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Dual Practice by public health providers in Shandong and Sichuan Provinces, China

Ying Bian[1], Qiang Sun[1], Stephen Jan[2], Jingbo Yu[1], Qingyue Meng[1]

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[1]Center for Health Management and Policy, Shandong University, Jinan, China

[2]Health Policy Unit, London School of Hygiene and Tropical Medicine, UK

ABBREVIATIONS

DP Dual Practice
MoH Ministry of Health

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EXECUTIVE SUMMARY

Introduction: There are four types of health providers at present in China. These are defined in terms of differences in ownership: 1) Government health facilities; 2) Facilities that are directly managed and financially supported by some organizations, (for example belong to enterprises and military); 3) Public-private joint venture hospitals; and 4) Privately owned.

It is clear that the distinction commonly accepted between health providers is not based on the source of finance but on the ownership status of the health facilities. For instance, government health facilities rely to a large extent on patient fees.

Private practice in the health sector was re-introduced from 1980, when China began its economic reform from a planned economy to a market economy. But today the total number of private sector providers is quite few, because the government does not encourage the growth of private sector providers. However, dual practice (DP) is quite common and a major concern from the point of view of health policy-making as little is known about it. The aim of this study was to describe policies and regulations of DP, the current situation, its impact on access to services and physician behaviour, and to provide evidence for future policy decisions.

Methods: This study was conducted in two provinces, Shandong and Sichuan. Hospitals were selected purposively according to level, i.e. provincial, municipal or district. In each of the provinces, 3 hospitals were selected: one provincial hospital, one municipal hospital, and one district hospital. Thus, 6 public hospitals were selected in total. Secondary data sources included review of existing statistical and policy documents and review of financial and activity records. In the field study, a questionnaire survey was used in the selected hospitals; all the doctors in the six hospitals were targeted in the survey. In total 917 doctors' questionnaires were completed and collected, a response rate of 92%. In key informant interviews, a total of 62 key persons were selected in the two cities, including hospital managers, local health policy makers and department managers in the selected hospitals. During the key informant interviewing, a question guide was developed. The research team, in cooperation with the selected hospitals, organized two groups (one in each province) to discuss the personnel management system in different periods in the respective provinces for better future analysis and policy recommendations. The discussions lasted for about 4 hours.

The themes discussed included possible future policy on DP in public hospitals and the differences in DP policies between national, provincial and local governments. Also, 119 patients were interviewed randomly by the research team members in the two provinces, 20 patients in Shandong and 99 patients in Sichuan. The main content of the interview, including their comments and opinions about the income of public hospital doctors, and qualitative data on their access to services were collected.

Results: The average proportion of hospital revenue derived from drug sales in Shandong is 45.77% and in Sichuan is 40.16%; this proportion indicates to some degree that the clinical service efficiency of Sichuan is higher than Shandong. The proportion of hospital funding that is provided by government allocation in both provinces is quite low – 1.6% on average in the Shandong selected hospitals and 3.5% in Sichuan – and has been on a downward trend for the past 5 years, according to the National Statistic Data. The proportion of doctors' income that is paid by hospitals is quite low. This is because of increasing levels of dual practice in public hospitals. The proportion of staff salaries to total hospital expenditure is very low in both provinces. This is lowest in provincial hospitals, at 3.71% and 7.63% in Shandong and Sichuan, respectively.

In the six hospitals, most of the interviewees are dissatisfied with their current income. Across all the hospitals, over 70% of doctors complained that their income was lower than that in other comparable occupations. A major concern of the doctors is that greater emphasis be given to their input in relation to salary levels and more broadly, regulations that pertain to their income generating activities.

The results of the doctors survey indicated that the proportion practicing medical services in other hospitals in working time (dual practice) is very low, less than twice a month. The average income per time was found to be about 471 Chinese Yuan – approximately 30% of their total monthly income. The main reason cited for DP was to strengthen cooperation with other hospitals. In terms of income, provincial hospital doctors' were found to be able to secure more income from DP than their counterparts – on average 1230 Yuan per month (about half of their formal hospital income). The analysis of doctors' perception and attitude towards their DP indicated that most (85.6%) think DP is acceptable and that it should be legal. Among senior doctors, 84.6% were of the opinion that DP involving doctors employed at higher level hospitals working also in lower level facilities improves

communication between the two hospitals. The main reason given by doctors who perceive DP to be unacceptable is that they do not want to spend so long on DP activities. The disadvantage analysis results indicated that 69% of respondents in Shandong and 72% in Sichuan think that DP activities will result in negative influences in their hospital. The level of awareness of the relevant regulation on DP amongst doctors is low, at 24.4%.

The patients survey indicated that 55% of patients think doctors' income in quite high compared with other jobs in current Chinese society, only 5% of patients think they should earn more, and about 15% of patients think the current income level is reasonable.

Conclusions: Because of the changes in Chinese society and the macro-economic environment, which has seen a shift from a planning to a market-oriented model, dual practice has become a growing concern for public hospital management. Although since the early 1990s there have been policies on DP regulation issued by the MoH and provincial government, public hospital managers pay little attention to these policies. Currently, due to the limited financial capacity of government and low salaries in public hospitals, most public hospital doctors undertake DP (usually in a lower level public hospital). The findings suggest that this is an effective means of supplementing their income, and that it is seen as acceptable in public hospitals. This is because few doctors are aware of the relevant regulations, thus better hospital information dissemination is required. The results also indicate that different specialties have different opportunities to undertake DP: surgeons have more scope for DP than physicians. Patients think the income of doctors is quite high compared with the rest of Chinese society. A national health policy on DP is hopefully to be issued by the MoH in the near future, within which it is considered that DP is acceptable and legal, but should be implemented under sound management of the public hospital.

1. INTRODUCTION

There are four types of healthcare provider in China. These are defined by the government in terms of ownership status.

The first type is government health facilities. The major sources of finance for those facilities are government budget, user fees, and drug mark-ups. Shares of government contributions to total hospital revenues have decreased rapidly over the past two decades. At present only about 30-40% of staff salaries are covered by government funding, down from 85% before the market-oriented reform from 1980. User charges and drugs have become the major sources of revenue. However, most of the capital inputs, including buildings, hi-tech equipment, hospital beds and health workers, in these facilities are financed by government grants. These health institutions are administrated by government authorities.

The second type of healthcare provider is those that are directly managed and financially supported by various organizations outside the Ministry of Health, for example, enterprises, the military, and schools. The costs of these health facilities are covered by resources from revenue surplus, user fees and drugs. The ownership status of these health facilities is determined by the ownership status of the organizations.

Public-private joint venture hospitals form the third type of provider. In some cases, government hospitals and private entities or individuals will jointly run semi-private health facilities. User charges and drugs are the dominant financial source for these facilities.

The last type of health providers are those privately owned. There are two sub-groups in this type. One group comprises private health facilities transformed from public health facilities. In the other, facilities have always been private.

It is clear that these commonly accepted distinctions between health providers are not based on the sources of finance but on the ownership status of the health facilities. For example, even if a hospital is fully financed by user charges and drugs, it is still called a public hospital if it is government (health authority) owned. Private clinics and hospitals are mostly established with investment from private domestic or foreign or joint business companies. In recent years, some public hospitals have become semi-private. In these facilities hospital

fixed assets, belong partially to the original private hospital and partially to the public hospital. Some of the management committee members are therefore from the public hospital. Most of the permanent health workers in private health facilities are medical professionals retired from public hospitals and new medical graduates, but some resigned from positions in public hospitals to take up private posts.

Private practice in the health sector was re-introduced from 1980, when China began its economic reform from a planned to a market economy. Up until 2000, about 50% of village clinics had been privatized in rural areas. In urban areas, if not to the extent seen in rural areas, privatization of hospitals has increasingly occurred. In 1999, about 135 hospitals (excluding clinics), accounting for 1% of all hospitals, were privately owned in urban areas. According to the National Health Services Survey, in urban areas, medical services provided through private practice made up 2% of total outpatient services in 1993 and 10% of total outpatient services in 1998. In 1998, about 2% of inpatient services were provided by private hospitals. It is expected that after China's accession to the WTO, more and more for-profit private hospitals will be established. The most recent case is that of a Taiwanese private company investing in a 3000-bed private hospital in Beijing. The establishment of these types of hospitals inevitably increases the competition for medical staff.

Financing mechanism of the health delivery system

Public hospitals: In the 30 years up to the end of the 1970s, during the period of socialist planned economy, public health institutes (not only hospitals) in China were seen as welfare entities. Thus, during that time, budgets were set historically. Public hospitals were financed through both government appropriation and user charges based on a fee-for-service. But, in order to provide accessible health care to the 85% of the population who were not covered by health insurance schemes, the regulated medical fees were set far below cost levels. The difference between the total costs of the hospitals and the revenues generated through user charges was made up by government.

With the macro-economic reform in the beginning of the 1980s, great changes in hospital financing took place. On recognizing the low efficiency of public hospitals, the flexible budget for public hospitals was replaced by a fixed budget system. Hospitals were forced to use their available health resources meanwhile to increase efficiency. From the 1990s, the government no longer made up the financial balances of public hospital. Instead, the

government decided on a fixed budget to each hospital (according to a particular government's financial capacity), and the hospital executives were gradually given autonomous power to manage their hospitals. An important exception was that the permanent employment of hospital staff was still under the control of the government. Hospitals had to achieve their own profits and bear their own losses. From 2001, according to the national health policy issued by the MoH, all hospitals in the country are classified as not-for-profit hospitals or for-profit hospitals. Almost all of the purely public hospitals belong to the not-for-profit group.

Enterprise hospitals (Military or university owned hospital etc): The annual budget for these hospitals is decided by the management committee of the enterprise (military/university). Unlike the purely government-owned hospitals' budget mechanism, for an enterprise hospital, its annual budget is based on the annual profits of the enterprise. Thus, the greater the profit earned by the enterprise, the greater the budget allocated to the hospital. The proportion of the annual hospital income accounted for by the allocated budget therefore changes year by year. For government-owned hospitals, while the government budget accounts for only about 5%-7% of annual income, the proportion is quite stable and with slightly increasing trend.

Joint venture hospitals and purely private hospitals: The financing mechanism of these hospitals is based on the income earned from providing health services. The annual income of these hospitals is mainly from two channels: one is profit from pharmaceutical sales (averaging 10% of the price); the other is fee-for-service user charges. The two sources are approximately equal in amount.

Management system of different type hospitals

The purely public hospitals are operated by the local government, so they are managed by the local Department of Health (the responsible government department), with some responsibility shared with local government (mainly staff employee and leadership decisions).

Enterprise hospitals are operated and managed by their owner (enterprises). Ordinarily, if the enterprises belonged to the public sector (government owned) then the affiliated hospitals also belong to the public sector, and some of the fixed assets are invested by government.

Joint venture hospitals and purely private hospitals are managed by a directorate who appoint a director. No public funding is invested into private hospitals from government, but in some areas (the southeastern provinces, for example Fujian province), some private funding is invested.

Aspects of service provision

Service delivery: It is reported by National Statistic Data (2001) that 74% of outpatient services are provided by public hospitals and 82% of inpatient services. Nowadays in China, the number of private clinical centers is only slightly less than the number in the public sector, but the service capability and healthcare quality in the private sector is quite poor, a view widely held in society.

Service quality: Generally, the health service quality of public hospitals is higher than that of private hospitals today. In recent years (especially in southeastern provinces), some private hospitals established with overseas investment have a micro-environment that is more suitable for health service delivery to patients, but this alone cannot result in the improvement of the quality of private hospitals more generally. Thus, it is undoubted that the general quality of health services in China over the past 50 years has always been highest in public hospitals.

Private practice by public health providers is a totally new research topic in China. A review of the literature indicates that there are no published studies that examine either the policy or practical issues concerning the spending of public health institution resources on the private health sector. From an informal discussion with policy makers, it was understood that in most places public health providers are prohibited by government from practicing in other health institutions during their official working time. However, it was suggested that in reality, the use of public health resources in private practice occurs in three ways. First, specialists in public hospitals work in private and semi-private hospitals in their own time (vacations or weekends). Secondly, private health providers practice within public hospitals through contractual relationships. In this situation, public hospitals lend hospital buildings and equipment to private health providers. In such cases, public health resources are mobilized for private health providers. Thirdly, public hospitals and private entities run shared-ownership hospitals. Health resources, including health workers, within these kinds of hospitals are usually mixed, public and private. In addition, dual practice typically entails

doctors normally employed upper level public hospitals carrying out additional income generating activities in lower level of public hospitals.

Policy of administration, salary and employee of professional health workers

It is well known in China that professional health workers (doctor, nurse, technician, pharmacist etc) working in public hospitals are permanent staff, who are employed by the hospital according to national personnel administration regulations and requirements (academic degree, education background). So if the hospital wants to fire a staff member, the hospital must provide very strong evidence of the staff member's poor work or transgression. Meanwhile, the leadership (director) of public hospitals are named by the local health bureau or local government.

Regarding staff salary, generally there are three categories of salary. First, there is what is called a fixed salary, which means the salary is calculated and measured based on the individual's working-years; the longer period, the more the fixed salary. Secondly, there is the position salary, in which the higher the position held (group leader, department leader, hospital leader etc), the greater the salary. Thirdly, there is performance-based salary, which is simply as stated.

Aside from legal income, some illegal earnings (under-the-table income) are received by professional health workers, especially doctors. These fall mainly into two categories: firstly so called "Red-Pocket" income, given by the patient to surgery doctors; and secondly, "reward money", given by a pharmaceutical company to a physician based on his/her prescribing of the company's drugs.

Potential trend of Dual Practice in China

Although there are very few private health providers in China's health delivery system, with China joining the World Trade Organization (WTO), it is reported that more and more hospitals funded by foreign investors (with most interested in private hospitals) will be established in China for profit motives. Public hospital managers conjecture that the trend of dual practice in public and private hospitals will increase with the change in the macro social environment.

2. AIMS AND OBJECTIVES

The aim of this study is to describe the policies and regulations on DP, the current situation, the possible impact of DP, and to inform the design of future policy.

Specific objectives included:

1) To review historical and current policies and regulations concerning dual practice by public providers in public or private sectors;
2) To examine the effects of the policies and regulations and their implementation on the behaviour of health providers;
3) To examine health providers' attitudes towards and perceptions of dual practice;
4) To describe the types, patterns, and extent of dual practice; and
5) To inform policy making in dual practice through disseminating research findings and presenting relevant international experience.

3. METHODS

3.1 Study sites

This study was conducted in two provinces, Shandong Province and Sichuan Province. Shandong is located in the east of China with a population of 90 million. Its GDP per capita was 9608 Yuan in 2002, and it is one of the most developed provinces in China. Sichuan Province had a population of 83 million and a GDP per capita of 4571 Yuan in 2002. Sichuan is located in western China and is generally considered a poor province.

3.2 Selection of hospitals

Hospitals were selected purposively according to hospital level. In each of the provinces, 3 hospitals were selected; one provincial, one municipal and one district hospital. In Shandong, the provincial hospital is Qilu Hospital, a teaching and tertiary hospital (the affiliated teaching hospital of Shandong University); the city hospital is Jinan No. 3 hospital, managed by Jinan Health Bureau; the district hospital is Lixia district hospital, which belongs to Jinan Lixia district health bureau. In Sichuan, the provincial hospital is the teaching hospital of Sichuan University, a typical tertiary hospital; the city hospital is No. 3 hospital in Chengdu

city (the capital in Sichuan province, also a typical city level hospital); the district hospital is Qingyang District Hospital, an urban area district hospital in Chengdu.

It is important that three levels of hospitals were selected, for three reasons: 1) different levels of public hospital doctors have different opportunities for DP; 2) the three levels of public hospital together are typical of the public health providers in China; and 3) different level hospital managers have different opinions on DP and on the relevant policy in their own hospital.

3.3 Data sources and methods

Review of existing statistical and policy documents, including the annual statistical year-books of national and local health departments, government, department of public financing etc. Policy documents sourced were those that involved some discussion of health sector resource allocation and the national/provincial/local government role in health service delivery. Salary and bonus salary policies issued by government were also accessed for policy analysis. During the data collection in each hospital, research team members obtained details of the DP regulations and salary allocation policy.

Review of financial and activity records: Financial records kept in the hospitals selected were reviewed to examine changes and trends in financial resources and staff salaries. The main content of financial records included annual income from provision of services and drugs, staff number and annual staff salaries (also bonus stock), government regular budget allocation, local financing resources, annual institutional expenditure, service volume (inpatients and outpatients), etc.

Questionnaire survey of health professionals: In the selected hospitals, a questionnaire survey was conducted. Because it is usually only doctors as opposed to other medical personnel who have the opportunity to engage in dual practice, only doctors were questioned in the survey. All the doctors in the six hospitals were targeted. The investigators visited the hospitals to explain to the hospital administrators how the questionnaires should be completed. The hospital administrators were responsible for circulating the questionnaires to the doctors. Clinical department heads were responsible for collecting the completed questionnaires and returning them to the hospital administrators. The distribution of doctors in the questionnaire survey is listed in Table 1.

Table 1. Distribution of doctors in the questionnaire survey

Province/hospital	Number of doctors completing the questionnaire
Shandong	
Provincial hospital	327
City hospital	143
District hospital	66
Sub-total	536
Sichuan	
Provincial hospital	260
City hospital	100
District hospital	21
Sub-total	381
Total	917

The main indicators in the questionnaire included DP activities, frequency of DP, income across hospital type, opinions on DP and the management of it, views about the regulations on DP at national, provincial and local level, and views about the regulations within the hospital.

Key informant interview: In the key informant interview, a total of 62 key persons were selected in the two cities, Among these key informants, 21 were health policy makers selected from the Department of Public Health (8 national level, 3 provincial level, 5 city level and 5 district level; 15 male and 6 female), 33 were hospital managers from different departments (personnel administration department, financial department, medical quality control department, and hospital leadership, 24 male and 9 female), and 8 were senior hospital doctors (experts) who were the managers of their clinical departments (male).

During the key informant interviews, a question guide was developed including questions on the following: financing trend, national and local policy on DP, salary, bonus, hospital personnel management mechanism for DP, punishment of illegal DP, the formal organization of DP in the hospital and province, and key problems facing the staff administration - to encourage or discourage DP, reasons why the administration mechanism of public hospitals has become weakened compared with 30 years ago. The interviews were conducted by the research team investigators.

Focus group discussion: The research team organized two focus groups to discuss the

personnel management system in different periods in Shandong and Sichuan provinces. The first FGD was held in Shandong University, with 10 participants (4 from Lixia district hospital, 2 from department of hospital administration of Shandong university, and 4 research team members). The second was held in Sichuan province, with 15 participants (7 from the selected teaching hospital, 4 provincial health policy makers from the department of public health, and 4 research team members). The discussions in each lasted for about 4 hours. The themes discussed included future policies regarding DP in public hospitals, and the differences in DP policies between national, provincial and local governments.

Patient survey: 119 patients in the two provinces were selected at random by the research team members for interview; 20 in Shandong and 99 in Sichuan. The randomization was carried out based on the random registration number of the patient; if the patients' last number was 5 or 0, s/he was selected (about one-fifth of the total patients). The interview covered general information about health status (illness and treatment), opinions regarding clinical service quality both of public and private health providers, and opinions about the income of doctors compared with other jobs in China today. These results are relevant to the general outcome of the project, because this is the view from another side of society, the healthcare users rather than the providers.

Investigators: The Shandong field work was conducted by staff and graduate students from the Center for Health Management and Policy, Shandong University, while the Sichuan data collection was conducted by staff from School of Public Health, Sichuan University.

3.4 Data analysis

For the quantitative data: Expenditure analysis of hospitals was undertaken to examine: salary, DP frequency and income, hospital economic analysis, hospital income and cost balance, the proportion of staff salary in the total cost, and classification by different cities and different levels of hospital.

For the qualitative data: Qualitative data collected from key informant interviews and focus group discussions were transcribed according to the records and notes. Data analysts sorted the views and opinions according to proposed themes.

Software: For the data input, all of the quantitative data were input into computer using the

software Visual FoxPro; all of the qualitative data were prepared and re-organized according to the economic development of the city. For the data analysis, the quantitative data were analysed using SAS software.

4. RESULTS

4.1 General information on the selected hospitals

Table 2 presents general information on the selected hospitals in Shandong and Sichuan provinces. From Table 2, we can see that the proportion of clinical department staff in the overall staff was considerable in the six hospitals, across all levels; the proportion in 5 out of the 6 hospitals was over 70%. Regarding hospital income, clinical services and sale of drugs were the major sources of income. Great differences in hospital income existed between Shandong and Sichuan. The total hospital income in the Shandong provincial hospital was nearly 4 times more than in the Sichuan provincial hospital. For the provincial hospital, income from medical services forms 50.09% of hospital income in Shandong and 55.78% in Sichuan; the proportion from drug services is 48.23% in Shandong and 40.13% in Sichuan. Across hospital levels, the average proportion of income from drugs is 45.77% in Shandong and 40.16% in Sichuan; this proportion indicates to some degree that the clinical service efficiency of Sichuan is higher than Shandong.

Government funding as a proportion of total hospital revenue in both two provinces is quite low. The proportion in Shandong is 1.6% and in Sichuan it is 3.5%. This proportion has been decreasing over the past 5 years. According to the National Statistic Yearbook 2000, it is around 5% across the country[1]. Generally, the richer the area, the lower the proportion.

4.2 Staff income and structure

From Table 3 we can see that the proportion of staff salary to total hospital expenditure is quite low, both in Shandong and in Sichuan province. The proportion in provincial hospitals is lowest, at 3.71% and 7.63% in Shandong and Sichuan, respectively. The possible reason for this is that tertiary hospitals' expenditure on fixed assets tends to be higher than in other hospitals[2]. In comparing the two provinces, this proportion is higher in Sichuan than in Shandong.

Table 2. General information on the selected hospitals in Shandong and Sichuan provinces

	Shandong			Sichuan		
	District level	City level	Provincial level	District level	City level	Provincial level
No. of staff	401	718	1 790	146	429	1 293
Clinical Dept.	293	504	1 435	116	306	876
No. of visits	140 434	126 621	1 005 108	45 363	153 923	512 705
No. of beds	134	309	1392	75	252	757
No. of discharged patients	1 304	6 658	29 699	1 702	4 670	14 065
No. of bed-days	27 579	81 558	476 640	14 746	47 910	197 724
Hospital revenue and expenditure (10 thousand Yuan)						
Income	2 189.73	5 430.00	43 561.00	679.18	2 054.79	14 231.48
Medical services	1 244.92	3 917.00	21 818.00	327.74	1 282.27	7 938.36
Drug	905.19	1 513.00	21 008.00	330.54	772.53	5 711.46
Government budget	38.70	84.16	667.00	25.12	67.78	500.00
Other	0.91	0	73.00	20.90	0	81.57
Expenditure	2 252.10	4 404.00	49 338.00	804.34	2 049.50	14 718.57
Medical services	649.01	1 586.00	22 023.00	308.22	1 109.26	6 904.91
Drug	1 010.26	1 595.00	26 774.00	379.89	780.85	6 386.17
Capital	560.51	718.00	828.00	30.00	-	1 207.20
Other	32.33	0.15	540.00	86.24	159.39	220.34

Table 3. The analysis of the staff income and structure in Shandong and Sichuan

	Shandong Province					
Items	District Hospital		City Hospital		Provincial Hospital	
	%	Amount	%	Amount	%	Amount
Salary	14.50	317.49	10.28	558	3.71	1614
Subsidy	10.03	219.67	7.90	429	3.65	1592
Bonus	5.61	122.84	5.29	287	6.12	2665
Welfare	6.64	145.51	0.61	330	0.76	332
Social insurance	8.08	177.01	0.76	410	1.18	515
Total	44.86	982.52	24.14	1311.10	15.42	6718
	Sichuan Province					
Items	District Hospital		City Hospital		Provincial Hospital	
	%	Amount	%	Amount	%	Amount
Salary	14.59	99.08	14.34	294.58	7.63	1085.66
Subsidy	4.55	30.93	5.36	110.16	2.08	296.52
Bonus	1.86	12.61	9.85	202.39	8.80	1252.63
Welfare	0.57	3.88	1.84	37.77	2.31	328.81
Social insurance	6.45	43.78	5.72	117.54	5.52	786.16
Total	28.02	190.28	37.11	762.43	17.55	2497.14

Note: % means the proportion of the payment to staff to total expenditure.

4.3 Doctors' perceptions of their income

In the six hospitals, most of the interviewees were dissatisfied with their current income. In the Shandong provincial hospital, the doctors' income, as reported by themselves, was about 2630 Chinese Yuan; in Sichuan, in the same level hospital, the income was only 1495 Chinese Yuan, which is the same as that in the Shandong city level hospital. Across all hospital levels, over 70% of doctors indicated that their income was lower than that in other comparable occupations. And they hoped to increase their income greatly by various means. In the district hospital in Shandong, the doctors think it would be reasonable if their current income was increased 1.5 times; in the provincial hospital, though their income is higher than in the other two hospital levels, the doctors also want to increase their income by nearly 1.5 times, it is higher than any other Asia country[3.4]. The same situation also exists in Sichuan province.

Table 4. Income of doctors and its structure in Shandong and Sichuan

	Shandong			Sichuan		
	District hospital	City hospital	Provincial hospital	District hospital	City hospital	Provincial hospital
Total income	1687.67 (66)	1512.24 (140)	2630.51 (303)	1008.86 (21)	944.05 (91)	1495.14 (252)
Salary	1568.55 (62)	1211.86 (138)	1632.47 (307)	589.71 (21)	620.87 (98)	1045.09 (235)
Bonus	70.67 (15)	167.38 (107)	784.10 (304)	405.00 (20)	266.80 (88)	428.34 (211)
Welfare	120.00 (4)	405.10 (20)	544.24 (45)	117.20 (5)	92.13 (39)	203.89 (56)
Income from hospital services	59.09 (4)	44.34 (12)	75.69 (35)	(0)	(0)	(0)
Other	0 (62)	6.03 (143)	48.32 (327)	(0)	(0)	(0)

Note: The numbers in brackets are the real numbers of doctors who answered the related question.

Table 5. Analysis of doctors' perception of their income in Shandong and Sichuan

	Total	District Hospital	City Hospital	Provincial Hospital
High	0.2	0	0.7	0
Same	21.8	25.8	27.0	18.8
Low	78.0	74.2	72.3	81.2

Table 6. Doctors' expected proportionate increase in income

	Shandong		Sichuan	
	Average increase (%)	No. of respondents	Average increase (%)	No. of respondents
District Hospital	150.85	59	100.26	19
City Hospital	51.47	109	116.71	82
Provincial Hospital	143.07	296	166.32	201

4.4 Channels for increasing earnings

During the survey, the respondents expected to increase their income through a variety of means. The results are summarized in Table 7. From this table we can see that no matter what province or level of hospital, their choices are similar. In the district and provincial hospitals in both provinces, adjusting the policy on salary was their first choice. The second was to increase the bonus, with choosing to provide private health services ranking third. The only difference, in both provinces, was in the city hospital, where the doctors first chose increasing the bonus as a way to increase their income, but the provision of private medical services was still their third choice.

Table 7. The priority of doctors' preferred channels to increase their income

Priority	Shandong			Sichuan		
	District hospital	City hospital	Provincial hospital	District hospital	City hospital	Provincial hospital
1	Adjusting the salary policy	Increasing bonus	Adjusting the salary policy	Adjusting the salary policy	Increasing bonus	Adjusting the salary policy
2	Increasing bonus	Adjusting the salary policy	Increasing bonus	Increasing bonus	Adjusting the salary policy	Increasing bonus
3	Providing private medical service	Providing private medical service	Providing private medical service	Providing private medical service	Providing private medical service	Providing private medical service
4	Others	Others	Others			

Meanwhile, the researchers asked what would be the doctors' ideal income level if they had the opportunity to be employed by other hospitals, i.e. dual practice. About 94% (300/319) of doctors in the provincial hospital in Shandong thought that their current income should increase about 1.8 times. And in Sichuan, at the same level hospital, 82% (213/260) of doctors thought their income should be 1.4 times higher than present. In the Shandong city level hospital, 95% (137/141) of doctors thought that if their income could increase by about 66%, they would consider the employment.

4.5 Analysis of doctors' working time arrangements

In the six hospitals, the average number of working days per week is 5.5, higher than the national average[1]. The provincial hospitals have the longest working days in both provinces. The average working hours per day in both provinces is over 8 hours. In Sichuan district hospital, doctors work 9.2 hours per day on average. The average working hours per week in the Shandong hospitals is nearly 51 hours, compared with 45 hours in Sichuan (Table 8).

Table 8. The configuration of doctors' working time

	Total	Shandong				Sichuan			
		Total	District hospital	City hospital	Provincial hospital	Total	District hospital	City hospital	Provincial hospital
Working days per week	5.5	5.9	5.4	5.1	5.9	5.4	5.2	5.4	5.4
Working hours per day	8.4	8.6	7.7	8.3	8.6	8.4	9.2	8.7	8.2
Working hours per week	46.3	50.6	41.7	42.1	50.5	45.4	47.3	46.8	44.6

4.6 Analysis of doctors' dual practice during working hours

The survey results indicate that the proportion of doctors practicing medical services in other hospitals during their working hours is very low. In Shandong provincial hospital, which is the biggest hospital, 51 out of 172 doctors with advanced professional titles said they have provided medical services to other hospitals in working time. The frequency of this was less than 2 times per month and the average income per time was about 471 Chinese Yuan. This accounts for 30% (471/1495) of their total income per month. At the other hospital levels, few respondents said they had undertaken dual practice. But during interviews with key informants in these hospitals, some responses contradicted this. They said DP in working time is very common, especially in some specialty areas such as surgery.

Key Informant Interview

Dr. Wang Junxia, female, 57 years old, Director & Professor, Department of Pediatrics, Qilu Hospital (provincial hospital), Shandong.

I have worked in the department of pediatrics of this hospital for 21 years, and have been director of this department for 6 years. In my personal opinion on DP, I think it should be a legal issue both in public hospitals and in private hospitals in China nowadays, but it should be based on the managed-mechanism hospital, because without efficient management, DP will go the wrong way. I know that in my hospital department of surgery, doctors undertake DP outside very frequently because they are never managed by the relevant regulation that should be issued by the hospital authority. I have some experience of DP, about 2 times per month in the city or district hospitals, with an income of around 350 Yuan per time. But in department of surgery the situation is quite different; my colleagues working in surgery I estimate undertake DP about 2 times per week, at an income of 1000 Yuan per time at least. Of course here I am referring to senior and intermediate level doctors, not to junior doctors. So, my suggestion for the DP study is: before you analyse your data, you must classify

your data according to the clinical specialty, because the situation of different specialties is quite different; you cannot compare the DP frequency and income of a pediatrics doctor to a surgery doctor.

In the study we analyzed the reason why doctors provide services outside their official hospital during working hours. As shown in Table 9, the main reason given is to strengthen cooperation with other hospitals. The second reason is for the doctors to exert their technical advantage better. Curiously, given concerns about income, the objective of increasing income was not their first consideration.

Meanwhile, those doctors who did not have experience of DP during working hours also gave the reasons for not doing so. The answer is very similar in the three hospitals in Shandong. The greatest barrier for them was the lack of opportunity. Few expressed that they had no interest in undertaking DP.

Table 9. Reasons why doctors provide services outside their hospital in working time

Reason	District Hospital	City Hospital	Provincial Hospital
Number of responses	4	4	61
To increase earnings		1	29
To exert technical advantage	2	2	34
To strengthen cooperation	1	2	40
To enhance technology	2	2	18
Other	1	1	11

Table 10. Reasons why doctors have not experienced dual practice outside their hospital

Reason	District Hospital	City Hospital	Provincial Hospital
Number of responses	56	132	236
No opportunity	44	106	133
No arrangement in hospital	25	58	93
No interesting	8	28	50
Other		11	37

4.7 Doctors' allocation of leisure time in Shandong and Sichuan

Table 11 shows that doctors in both Shandong and Sichuan prefer to spend time with their family than to practice in public or private hospitals in their spare time (not clear). No matter whether the doctors were from the district or city and provincial hospital, they prefer to spend

their spare time with their family.

Table 11. The analysis of how doctors allocate their leisure hours

	District Hospital	City Hospital	Provincial Hospital
Shandong			
No. of responses	61	135	279
With their family	100% (61)	90.37% (122)	99% (277)
Practice in other public hospitals	4.9% (3)	8.9% (12)	14.34% (40)
Practice in private hospitals	4.9% (3)	6.7% (9)	11.83% (33)
Other activities	6.6% (4)	11.11% (15)	6.81% (19)
Sichuan			
No. of responses	0	61	250
With their family		93.44% (57)	240
Practice in other public hospitals		4.9% (3)	4.4% (11)
Practice in private hospitals		3.3% (2)	3.6% (9)
Other activities		21.31% (13)	10% (25)

Note: The data in brackets is the real number of doctors who so responded to the related question.

4.8 Activity analysis of doctors' DP during leisure time

Table 12 shows the frequency of DP and the DP income of doctors' activities from higher level public hospital to lower level public hospitals during their leisure time. The results indicate that doctors undertake DP activities about 3 times per month on average. Provincial hospital doctors' income from DP is the highest, at about 1230 Yuan per month. This accounted for about half of their formal hospital income. Results from Sichuan differ from those of Shandong. In Sichuan the average income from DP is considerably lower, at 245 Yuan in the provincial hospital and just 75 Yuan in the city hospital, which is 50% of that found in Shandong.

Table 12. Frequency and income of doctors' DP service in other public hospitals

	District Hospital	City Hospital	Provincial Hospital
Shandong			
No. of answers	9	17	72
Average no. of times per month	3.67	3.14	2.14
Income per time	214.3	119.28	576.33
Sichuan			
No. of answers	-	6	42
Average no. of times per month	-	4.38	3.53
Income per time	-	75.00	246.76

We analyzed the frequency with which doctors' carried out DP and their income from it classified by their specialty. The results indicate that different specialties have different DP incomes. Doctors of surgery and gynecology & obstetrics (G&O) have more income per occasion of service compared with general physicians. In provincial hospitals a G&O doctor's income is about 1.6 times higher than a physician's, and a surgeon's is 1.3 times higher than a physician's. This situation is the same in both provinces. The DP income and frequency of a surgeon in a provincial hospital is 2 times higher than of a physician because of their different specialty. Even in the district hospital (Shandong), a surgeon's income is 6 times higher than a physician's (Table 13).

Table 13. Classified by doctor specialty

	District Hospital				City Hospital				Provincial Hospital			
	Phys.	Surg.	Gyna.	Paed.	Phys.	Surg.	Gyna.	Paed.	Phys.	Surg.	Gyna.	Paed.
Shandong												
No. of answers	2	1	1	2	0	3	1	0	20	25	4	0
Times/month	1.00	4.00	4.00	5.50		2.67	4.00		2.08	1.62	1.88	
Income/time	50.00	300.00	100.00	30.00		60.00	200.00		517.50	672.00	812.50	
Sichuan												
No. of answers	0	0	0	0	0	2	0	0	7	4	0	0
Times/month						3.50			3.43	2.50		
Income/time						150.00			192.86	400.00		
Income/month						525.00						

Key Informant Interview

Dr. Li Li, Female, 48 years old, Professor, Director, Department of Physician, Qilu hospital (provincial level), Shandong.

I was invited by other hospitals, public hospitals at the level of city or county. I never calculated the frequency of my outside-services per month, but I estimate the maximum is 2 times per month, and maximum income is around 500 Yuan; the ordinary income per month is 300 Yuan. My specialty cannot be compared with surgery, at least in my hospital I think. The first reason I think is the diagnosis and treatment by physicians is not so clear compared with surgery; secondly, the service

outcome (result) of a surgery operation can be measured by patients themselves, thus, surgeons are more welcomed than physicians by the patients; thirdly, a historical reason, many physicians are female and all of the surgery doctors are male, at least in my hospital. It is well known that the social ambitious of activities is more available for male, not for female. My classmate is now working in the Department of Surgery, and his DP activities are more frequent than mine.

We analyzed the reasons for doctors' DP activities from the doctors' questionnaires. The results indicate that the main reason is to earn money from their DP, followed by provision of technical support to lower level public hospital, and for future cooperation with the lower hospitals (the three reasons accounting for more than 75% of the responses generally in the two provinces). In the questionnaires we included the optional answer "DP for their personal technical development", but considerably fewer doctors selected this option (less than 25% on average). Table 14 presents the results.

Table 14. Reasons Analysis of Doctors' DP

	District Hospital			City Hospital			Provincial Hospital		
	Junior	Middle	Senior	Junior	Middle	Senior	Junior	Middle	Senior
Shandong									
No. of responses	2	4	3	5	8	3	1	15	74
Earn money	2	3	1	5	4	1	1	13	51
Technical support to lower level hospital	1	2	1	2	4	0	0	9	57
Cooperation	1	0	1	4	4	1	1	9	53
Individual technical development	2	3	2	3	6	2	0	7	27
Other	0	0	0	0	0	0	0	0	4
Sichuan									
No. of responses	-	-	-	4	2	0	8	22	13
Earn money	-	-	-	3	1		2	13	12
Technical support to lower level hospital	-	-	-	2	1		3	14	12
Cooperation	-	-	-	2	2		5	17	10
Individual technical development	-	-	-	0	2		4	8	4
Other	-	-	-	0	0		0	1	0

4.9 Analysis of doctors' perceptions and attitudes to DP

The analysis of doctors' perception and attitude to DP indicated that both in Shandong and in Sichuan, most of the doctors believed DP to be acceptable and that it should be legal. In the Shandong provincial hospital, the proportion of positive responses was 87.6%, in the city hospital 81.2% and in the district hospital nearly 98%. For Sichuan, the proportion was 69.7% in the provincial hospital and 86.2% in the city hospital. In the analysis of the data classified by doctors' position and title, the proportion of senior doctors who favoured DP was lower than for junior doctors. This result tells us that more and more younger doctors are aware of this channel of additional income.

Key Informant Interview

Dr. Kong Beihua, 45 years old, male, Professor of Gynecology & Obstetric, Deputy president, Qilu Hospital, Shandong

I think that DP is legal and should be acceptable at least in my hospital. 10 years ago I worked in Japan, may be you know that a doctor's salary in public hospitals in Japan is quite low, but doctors are a very wealthy class in Japanese society. I'll give you the reason: on Friday afternoons before going home, public hospitals can receive a huge number of faxed invitation letters for doctors to work in the private hospitals, you know the 2 days (Saturday and Sunday) salary of working in a private hospital are equal to one month's salary for working in a public hospital. This is invitations to the hospital; meanwhile, there are many invitation letters sent to famous and senior doctors directly, of course these invitation will be forwarded to junior doctors from senior doctors, because they do not have enough time to work in so many private hospitals.

Public hospital doctors' income is increased by this channel, and doctors have more time and capability to spend for their personal development, for example to purchase books and data. I do not think that the normal health service conditions of public hospitals will be negatively influenced by DP, if an appropriate management mechanism is established in public hospitals. I think it is possible and acceptable in public hospitals, for two reasons: (1) it is impossible for the government to pay much more salary to public doctors (staff) in the near future; (2) the DP activities in China are involved in the public health sector, so it is more easy to manage in health sector, even if the DP service is provided at a different hospital level.

84.6% of senior doctors were of the opinion that DP involving a doctor from a higher level hospital practicing at lower level hospitals is important in facilitating communication. Thus, the more doctors have DP clinical activities, the more channels and opportunities there are for hospital development; it is said that the purpose of their DP activities is not just for their own benefit, but also for that of hospital development. 85.4% of doctors' in Shandong and 77.2% in Sichuan thought that their own hospital's service quality could be improved by DP, because of the opportunities it provides for doctors to practice in other hospitals, especially junior doctors[5.6.7]. 100% of surgeons and gynecologists in the Shandong provincial hospital were of the view that DP provides opportunities to improve clinical practice. DP enables them to encounter clinical cases not often found in their usual practices.

4.10 Analysis of why some doctors have a negative attitude towards DP

The main reason why people believe DP is not acceptable is that they do not want to spend their time on DP (average of 62% of responses in Shandong and 66% in Sichuan). In the provincial hospitals, this proportion was particularly high (Table 15). A second reason is that they are afraid that their managers and colleagues are opposed to DP.

Table 15. Analysis of negative attitude towards DP

	District Hospital	City Hospital			Provincial Hospital		
		Junior	Middle	Senior	Junior	Middle	Senior
Shandong							
No. of response	5	16	8	5	2	52	75
Do not want to spend time or DP	3	6	5	2	1	30	39
Afraid the leadership and colleagues against DP	3	4	3	1	0	15	24
Other	0	7	1	3	1	17	24
Sichuan							
No. of response		10	2	0	11	33	12
Do not want to spend time or DP		7	1		4	28	8
Afraid the leadership and colleagues against DP		3	0		5	5	3
Other		1	1		3	4	10

4.11 Disadvantages of DP perceived by the doctors

In Table 16, 69% of respondents in Shandong and 72% in Sichuan think that DP activities will have a negative influence on their hospital. This ratio is higher in the city level hospital in the two provinces. The proportion of senior doctors with this view is higher than that for junior doctors. In the city hospital in Sichuan province, 100% of senior and middle doctors think that DP has a negative influence on their hospital's normal service conditions. Most of the hospital leadership have a keen interest in it [1.8]. Even in the district hospital of Shandong, 100% senior doctors were of this opinion (Table 16).

Table 16. Disadvantages of DP perceived by the doctors in Shandong and Sichuan

	District Hospital			City Hospital			Provincial Hospital		
	Junior	Mid	Senior	Junior	Mid	Senior	Junior	Mid	Senior
Shandong									
No. of responses	10	30	6	48	24	9	12	78	121
Negative influence on their hospital (%)	40.0	66.7	100.0	79.2	91.7	88.9	75.0	69.3	65.3
Negative influence on their colleagues (%)	70.0	33.3	0	27.1	8.3	11.1	25.0	32.0	32.2
Sichuan									
No. of responses	-	-	-	19	5	2	23	84	33
Negative influence on their hospital (%)	-	-	-	68.4	100.0	100.0	78.3	73.9	75.8
Negative influence on their colleagues (%)	-	-	-	31.6	0	0	21.7	32.2	30.3

4.12 Opinions on private sector development and its trend

During the past decade, the private sector in health services has developed sharply compared with the public sector. This trend has both advantages and disadvantages for public hospital

development. The perception of individuals surveyed indicated that most think that the private sector's development will bring more advantages than disadvantages. In the provincial hospital in Shandong, 98.6% of respondents thought that it would improve the competition and quality in the healthcare market, and reduce the cost to patients (Table 17). Only 22.4% of respondents thought it would have negative consequences, i.e. would result in the public sector fading away, a view held particularly in Sichuan.

Table 17. Opinions on private sector development and its effects

	District Hospital	City Hospital	Provincial Hospital
Shandong			
No. of responses	61	119	298
Private sector development will improve the situation of market competition, improve quality, reduce service cost of patients.	92.4%	93.3%	98.6%
The competition will result in the public sector fading away from health service provision, and will result in difficulties for public hospital development.	37.2%	19.4%	17.7%
Government should issue relevant regulations for private sector development, to limit their speed of development.	22.6%	22.8%	10.5%
Government should give more support (policy support) to the private sector for its development.	37.8%	20.2%	41.2%
More doctors will move from public sector to private sector for profit pursuing.	60.2%	33.8%	76.6%
Sichuan			
No. of responses	-	60	241
Private sector development will improve the situation of market competition, improve quality, reduce service cost of patients.	-	87.5%	86.1%
The competition will result in the public sector fading away from health service provision, and will result in difficulties for public hospital development.	-	31.3%	26.1%
Government should issue relevant regulation for private sector development, to limit their speed of development.	-	12.7%	22.8%
Government should give more support (policy support) to the private sector for its development.	-	45.3%	27.8%
More doctors will move from public sector to private sector for profit pursuing.	-	32.2%	44.2%

4.13 Changing jobs - from one public hospital to another (proportion analysis)

In the questionnaire, we collected information on doctors' colleagues who had changed their job, e.g. who had moved from one hospital to another hospital. Most doctors had colleagues who had moved on. For Shandong, in the provincial hospital this proportion was 85%, compared with 49.2% in the city hospital and 59.5% in the district hospital. In Sichuan, the figures were 81.4% in the provincial hospital, and 78.6% in the city hospital. This tells us that at the higher level hospitals, a higher proportion of doctors have more ambition [and ability/opportunity?] to change their job. The highest proportion was in Sichuan provincial hospital, where 93.2% responded that they had colleagues who had changed their job during the past years.

The principal reason for doctors wanting to change their job is income. This was particularly the case in Sichuan, with 98.7% and 98.6% of respondents in the provincial and city hospitals, respectively, compared with 86.6% and 88.7% in Shandong (Table 18). In the district hospital in Shandong, the figure was also high, at 92.1%.

Table 18. Reasons for doctors wanting to change job

	District Hospital	City Hospital	Provincial Hospital
Shandong			
No. of responses	41	73	266
To increase their income	92.1%	88.7%	86.6%
To change their working condition and position	77.4%	75.6%	85.1%
Other reason	0%	13%	3.3%
Sichuan			
No. of responses	-	52	199
To increase their income	-	98.6%	98.7%
To change their working condition and position	-	66.5%	60.6%
Other reason	-	1.2%	4.1%

When the doctors were asked by the research team if they could understand their colleagues' decision to change job, almost of them answered yes, they well understood their colleagues' choice. In the provincial hospitals the proportion was 98.2% in Shandong and nearly 100% in Sichuan; in the city hospitals the proportion was 87.9% in Shandong and 98% in Sichuan. Thus, this indicates the freedom of doctors to decide on their individual career development and to change their job for a better individual income.

4.14 Doctors' perception and awareness of hospital regulations on DP

The questionnaire included a question regarding doctors' awareness and perception of the regulations surrounding DP issued by their hospital's general management department. The results indicate that the proportion aware of the regulations is somewhat lower than our original expectation. In Shandong provincial hospital, it was 24.4%. This means that three-quarters of respondents did not know of the regulations issued years ago on the management of DP. The proportion in Sichuan provincial hospital was 31.1% and in the city hospital was 20.5%. Strangely, the proportion in the district hospital in Shandong was highest, at 36.2%, and the lowest was the city hospital in Shandong, at 15.6%. This result indicates that public hospitals' regulations on DP are not well known by their doctors, and should be better disseminated to staff[1.9.10].

4.15 Patients' investigation analysis

The research team designed a questionnaire for patients both in Shandong and in Sichuan. General information on the investigated patients is shown in Table 19.

Table 19. General information on the patients surveyed

		Shandong	Sichuan
No. of patients		20	99
Sex (%)	Male	60.0	50.5
	Female	40.0	49.5
Age (average)		38.55	45.27
Literacy degree (%)	Primary	0	31.3
	Secondary	38.9	49.0
	University	61.1	18.8
	Graduates	0	1.0
Occupation (%)	Worker	5.0	5.3
	Commercial	15.0	12.8
	Teacher	5.0	9.6
	Officer	10.0	5.3
	Private sector	5.0	11.7
	Retired	20.0	24.5
	Unemployed	5.0	17.0
	Other	35.0	13.8
Family annual income (average)		20 000	12 000
Individual annual income (average)		7 000	5 000

Patients' opinions of the private health sector compared with the public sector

The patients' investigation was conducted in the provincial hospitals in Shandong and Sichuan. Results of the analysis indicate that the predominant opinion (ranked the first factor) of the patients regarding private hospitals is that the service quality is quite poor, at 52.98% of responses in Shandong and 35.0% in Sichuan (Table 20). However, a more positive opinion, expressed by 20.2% of patients in Shandong and 15% in Sichuan, was that the attitude of doctors in private hospitals was better than in public hospitals. In relation to the cost of health services, very few patients had any opinion on this issue. In Shandong, 5% responded that "the cost is higher than in public hospitals" and 5% that the "the cost of private hospitals is reasonable". The corresponding figures in Sichuan were 14.6% and 11.2%, somewhat higher than in Shandong, but it means nothing, because the question is contradicted but their response ratio is looked same.

Table 20. Patients' opinion of the private health sector compared with the public sector

	Shandong (%)	Sichuan (%)
Service attitude of private hospital doctors is better than in public hospitals	15.0	20.2
The quality of private hospitals is poorer than public hospitals	35.0	52.8
The cost to patients of private hospitals is more expensive than public hospitals	5.0	14.6
The cost to patients of private hospitals is reasonable compared with public hospitals	5.0	11.2
Everything of private hospitals are not much poorer than public hospitals	5.0	3.4
No idea	55.0	22.5

Patients' opinions on doctors' income

According to the results of the analysis, in Shandong 55% of patients think that doctors' income is quite high compared with other jobs, only 5% of patients think they should earn more money according to their specialty and their working risk, and about 15% of patients think the current income level is reasonable. The response trend in Sichuan is not so distinct: 22.2% of patients think doctors' income is high, 26% think they should have higher income, 15% think the level is reasonable, and 36.7% have no idea (Table 21).

Table 21. Patients' opinions on doctors' income

	Shandong (%)	Sichuan (%)
Doctors' income is rather higher than that of other jobs in China today	55.0	22.2
Doctors should earn much more money according to their working specialty and risk	5.0	26.7
Doctors' income is reasonable now	15.0	15.6
No idea	35.0	36.7

5. DISCUSSION

With the changes in Chinese society and those in the macro-economic environment from a planning to a market-oriented model, dual practice has become a growing concern for public hospital management. Although from the beginning of the 1990s, regulations on DP have been issued by the MoH and provincial governments, public hospital managers pay them little attention. Currently, due to the limited financial capacity of government and thus the low salaries of doctors in public hospitals, most public hospital doctors have undertaken DP. The study found that while DP will improve their income, the doctors believe it has a number of positive effects for the hospitals as well, such as improving the lines of communication between hospitals and improving doctors' skills. Because few doctors know the regulations, better information and dissemination are needed. Different specialties have different opportunities to undertake DP, with surgeons tending to have the most.

5.1 Regulation of DP

In the public hospitals included in this study, there are specific regulations that deal with DP activities. But these regulations are not well complied with because there is no monitoring system, and there is no education or information program in hospital to inform the staff of the regulations[11.12]. This has resulted in the low levels of awareness of the regulations.

5.2 Doctors' income in public hospital

Doctors' income can be divided into 3 parts: firstly, fixed salary earned from the hospital that it is allocated from the regular government budget; secondly, bonus income also earned from the hospital (this part is performance-based, usually based on the number of patients seen); and thirdly, under-the-table income, which includes income from DP and from drug prescribing (commission earned from pharmaceutical companies). The first part is called

normal income, and accounts for one-third of total income, and the other two parts are called abnormal income, and account for two-thirds of total income[13].

If we compare the normal income with other jobs in China, it is relatively low, particularly considering the occupation's special risks and the training required[14.15]. However, this scenario changes with the abnormal income, since this allows doctors to enjoy incomes above most in China[2.16]. Thus, it is for this reason that doctors express their opinion that DP should be acceptable in public hospitals.

5.3 Conflicts between DP regulation and the National Doctor Law

Health managers at both national level and hospital level think that DP is acceptable in public hospitals. But the National Doctor Law states clearly that a doctor can only provide clinical diagnosis and treatment within the area of their registration; diagnosis and treatment beyond that area will constitute illegal clinical behavior[16.17]. However, dual practice often involves doctors operating outside their specialty area and can be justified often under facility level regulations by medical criteria e.g. emergency procedures [18].

5.4 New trend of National Regulation on Dual Practice

Since June 2002, the MoH has been in the process of establishing National Regulations on Dual Practice[19]. This will be the first national regulation on this issue. The main contents of this regulation will be:

1) the legalization of DP, with the proviso that DP needs the provincial government, the local health bureau, and the hospital to issue special policies to manage individual behavior;

2) medical accidents (if occurring during DP in a lower level hospital) will be the full responsibility of the higher level hospital if the doctor's DP was approved by the hospital management; if not, the doctor himself will undertake the full responsibility; and

3) the amount of income divided between the doctor and the hospital should be established by the hospital management to enable transparency.

This national regulation is in the early stages of initiation; every regulation needs a certain period for pilot implementation, for evaluation of its advantages and disadvantages, any negative influences from its implementation etc. Doctors are probably divided, for and against the regulation, depending on their specialty. Surgeons will be in the 'for' group (also senior doctors), and physicians (junior doctors) will be in that 'against', because their DP

activities, opportunities and income are quite different, with surgery/senior doctors having more DP opportunity/income than physicians/junior doctors.

5.5 Limitations of the study

In order to improve the reliability of the investigation, we gave survey participants information about the purpose of the investigation, and placed a box for them to deliver the completed questionnaire; questionnaires were anonymous. But the analysis results indicated the data quality is not as good as we originally designed. There are three reasons for this. First, doctors are reluctant to tell the true amount of their personal DP income. Secondly, they are afraid that the information they give will become publicly known when the research is published, despite assurances of confidentiality. Thirdly, they do not their colleagues to know of their DP activities, even if they are out of hours.

Another problem for quality of the doctors questionnaire was that while the response rate was quite high in the investigated hospitals both in Shandong and in Sichuan (more than 92% among surveyed doctors), not all of the respondent doctors answered all of the questions. The question on the amount of income received from DP per time per month was particularly problematic.

5.6 Periscopic view of new National Regulation on Dual Practice

New national regulations on DP should be considered. DP activities in most public hospitals at present are a contentious topic for doctors. Doctors salaries are currently perceived to be low and so this has resulted in illegal DP activities. Regulations should therefore place such activities within the authority of individual hospital management rather than, as is currently the case, imposed uniformly at a national level. It is clear that the opportunities available and the pressures to undertake dual practice as well as the implications of such activities varies by setting and clinical specialty. In general, however, the legalization of such activities would allow them to be better managed and brought in line with broader hospital/organizational and public health objectives.

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