HEALTH POLICY AND PLANNING; **17**(Suppl 1): 56–63

Hospital charge exemptions for the poor in Shandong, China

QINGYUE MENG,[1] QIANG SUN[1] AND NORMAN HEARST[2]

[1]Institute of Social Medicine and Health Policy, Shandong University, Jinan, China and [2]University of California, San Francisco, USA

Rapid economic changes in China have produced soaring hospital charges, a breakdown of the old social health insurance system, a resulting crisis in hospital affordability and renewed interest in mechanisms for discounts or exemptions from hospital charges for the poor. Little is known, however, about how effective such systems are in practice. We studied nine public hospitals in Shandong Province that offer discount or exemption mechanisms for the poor. Methods included document review, key informant interviews, detailed review of financial records and focus group discussions.

These hospitals receive little government subsidy and must support themselves almost entirely through user fees. Hospital managers saw discount mechanisms primarily as marketing tools and designed them to limit their cost. Only a small fraction of hospital services were eligible for discount, and these were usually low cost or low utilization items. Discounts were generally 10–50% for selected items with very few services exempted from charge. The total value of discounts granted was 1% or less of total hospital operating budgets. Correct identification of indigents was a major difficulty for hospitals. Only a minority of indigents received discounts, the process was sometimes arbitrary and some who received discounts were not really poor. Government polices requiring discounts for the poor were vague and not enforced.

The exemption programmes studied do not provide effective protection from hospital charges for the poor. To be effective, exemption mechanisms would likely require both financing and regulation by the government as well as an accurate way to identify the poor.

Key words: China, discount, exemption, hospital, indigent, user fees

Introduction

The Chinese health sector has been substantially affected by the transition from a planned economy to a market economy in China since 1980. This is especially true for hospitals, the largest component of the health system. Public hospitals that were mostly funded by the government in the past now rely mainly on user charges. Medical expenses have escalated, driven by rapid increases in input prices, expansion of hospitals and the acquisition of new technologies (Yu et al. 1996). Competition among hospitals for patients has intensified. Meanwhile, health insurance systems no longer function as before in either urban or rural areas, reducing affordability for rapidly increasing medical costs (Teng 1995). The poor, especially those in rural areas who have been left out of the rapid economic development of the past two decades, have not seen their disposable income rise nearly as fast as hospital charges, often resulting in loss of access to medical care (Liu et al. 1999).

At present more than 95% of hospitals are owned and operated by the government in China. Before 1980, government subsidies covered most of the operating costs of hospitals, keeping charges to patients at a very low level. During the 1960s and 1970s, the government reduced health care prices three times (Liu et al. 1996). Urban health insurance schemes (government health insurance and labour health insurance) and rural cooperative medical systems operated effectively. For those who were hospitalized and were not able to pay their medical bills, the hospitals could exempt their fees. Costs of the exempted services were fully subsidized by the government.

Since 1980, the government has implemented an efficiency-oriented hospital reform. The stated rationales for reforming the hospital sector were that: (1) the efficiency performance of public hospitals was not good because there was no incentive for hospitals to provide optimal provision of health care, and (2) the government did not wish to continue bearing the full financial burden of the hospital sector in a period of rapid expansion. Radical changes have since taken place in hospitals. First, government budgets no longer fully cover operating costs of hospital services, and user charges, including drug mark-ups, have become the major sources of finance for hospitals. Since 1980, provincial governments have raised charges for hospital services several times (Du et al. 1999). Secondly, hospitals have been given more economic autonomy. For example, all surplus revenues can be retained by the hospitals. Hospitals themselves can decide how to use their surplus. Finally, hospitals can generate revenues through non-health business activities, such as running a restaurant. To compete for patients, hospitals purchase hi-tech medical equipment and attempt to offer state-of-the-art services. While this has undoubtedly improved many aspects of service quality, it has resulted in rapid escalation of hospital costs.

About 90% of revenues in public hospitals in China are now generated from user charges (Meng et al. 1998). Most of the population, over 50% in urban areas and about 95% in rural, pay hospital bills out-of-pocket in a fee-for-service payment system (CHSI 1999). Patients, regardless of their ability to pay, face the same official fee schedule within a province. From 1993 to 1998, medical expenses per outpatient visit increased from US$2.5 to $7.8, and medical expenses per hospital admission increased from US$120 to $300 (CHSI 1999). As user charges in hospitals increase rapidly, income gaps between population groups are widening. Per capita income in the bottom 10% of households is three to four times less than that in the top 10% of households (National Bureau of Statistics 2000). Both escalation of medical costs and disparity of income among population groups have affected utilization of health care by the poor. Studies reveal that the majority of rural patients (90% outpatient and 70% inpatient) who are advised by doctors to use hospital services are not able to do so due to financial inability (Luo et al. 1998). Inequality of health status between the poor and the rich has also been demonstrated (Liu et al. 1999).

Among strategies for improving access to health care for the poor, the use of differential pricing policy was put forward by the central government in late 1996. The recommendation was to introduce equity considerations into setting and implementing fee schedules. While there were no specific guidelines on how this should be implemented, many places in China have responded by introducing fee exemption and/or discount programmes for the poor. Very little is known, however, about how those programmes are organized, who they have targeted, and what their impacts have been.

Studies on exemption mechanisms have been conducted in other developing countries (Huber 1993; Diop et al. 1995; Russell et al. 1997; Gilson et al. 1998). Findings from some of these studies indicate the importance of protecting the poor in the health sector by introducing exemption mechanisms such as the low-income cards provided in Thailand (Weaver 1995; Gilson et al. 1998). We conducted this study to examine the impact of exemption mechanisms in Shandong Province, China, and attempted to answer four questions. What services are covered in hospital fee exemption/discount programmes for the poor? What level of exemption or discounts is given? How are patient eligibilities for these programmes determined? What is the impact of these programmes on hospital finances?

Methods

Study setting

This multiple-case study, conducted in 1999, examined the operation of discount mechanisms for the poor in nine hospitals that offered such programmes in Shandong Province. Shandong is the second largest province in China with 87 million people. Per capita GDP in Shandong was US$980 in 1998, compared with an average of US$780 in the country as a whole (National Bureau of Statistics 2000). There is about a two-fold difference in per capita GDP between the advanced and undeveloped areas within the province (Shandong Bureau of Statistics 1999). There were 190 public hospitals at and above county level and 2200 township hospitals in 1998, with about 3.3 health professionals and 2.3 hospital beds per 1000 population. The life expectancy was about 72 years in 1998 (Shandong Department of Health 1999).

Hospital selection

Three of 13 prefectures were purposely selected to represent the range of economic development in the province. One prefecture was an advanced urban city of 6 000 000 people, Jinan, the most developed in the province. The second was a mid-income prefecture, Liaocheng, and the third was an undeveloped prefecture, Binzhou.

The official responsible for managing indigent-aid issues in the provincial Department of Health was interviewed before the start of fieldwork in hospitals. He estimated that approximately 40% of hospitals in the province had operating discount systems for the indigent and provided a list of these hospitals in Jinan. He also provided the names of officials in the other two selected prefectures, whom we subsequently contacted for similar listings.

Specialty hospitals were not included in our sample, both because our intention was to study general hospitals and because we were informed that none of the specialty hospitals in the province offered discount programmes. In each prefecture, there were about 15 general hospitals at and above the county level. In each prefecture, we selected the largest hospital, which in all cases had a discount programme. From the remaining hospitals with discount systems, we selected two others based on the recommendations of Department of Health officials regarding which of these hospitals they believed to have the best-established systems. As only two hospitals were offering discounts in Liaocheng, one hospital was chosen from its neighbouring prefecture, Jining, as a substitute. The characteristics of the hospitals are presented in Table 1.

Data collection

Document review

Policy documents issued from the provincial Department of Health regarding the discount policy were collected and analyzed. Hospital documents were reviewed to determine the service items eligible for discount and the amount of such discount. Hospital financial records stating revenues, expenditures and provision of services in selected hospitals were reviewed, except in one hospital that was not willing to provide this information. Information on total hospital volume and charges, number of visits granted discounts and the amount of these discounts was collected where available. The period reviewed began when the discount/exemption mechanism was initiated (late 1996 at the earliest) and continued up to the most recent records available at the time of data collection in 1999. In three hospitals, the records were not detailed enough to calculate the desired information. These hospitals were excluded, therefore, from analyses requiring this information.

Table 1. Characteristics of sample hospitals in 1998

Hospital	No. of health workers	Annual admissions (n)	Annual outpatient visits (n)	Annual revenues (10 000 Yuan)	% of total revenues from user changes	Hospital location	Services discounted[a]
Shandong Provincial Hospital	1 822	25 799	1 037 159	23 679	92.7	Urban	O
Shandong Qianfo Hospital	1 096	12 230	356 097	8 562	88.3	Urban	I
Jinan No. 4 Hospital	1 045	7 582	296 808	4 494	77.8	Urban	I
Binzhou College Hospital	858	15 714	260 000	6 404	81.5	Urban	I
Binzhou No.2 Hospital	302	1 923	21 680	633	69.1	Rural	I/O
Huimin County Hospital	92	n.a.	n.a.	n.a.	n.a.	Rural	I/O
Yanzhou People's Hospital	502	7 226	130 869	2 724	86.0	Rural	I
Linqing People's Hospital	352	6 023	58 784	1 285	89.4	Rural	I/O
Dong'e County Hospital	326	4 773	58 496	1 653	91.5	Rural	I/O

[a] I = inpatient, O = outpatient.
n.a. = data not available.

Key informant interviews

Interviews were conducted with key officials in the selected hospitals. The goal was to interview the hospital manager, two department heads, the financial officer and the medical director at each hospital. Of 45 people selected, none of the desired interviewees refused participation outright, but we were unable, after repeated attempts, to schedule meetings with five. For three of these, we were able to substitute other hospital officials who provided the desired information. The final sample of 43 included: hospital managers (nine), department heads (17), financial officers (eight) and medical directors (nine). The interviews averaged about 30 minutes, and the level of cooperation of the interviewees was very good. The interviews followed a semi-structured format geared towards each interviewee's role in the hospital. Areas covered included the major motivations for implementing the discount programmes, how indigents were identified for discounts and difficulties encountered in this process, and how service items eligible for discount were chosen.

Focus group discussions

Two focus group discussions were conducted in communities serviced by a study hospital. One was in a rural community and the other in an urban community. In the rural community, eight people from six villages within Xinglong, near Yanzhou People's Hospital, were selected. Criteria prepared by the investigators for selecting the participants included that they should have similar backgrounds in terms of social and economic status and that all of them should come from poor families in which at least one member was suffering from one or more chronic diseases. Based on these criteria, individual participants were selected by local health workers and village leaders. In the urban community, 10 people were selected from the Botu Spring Community of Jinan using a similar process. Topics included participants' knowledge about discount programmes, perceptions about the accessibility to these programmes and perceived quality of the discounted services if they, or others they knew, had received them. Each discussion took about 2 hours.

Data analysis

Numbers of patient visits, total values of discounts and proportions of discounts in different categories of service items were tabulated and described. An average discount per visit was calculated. The percentage of visits discounted was calculated by dividing the number of visits for which discounts were given by total annual visits in the categories of service (inpatient and/or outpatient) to which the discount system applied. Because the discount programmes had been in effect for varying lengths of time, the number of discounted visits was annualized to make this calculation.

Results

Hospital characteristics

As shown in Table 1, the nine hospitals studied included a variety of sizes and characteristics. All of them generate the great majority of their revenues from user charges. The proportion of budget received from the government in these hospitals ranged from 7 to 31% of total hospital revenues. The hospital that did not provide information for calculating this indicator was a small county hospital with only 92 health workers and located at the boundary between urban and rural areas.

Establishment of discount programmes

In August 1998, the Shandong Department of Health issued an official document requesting that all public hospitals offer free or discounted care to indigent patients. The exact services and level of discount were not specified, nor were the criteria for determining who should be eligible. Although, in theory, hospitals were required to report on their compliance with this guideline, in practice, compliance was at the discretion of the management of each hospital.

By mid 1999, the Department of Health estimated that about 40% of hospitals had implemented exemption programmes. Of the nine hospitals included in this study, however, none

Table 2. Categories of service items included in discount programmes of nine hospitals

Categories of service items	Proportion of discount (%)	No. hospitals providing discounts
CT and MRI scans	30–50	8
Bed	10–50	8
Registration	100 (6 hospitals)	
	10 (1 hospital)	7
Regular examinations and lab tests	20–50	6
Surgical operation	10–50	6
Treatment	50 (3 hospitals)	
	10 (2 hospitals)	5
Nursing	10 (1 hospital)	
	100 (1 hospital)	2
Injection	10 (1 hospital)	
	100 (1 hospital)	2
Drug	10	1

appeared to have initiated its exemption programme as a direct response to the 1998 guideline. Only one began its programme after it took effect. Even this hospital had already been considering such a policy before the guideline was issued. The other eight programmes had started earlier (ranging from 1996 to 1998). One of the nine hospitals discontinued its exemption policy in January 1999. Hospital administrators in this hospital had hoped that programme costs could be covered by bringing in additional patients or by subsidy from the local government. They ended the programme because neither of these things happened.

Hospital administrators reported that the main motivations for implementing discount programmes were to enhance the public image of their hospital and for use as a marketing tool to attract more patients. A major barrier to implementing such systems was the lack of any subsidy to recover revenues lost by giving discounts. These costs were born entirely by the individual hospitals, which function as independent businesses despite their public status. The small amount of government contribution to their budgets was based on a formula including beds and staffing, and was not linked to any requirement for provision of care for the poor.

Discounts offered

The exact nature of the discounts offered varied greatly from hospital to hospital. Of nine hospitals, four offered discounts for both outpatient and inpatient services, four for inpatient services only, and one for outpatient services only. Table 2 shows categories of service items included in hospital discount programmes. For these service items, a discount ranging from 10 to 50% was offered. The only items exempted from charge were the registration fee (less than US$1) at six hospitals and nursing and injection fees at one hospital (also very low). The total number of service items included ranged from 63 to 450 out of a total of thousands of potential service items. In some cases, these were commonly used items, such as the bed fee, but many of the included items were high cost or seldom used services, such as CT and MRI scans. Significantly, drug charges, which make up approximately 50% of all hospital charges in China, were included at only one hospital and only at a 10% discount. The key informants from the hospitals that did not include drugs in their discount programmes explained that provision of discounts for drugs would result in too much loss of revenue.

Five hospitals kept records that allowed us to calculate the average overall discount to the hospital bill for patients who were given discounts. These ranged from US$1 (8 yuan) to $147 (1178 yuan). The total of all discounts given to indigent patients was 1% or less of total hospital revenues in all the hospitals and less than 0.1% in two of the hospitals (Table 3).

Four hospitals ran advertisements using various media including TV programmes and newspapers in which they featured their discount programmes for the poor. None of these advertisements made clear the details of the level of discount offered or the limited number of service items included. In focus group discussions with community members, most people were not aware that their local hospital offered discounts for indigent patients. Of those that did know, none had any idea which specific items were discounted. Furthermore, they were not interested in knowing this; they only wanted to know what the overall discount was. The exception was drug costs, which all agreed would need to be included.

Identifying patients for discounts

A major challenge faced by all the hospitals was how to identify which patients would be deemed eligible for discounts. The nine hospitals studied used varying approaches, and some changed their approach during the period of study. Eight hospitals relied, at least in part, upon designations made by other government agencies: the Unemployment Card (issued by the Department of Labour and Social Services) and the Certificate of Indigent Family (issued by the Department of Civil Affairs). But not everyone with these cards was given a discount. In most cases, patients had to specifically request a discount, and these requests had to be approved on a case-by-case basis by hospital administrators.

Table 3. Number of visits receiving discounts and proportions of discounts in five hospitals[a]

Hospital	No. visits discounted (months from beginning of programme)	Average discount per visit (yuan)[b]	Total value of all discounts (yuan)[b]	Discounts as % of total hospital revenues[c] (%)
Shandong Provincial Hospital[d]	277 (8 months)	8	2 216	0.001
Binzhou College Hospital[e]	58 (8 months)	1 179	68 382	0.16
Jinan No. 4 Hospital[e]	46 (7 months)	356	16 376	0.06
Yanzhou People's Hospital[e]	965 (24 months)	619	597 335	1.10
Linqing People's Hospital[d, e]	2 615 (12 months)	38	99 370	0.77

[a] Data not available for four out of the nine hospitals.
[b] Approximate conversion rate: 8 yuan = 1 US$.
[c] Total discounts per year of programme operation divided by 1998 hospital revenues.
[d] Providing discounted outpatient services.
[e] Providing discounted inpatient services.

Criteria for these decisions were not always explicit or clear. Key informants believed that many patients who might have been eligible did not request discounts because they did not know that discounts were available or they found the application process too difficult.

One hospital passed out 1000 discount cards to local government officials to distribute to indigent families. Many of these cards, however, ended up with family, friends and associates of these local officials regardless of actual need. Community members complained about this in the focus group discussion. Hospital administrators also became aware of the problem and eventually abandoned this approach. Another hospital assigned fieldworkers to go into the neighbouring community to directly identify the poor. While this mechanism was felt to be the most accurate, it was also abandoned because it was too expensive.

Overall, key informants estimated that at least 20% of those receiving discounts were not really indigent. Hospital administrators expressed a wish for help from the provincial government to accurately identify the poor. This was particularly difficult in rural areas, where the Unemployment Card and Certificate of Indigent Family do not exist. While some rural townships provide official letters certifying that an individual is poor (and these were sometimes considered by the hospitals when giving discounts), there is currently no uniform system for identifying the poor in rural areas. Even in urban areas, the Unemployment Card and Certificate of Indigent Family were not felt to be reliable indicators of true need.

Proportion of visits receiving discounts

We calculated the percentages of total hospital visits that were granted discounts at five hospitals in which the necessary data were available. Table 4 shows that in three of the hospitals 1% or less of patient visits were discounted. At another hospital, the one that had sent workers into the community to identify the poor, nearly 7% of inpatient admissions were discounted.

Quality of care

Only one hospital had a separate ward for indigent patients. Even in this hospital, however, key informants felt there was no difference in the quality of care for patients receiving discounts. The few focus group participants who had themselves received or knew people who had received discounts also reported no complaints about poor quality of care.

Discussion

This study reveals serious problems with the current system of discounts to the poor for hospital services in Shandong. While the Department of Health hoped that this system might ensure access for the poor to hospital services, hospitals saw it more as a marketing strategy. Only a few specified services were discounted, and these were usually items either of low cost or of low utilization. Correct identification of the poor was also a major problem. Only a small proportion of indigent patients actually received discounts while at the same time discounts sometimes went to patients who were not really poor.

Financial barriers have been the major factor affecting utilization of health services by the poor during the 1990s in China. Two major reasons may explain why the Shandong government did not try to introduce exemption mechanisms earlier. First, health policy-makers were not fully aware of the importance of exemption from user charges in reducing the financial burden of the indigent. The government concentration of health sector reform during that time period was on how to control the rapid increase in medical costs. Secondly, health policy-makers may have been concerned that hospitals implementing discount progammes would demand additional budgets to cover their expenses if official regulations were issued. Instead, they may have hoped that hospitals would implement discount programmes on their own, thereby automatically bearing the costs incurred. This may explain why the government eventually issued guidelines rather than binding regulations.

Table 4. Proportion of visits discounted in five hospitalsa

Hospitals	Inpatient admissions	Outpatient visits	Total no. visits discounted n (%)
Shandong Provincial Hospital[b]	–	691 439	277 (0.04)
Binzhou College Hospital[c]	10 476	–	58 (0.55)
Jinan No. 4 Hospital[c]	4 423	–	46 (1.04)
Yanzhou People's Hospital[c]	14 452	–	965 (6.68)
Linqing People's Hospital	6 023	58 784	2 615 (4.04)

[a] Data not available for four out of the nine hospitals.
[b] Inpatient care not included in discount programme.
[c] Outpatient care not included in discount programme.
Note: Numbers of inpatient and outpatient visits are for the period of operation of the discount system and therefore do not necessarily match Table 1.

Currently, there is no financial incentive from the government for hospitals to implement discount programmes. Government budgets allocated to hospitals are low compared with hospital revenues and only cover part of the salaries for hospital staff. The incentive for hospitals that generate the majority of their budgets through user charges is to maximize these revenues. Therefore, hospitals are understandably reluctant to implement discount programmes, unless they feel that the cost from offering discounts can be balanced by an increase in volume. This provides a background for understanding why only a limited number of service items were discounted, why the total value of discounts was so low in relation to total revenues, and why drug charges (the most profitable item for hospitals in China) were mostly excluded from the discount programmes. On the other hand, CT and MRI scans were generally included because the marginal revenues from increasing utilization of such services (even at discounted rates) would be greater than the marginal cost.

Besides financial reasons, lack of effective regulation may be an important explanation for the poor performance of discount programmes. Government guidelines, which lacked regulatory enforcement, gave the hospitals flexibility in implementing discount programmes. Public hospitals in China currently have a great deal of autonomy in making their own financial decisions. Even well-off public hospitals, such as Shandong Provincial Hospital in our sample, offered very limited discount programmes, not really considering the needs of the indigents in their service areas. This suggests the importance of establishing and enforcing specific regulations to govern discount programmes. For example, hospitals might be required to provide expensive services to the poor at or near their marginal cost. This could provide some price relief without overburdening hospital budgets. Larger discounts or complete exemptions could be required for the poorest patients in exchange for earmarked government subsidies to cover some or all of the cost.

In our study, both the proportion of visits discounted and the average discount per visit indicate that discount programmes as currently implemented are not an effective means of protecting indigents from the cost of hospital services. Compared with a conservative estimate that at least 5% of patients in hospitals in Shandong are indigent (Shandong Department of Health 1999), the proportion of patients receiving discounts at three of five hospitals was not nearly enough. Even in the two hospitals that approached this percentage, average discounts per visit were not high enough to substantially reduce the financial burden to these patients. This means that neither poor patients on the whole, nor those who received discounts, were effectively protected by current discount programmes.

Achieving good coverage for discount programmes requires an appropriate system for identifying the poor. This was a major problem for all of the hospitals studied, especially those in rural areas, where there is no existing identification system for the poor. Even in urban areas, because the Unemployment Card is only issued to people unemployed from state-owned enterprises, many unemployed workers from the private and self-employed sectors did not have access to the discount programmes.

The fact that the discount programmes in Shandong were mostly initiated by the hospitals themselves rather than the government is different from the experience in some African, Southeast Asian and South American countries. In these countries, the exemption mechanisms were always initiated by the central government (Gilson 1995; Mbugua et al. 1995; Russell et al. 1995; Willis et al. 1995; Gilson et al. 1998; Li 1998). In African countries, the introduction of exemption mechanisms from user fees for the poor often accompanied the introduction of cost recovery when government hospitals stopped providing free care. Usually in these countries, the costs of operating exemption programmes are covered by government or community funding. The exception was in Ghana, where Agyepong (1999) found that the cost of exemption was directly borne by the hospitals out of the surplus they generated, much like the experience in China.

Unlike in Thailand and Zimbabwe, where means-testing was conducted on a case-by-case basis to determine poverty (Willis et al. 1995; Gilson et al. 1998), one rural hospital in our study tried to send discount cards to rural communities and let community officials determine who should receive them. The urban hospitals in our study relied on the Unemployment Card and Indigent Family Card to determine eligibility, similar to the method in Jamaica that was based on

food coupon eligibility (Barnum et al. 1993). In most cases described in other countries, indigents were offered free health care through exemption mechanisms, rather than the limited discounts in our findings. In contrast to our findings, studies in Jamaica, Mexico and Thailand showed that exemption programmes covered large proportions of the indigent population (Barnum et al. 1993; Gilson et al. 1998; Li 1998). On the other hand, the finding that a proportion of patients receiving discounts were not real indigents is consistent with the findings in similar studies in other countries (Willis 1995; Gilson et al. 1998).

A potential limitation of this study is that the hospitals selected may not be representative of all hospitals in Shandong Province. This may limit the generalization of our findings to other hospitals with discount programmes, let alone to the large number of hospitals with no discount programme at all. Because the hospitals we studied were thought to have some of the best established discount programmes in the province, it seems unlikely that discount programmes operated in other hospitals were much better than those studied. Another limitation is that only five of nine hospitals could provide the necessary information for us to calculate some of our indicators. Nevertheless, the consistency of our findings and the close agreement between quantitative and qualitative data give us confidence in the reliability of the results.

Conclusions

Our findings indicate that the present discount system for hospitals in Shandong does not provide effective protection for the poor in terms of either coverage or benefits. Inadequate financial and political support for implementing such programmes appears to be the main reason for this. Accurate identification of the vulnerable poor is another major problem.

Discount programmes in public hospitals are unlikely to truly increase access to health care for the indigent without strong financial and regulatory support from government. Specific subsidies covering the costs of discount programmes in hospitals should accompany stricter government regulations guiding their implementation. The burden of identifying indigents eligible for discount should be assumed by the government rather than the hospitals, ideally involving substantial cooperation with government departments outside the health sector. Further work is urgently needed to develop and test new models for effective discount systems and/or other mechanisms to ensure access to hospital care for the poor in China.

References

Agyepong IA. 1999. Reforming health service delivery at district level in Ghana: the perspective of a district medical officer. *Health Policy and Planning* **14**: 59–69.

Barnum H, Kutzin J. 1993. *Public hospitals in developing countries: resource use, costs and financing*. Washington, DC: Johns Hopkins University Press.

Centre for Health Statistics and Information (CHSI). 1999. *National health services survey report*. Beijing: Ministry of Health.

Diop F, Yazbeck A, Bitran R. 1995. The impact of alternative cost recovery schemes on access and equity in Niger. *Health Policy and Planning* **10**: 223–40.

Du XW, Du HY. 1999. Mechanism for adjusting health services prices. *Chinese Journal of Health Economics* **18**: 50–1.

Gilson L, Russell S, Rauyajin O, et al. 1998. Exempting the poor: a review and evaluation of the low-income card scheme in Thailand. PHP Department Publication No. 30. London: London School of Hygiene and Tropical Medicine.

Gilson L, Russell S, Buse K. 1995. The political economy of user fees with targeting: developing equitable health financing policy. *Journal of International Development* **7**: 369–401.

Huber J. 1993. Ensuring access to health care with the introduction of user fees: a Kenyan example. *Social Science and Medicine* **36**: 485–94.

Li YL. 1998. Introduction to financial burdens of medical care in developing countries. The foreign medicine: Health economics **1**: 15–16.

Liu XM, Cheng XM, Zhang CY. 1996. Health service pricing policy in China. In: Health Financing Research Team (eds) *Reforming health financing policy*. Beijing: Chinese Economics Press, pp. 68–75.

Liu YL, Hsiao WC, Eggleston K. 1999. Equity in health and health care: the Chinese experience. *Social Science and Medicine* **49**: 1349–56.

Luo WJ, Hu SL. 1998. Utilisation of health care in poverty areas in China. *Medical Science and Philosophy* **5**: 23–6.

Mbugua JK, Bloom GH, Segall MM. 1995. Impact of user charges on vulnerable groups: the case of Kibwesi in rural Kenya. *Social Science and Medicine* **41**: 829–35.

Meng QY, Bian Y, Ge RW. 1998. Report on hospital cost. Centre for Cost Accounting and Analysis, National Institute of Health Economics, Beijing, and Shandong University.

National Bureau of Statistics. 2000. *China statistics yearbook*. Beijing: Chinese Statistics Press.

Russell S, Gilson L. 1995. *User fees in government health services: Is equity being considered? An international survey*. PHP Publication No. 15. London: London School of Hygiene and Tropical Medicine.

Russell S, Gilson L. 1997. User fees policies to promote health service access for the poor: a wolf in sheep's clothing? *International Journal of Health Services* **27**: 358–79.

Shandong Bureau of Statistics. 1999. *Yearbook of Statistics in* Shandong. Jinan: Shandong Press of Science and Technology.

Shandong Department of Health. 1999. *Yearbook of Health Statistics in Shandong*. Jinan.

Teng ZM. 1995. *Medical care insurance systems reform*. Zhenjiang: Zhengjiang Employees' Medical Insurance Management Committee.

Weaver M. 1995. User fees and patient behavior: evidence from Niamey National Hospital. *Health Policy and Planning* **10**: 350–61.

Willis C, Leighton C. 1995. Protecting the poor under cost recovery: the role of means testing. *Health Policy and Planning* **10**: 241–56.

Yu DZ, Meng JG. 1996. Assessment of changes in health financing policies in China. In: Health Financing Research Team (eds) *Reforming health financing policy*. Beijing: Chinese Economics Press, pp. 62–7.

Acknowledgements

This study was funded by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR). The authors thank the Ministry of Health of China, the Shandong

Department of Health and the hospitals studied for their cooperation in the fieldwork and colleagues from Shandong University for their assistance in data collection. The authors acknowledge Mr Erik Blas, Dr Johannes Sommerfeld and Dr Bo Eriksson for their contributions to developing the study design and preparing the manuscript.

Biographies

Qingyue Meng, MD MPH is a Professor in Health Economics and directs the Institute of Social Medicine and Health Policy at Shandong University. He is interested in issues of health financing, pricing policy and economic evaluation of health programmes. He has served as a consultant to national and local governments in China and to international organizations including the World Bank and the UK's Department for International Development (DFID). He is currently registered for a Ph. D. at the Division of International Health, Department of Public Health Sciences, Karolinska Institute, Sweden.

Qiang Sun, MD MPH is a Lecturer in Health Policy at the Institute of Social Medicine and Health Policy, Shandong University. His research fields include assessing health sector reform and the impact of economic globalization on the health system.

Norman Hearst, MD MPH is a Professor of Family and Community Medicine and of Epidemiology and Biostatistics at the University of California, San Francisco.

Correspondence: Qingyue Meng, Institute of Social Medicine and Health Policy, West Campus, Shandong University, Wenhua Xi Rd 44, Jinan, Shandong 250012, China. Tel: +86 531–294–2142; fax: +86 531–295–0147; Email: qmeng@sdu.edu.cn