 9.3% of the total cost. The major component of the capital cost was the cost of building, estimated by the rental cost in this study and accounted for 67.9% of the capital cost. The second major component is equipment which absorbed 25.9% of the capital cost. Private doctors in general spent 6.2% of the capital cost to renovate the buildings.

Costs of operating group practice clinics were significantly higher than solo-practice clinics. On average, the total cost of running group practice clinics is 83% higher than solo-practice clinics. Capital costs, cost of salary and drugs were significantly higher in group practice than solo practice clinics. The higher number of doctors, staff and workload explained the higher cost in group practice clinics. When the workload was taken into consideration, the difference in the unit cost in both types of clinics was not statistically significant.

Table 2 : Operating hours of private clinics

	Solo practice	Group practice	Total
No. of Clinics.	97 (64.7%)	53(35.3%)	150(100.0%)
Operating Hours/week			
Mean	70.9	94.8	79.3
SD	28.4	40.6	35.0
Min	28.0	39.0	28.0
Max	168.0	168.0	168.0
	t=-4.226, df = 148	p <0.0001	

Table 3: Provision of 24-hours service by private clinics

Type of clinics	Provide 24 hours service			
	Yes		No	
	Nos	%	Nos	%
Solo-practitioners	6	6.2	91	93.8
Group practice	11	26.2	42	73.8
Both	17	11.3	133	88.7

($X^2 = 5.86$ df=1 p = 0.015)

Table 4: Number of doctors in private clinics

No. of doctors	Solo practice		Group practice		Both types	
	No.	%	No.	%	No.	%
1	84	86.5	2	3.8	86	57.3
2	9	9.3	36	67.9	45	30.0
3	2	2.1	8	15.1	10	6.7
4 and above	2	2.1	7	13.2	9	6.0
Total	97	100.0	53	100.0	150	100.0

($X^2 = 96.13$ df=3 p < 0.001)

Table 5: Number supporting staff in private clinics

No. of staff	Solo practice		Group practice		Both types	
	No.	%	No.	%	No.	%
less than 3	34	35.1	8	15.1	42	28.0
3 to 5	48	49.5	25	47.2	73	48.7
6 to 8	10	10.3	12	22.6	22	14.7
9 and above	5	5.1	8	15.1	13	8.6
Total	97	100.0	53	100.0	150	100.0

($X^2 = 18.43$ df=3 p < 0.001)

Table 6: Workload in private clinics

	Solo practice	Group practice	Both types
Number of Patients /Clinic/Year			
Mean	12,720.7	20,279.0	15,391.3
SD	6,491.3	10,305.9	8,795.3
Min	3,380	4,680	3,380
Max	35,204	43,680	43,680
	t=4.840, df = 148	p < 0.0001	
Number of Patients /doctor/week			
Mean	243.9	179.9	221.3
SD	125.6	85.5	116.9
Min	65.0	45.0	45.0
Max	677.0	420.0	632.0
	t=3.693, df=148	p < 0.0001	

Table 7: Capital and recurrent cost of solo-practice and group practice private

Cost	Both types	%	Solo practice	%	Group practice	%	p value
Capital cost							
Building	28,143	67.9	29,141	71.0	26,317	62.3	0.001
Equipment	10,755	25.9	9,345	22.8	13,336	31.6	0.439
Renovation	2,553	6.2	2,548	6.2	2,560	6.1	0.034
Total	41,451	100.0	41,034	100.0	42,213	100.0	0.001***
Recurrent Cost							
Salary	246,387	61.1	168,284	55.5	389,331	66.4	0.000***
Drugs	117,935	29.2	101,905	33.6	147,272	25.1	0.012***
Consumables	10,723	2.7	9,341	3.1	13,253	2.3	0.303
Utilities	8,591	2.1	7,277	2.4	11,048	1.9	0.479
Maintenance of Equipment	2,702	0.7	1,734	0.6	4,513	0.8	0.152
Xray and Lab Services	5,181	1.3	5,360	1.8	4,853	0.8	0.728
Others	11,728	2.9	9,409	3.1	16,063	2.7	0.087
Total	403,247	100.0	303,310	100.0	586,333	100.0	0.005***
Grand total	444,698		344,344		628,546		0.039***
Cost/pt/visit	35.08		32.09		38.55		0.106

(*** statistically significant using Mann-Whitney test)

DISCUSSION

Role of primary care providers as first line care givers to community has been enhanced in recent years in many developing countries. High cost of secondary and tertiary care in most countries has led the policy makers and insurers to provide incentives to encourage the utilisation of primary care providers. Primary care providers can only deliver good quality of care to community if cost of their operation are covered by insurers. This study attempted to provide the costing information which could be used both by the insurers as well as providers to guide their operation.

The study focused on only three urban centres in Malaysia. Urban areas were chosen because this is the area where most private primary care providers choose to set up their practices. Low population density in rural areas and low purchasing capacity of the population were the important reasons for private doctors to shy away from rural population¹. The study is apart of a bigger project to examine the impact of managed care organisations on primary care providers. These three areas are important industrialised areas in Malaysia where many private companies engaged managed care organisations to supervise services provided by private primary care providers.

Growth of managed care and managed care organisations has great impact on the organisation of private primary care services. It is argued that that primary care providers in group practice could provide more efficient services through the economies of scale. Equipment and support staff could be shared out by the doctors in group practice

and hence reducing unit cost of their services. Doctors in group practice could also provide professional support to their colleague and enable them to take turn attending CME activities which could enhanced their skills. On the other hand, solo-practitioners have more freedom in managing their own clinics. Small number of patient under their care could enable them to provide personalised services and improved patient satisfaction. Interpersonal quality is a strong point in favour of solo-practitioners.

In USA for example, solo practice clinics are expanding their organisation to form group practice. Pressure for private primary care providers to provide broader range of services led to the formation of group practice which could utilise resources efficiently. Capitation payment under managed care organisations requires providers to assume certain amount of financial risk. Solo-practitioners normally have difficulty in shouldering such risk and they were forced to improved their financial standing through formation of group practice².

Advantages of group practice over solo-practice clinics were clearly demonstrated in this study. Longer operating hours, more number of supporting staff and less workload on each individual doctors were shown in this study. Community could have better access to services in group practice due to longer operating hours and 24 hours service. Nevertheless the overall percentage of clinics providing 24 hours service is still low, around one in every 10 clinics offer this service. This service is a very important contribution by private practitioners especially if they want to emerge as

the main provider for primary care services. With high rate of motor vehicle accidents in Malaysia, private clinics were often be the first centre to be consulted by the victims. There are few reasons for the low percentage of private clinics offering 24 hours service. Firstly, cost of providing 24-hours service is high as wages for after hours duty are generally high. Furthermore private doctors have to invest on emergency equipment which is costly to maintain. Doctors need to be trained to handle emergency care if they want to provide this round the clock services. In another study carried out among private primary care practitioners in a rural area of Malaysia, it was noted that the doctors refused to provide 24 hours service because many have inadequate skill as well as emergency equipment³. There is very little incentives for private clinics to provide this service from health financing aspect. Currently most patient paid out-of-pocket when they seek health care in private clinics with exceptions to those with employees benefit. Private doctors are reimbursed on fee-for-service basis. Under such situation, private doctors would have difficulty to charge full cost of their emergency out-of-hours services to their patients who might not afford to pay. In United Kingdom, incentives were given by NHS for general practitioners to provide 24 hours service. Under the capitation scheme, general practitioners were compensated when they used deputising services to provide such service^{4,5}.

The number of patients in group practice clearly exceed those in solo practice, but individual doctor's workload measured by the number of patients seen per doctor was significantly lower than solo-practitioners. This could allow doctors in group practice to give more attention to their patients and could provide longer consultation time. Technical quality of care could be high in group practice due to the extra attention. However the main draw back in group practice is that the patients might not see the same doctor every time they visit the clinics. Lower workload could also mean that group practice doctors should be in a better position to attend CME activities to improve their professional skills than solo practice doctors.

This study has shown that the salary of staff is the main component of the total cost. This is not surprising since private clinic is labour intensive like any other medical establishment such a hospital. Health planners should realised, that if reimbursement package for primary care provider are unable to cover their cost, salary for staff and doctors will be the first to be affected. This is one of the reasons why in many countries reimbursement package usually is the point of dispute between insurers and providers. Sometimes, primary care providers react by refusing to provide certain services which could be cost saving such as 24 hours services or laboratory investigations. Private practitioners need to acquire skills in human

resource management given the high proportion of operating cost are on salary. It was observed that some group practice employed professional managers to assist the doctors. This is a worthwhile investment as good human resource management could enhance the productivity of the clinics and improve efficiency. Staff salary increment and bonuses could further be planned and used by private practitioners to improve staff satisfaction and performance without negative impact the financial status of the clinics⁶. Private practitioners through their professional organisation should start thinking about a training programme for clinics assistants. Practice of employing untrained staff by private clinics should gradually be stopped.

Drugs is another major component of cost in primary care services, absorbing nearly a third of the recurrent cost. Doctors in Malaysia and some other developing countries were allowed to dispense drugs to their patients. This might explain such a big contribution of drugs on the recurrent cost. Cost containment effort by improving prescribing practice of doctors could have major impact on the overall cost of primary care services. There are on-going debates in Malaysia whether dispensing activities should be separated from private clinics and be handled by pharmacists. Generally, doctors in the private sector were not in favour of the suggestion as they could draw a significant proportion of their income from dispensing of medicine. Theoretically, it would be easier to encourage appropriate prescribing when doctors do not have financial incentives to affect their behaviour. However this might have impact on increasing total cost of primary care services. In the absence of dispensing activities, private doctors would try to maintain their income by raising the consultation charges. Patients then have to buy drugs from pharmacies who would charged for their services. The financial incentives will then be shifted to pharmacies. There were reports that private pharmacies act as doctors and offer drugs which were not prescribed by doctors to patients. The overall impact to separate dispensing from prescribing will be of cost escalation with little gain in quality. An alternative is to provide rational prescribing training to private doctors combined with the introduction of medical audit focusing on appropriate prescribing.

The findings of this study did not support the hypothesis that group practice clinics have lower unit cost than solo-practice clinics. The RM 6.46 difference in the unit cost between the types of clinics was not statistically significant. One factor for this unexpected result relates to the difference in productivity of doctors in the two types of clinics. Based on workload, doctors in solo practice were more productive than those in group practice. It is possible than the sense of ownership and higher financial risk forced solo practitioners to work harder than those in group practice. It is also

possible that solo practitioners have to spend more time in their clinics than group practice doctors. The disadvantage of such situation is that the solo practitioners would have very little time to spend on other important things such as attending CME.

The non-significant difference in the unit cost could also mean the average number of doctors of 2.5 per group practice in this study is not big enough to achieve economies of scale. A bigger number of doctors need to be pooled together so that the fixed cost can be further shared. Further studies should also be carried out to examine the management of both types of clinics and how far group practice try to increase their efficiency. If group practice were able to organised bulk purchase of drugs and equipment for examples, than their operating cost could further be reduced.

The unit cost for group practice clinics was found to be RM 38.55 per patient and RM 32.09 per patient for solo practice clinics inclusive of consultations, drugs and investigations. This is lower than the fee schedule suggested by Malaysian Medical Association which suggest that for medium length consultancy alone is RM 35 , without drugs and investigations. Currently in urban areas most private practitioners do not follow the MMA fee schedule and charged their patients around RM 20 to 25 per visit. This is lower than the actual cost found in this study. In order to cover their cost, private practitioners usually try to see as many patient as possible. Many private practitioners would also charged higher fees for patients covered by employees benefit to cover the lower fees for those paying out-of-pocket. Since many employers in Malaysia, engaged Managed Care Organisation as third party administrators, many of them applied cost-containment measures to reduce the burden of the employers. This has strained the relationship between the private practitioners and MCOs in the country. All these could possibly has negative impact on patients. Private doctors could deny certain services to patients under the MCOs arrangement. This includes providing inadequate drugs and refusal to carry out laboratory investigations. Some doctors "balance-billed" patients covered by the Managed Care Organisations. Solo practitioners are worst affected than group practice because of their low financial capacity. Increasingly quality of care in private practice could be severely affected. The ultimate losers in this case are the patients who would then cross over to public primary care facilities and putting strains on the already over-stretched public facilities.

The solution to this problem is for the government to introduce National Health Financing

Scheme with universal coverage. Under such scheme a common fee-schedule should be adopted. Although discussion to introduce such Scheme has been going on for almost 15 years, there is still lack of political will to do so. The government should urgently consider introducing the scheme now to avoid the negative consequences of the fragmented health care system in the country .

CONCLUSIONS

This study found that group practice clinics offered longer operating hours, more likely to provide 24 hours and manned by more doctors and supporting staff compared to solo practice clinics. The workload of private doctors in group practice was lower than solo practice clinics possibly providing them with grater opportunity to give more attention to their patients and enhanced their skills through CME.

Salary of employees is the biggest component of cost in the private primary care clinics suggesting the need to proper human resource management in private clinics. Any change in the reimbursement scheme would affect the salary most than any other component of the total costs. Drugs is the second most important component of private clinics. Appropriate prescribing practice is an important activity which might have great impact on cost of operating private clinics.

No significant difference in the unit cost of services provided by solo practice and group practice clinics. However the unit cost in both group and solo practice clinics were lower than the MMA Fee Schedule. Cost recovery activities by attracting more patients and charging higher fees for managed care patients could have negative consequences on quality of care.

It is suggested that National Health Financing Scheme with common fee schedule should be launched to ensure that private primary care providers could contribute efficiently to the health care system in the country without having to face financial risk.

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REFERENCES

1. Aljunid, S. The role of private medical practitioners and their interactions with public health services in Asian countries. *Health Policy and Planning*. 1995; 10 (4): 1 - 17.
2. Pearson, S.D., Sabin, J.E. & Emanuel, E.J.). Ethical guidelines of physician compensation based on capitation. *The New England Journal of Medicine*. 1998; 339 (10): 689-693.
3. Aljunid, S. & Zwi, A.B. Differences in public and private health services in rural district of Malaysia. *The Medical Journal of Malaysia*, 1996; 51 (4): 426-435
4. Hurwitz, B. The new out of hours agreement for general practitioners. *British Medical Journal*. 1995; 311: 824-825.
5. Cragg, D.K. et al.. Comparison of out of hours care provided by patients' own general practitioners and commercial deputising service: a randomised controlled trial I: The process of care. *British Medical Journal*. 1997; 314: 187-195.
6. Tinsley, R. The 12-step way to reduce overhead staffing efficiencies. *Family Practice Management*. 1997; 1-4.