STUDIES IN PUBLIC POLICY 501

CHINESE STRATEGIES FOR GETTING HEALTH CARE: GUANXI AND ITS ALTERNATIVES

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SPP 501

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ISSN: 0140-8240

Abstract

Chinese citizens are accustomed to dealing with risk and making choices about how to get things done. Such choices are evident in popular responses to hypothetical situations corresponding to three typical unethical practices in Chinese hospitals: overprescribing medicines not covered by insurance, encouraging patients to take unnecessary diagnostic tests, and taking bribes ("red envelopes" or *hong bao*) for treatment which has already formally been paid for. Using nationally representative survey data, this study examines public perceptions of the likelihood of encountering these practices in local county or district hospitals as well as preferences between different strategies for dealing with them. We develop and test hypotheses about the social structural determinants of preferred strategies: focussing on urban versus rural contexts, level of development, gender, age, education and income. The conclusion considers the implications of the findings for policies designed to mitigate unethical practices.

Keywords: China, health care, unethical practices, particularism, voice, exit, guanxi, bribery

This paper was presented at the Association of Asian Studies Annual Meeting, San Diego, 20-24 March 2013. It is part of the research programme Performance Evaluations, Trust and Utilization of Health Care in China funded by the UK Economic and Social Research Council, Grant No. ES/J011487/1. More information at http://www.gla.ac.uk/petu

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I. INTRODUCTION

In China inappropriate incentive structures have encouraged health care providers to systematically offer treatment which is not medically indicated and to take extra money for treatment which has already been paid for. Three practices by Chinese doctors and hospitals have been widely reported: unnecessary diagnostic testing, over-prescription of medicine, and the taking of bribes ("red envelopes" or *hong bao*) (French 2006; Li 2006; LaFraniere 2010). Such practices are not only unethical but also inflate health care costs, pose health risks to patients, and are inconsistent with broader public health goals. Yip et al. (2010: 1121f) cite the following examples: health care costs have been rising by 16% per year over the past 20 years; 75% of patients with common colds are prescribed antibiotics, compared to a worldwide average of 30%, substantially raising the risks of antibiotic resistance; and all this is occurring against a background of "epidemiological transition" in which the burden of chronic diseases relative to infectious diseases is increasing, setting a premium on effective preventive medicine and primary care.

Agency risks arise whenever the interests of principals (patients) potentially diverge from those of their agents (physicians) and the costs to the principals of ensuring the agents' protection of their interests are prohibitively high (Buchanan 1988: 318; Ryan 1994; Ha 2009). For patients and their families the dilemma is: how can they ensure that the doctors offer the same quality of care as they would provide for themselves or their own family? In principle, different strategies are available to resolve this dilemma with different implications for the behaviour of health care providers for whom patient satisfaction is an important performance criterion.

In this paper, we focus not on provider incentives as most previous studies in this area have done, but on attitudes amongst the wider public to unethical practices and in particular on popular strategies aimed at reducing agency risks. We aim to understand the distribution across Chinese society of preferences between strategies. We do this through an examination of data from a survey conducted by the authors in 31 provinces of mainland China from November 2012 to

January 2013. We analyse the differences between strategies on a conceptual level as follows. First is the extent to which the strategy proactively engages with or changes the situation. In other words, we can distinguish empowered from passive strategies. Second is the extent to which the basis of the exchange presumed under the strategy is particularistic, that is, it helps the particular patient but not others in a similar situation. The opposite tendency is universalism which implies a presumption that everyone in a similar situation should be treated the same way. The third dimension distinguishes strategies aimed at changing the providers' behaviour, as opposed to simply changing providers. That is, it echoes Hirschman's (1970) contrast between using "voice" to improve the terms of a relationship and "exit" which replaces it with another relationship.[1] Hirschman's third category, "loyalty" corresponds to the behaviour of patients who do what doctors indicate. The different dimensions involved in citizens' choice of strategy are summarized below (Table 1).

Table 1. THREE DIMENSIONS OF STRATEGIES FOR RESOLVING THE AGENCY DILEMMA

	Universalistic		Particularistic	
	Voice	Exit	Voice	Exit
Proactive	Make a formal complaint	Change provider	Pay a bribe, Ask the provider to change their decision	Use connections to find another provider
Passive	Accept the treatment without resolving the dilemma, Don't know, Give up treatment			

Source: Text above.

[1]. When we refer to "exit" we don't necessarily refer to use of private health care providers in place of public ones, since publicly owned providers can also be induced to compete in markets, too. Even changing doctors within one hospital can count as "exit" in this sense.

We argue that citizens' preferences for resolving the agency dilemma have different implications for "diagnosing" the problems of China's health sector as well as understanding patient behaviour. Passive responses involving either acceptance of whatever the health care provider offers or some kind of confused or inappropriate response may indicate that patients are "disempowered" whilst proactive strategies implies that patients have more influence over the terms of their relationship with providers. If the system works like a Weberian bureaucracy, we would expect particularism to be marginal, and the making of formal complaints to be the standard response of patients faced with unsatisfactory service. Voice implies that there is flexibility in provider behaviour whereas exit implies that only changing providers can resolve the dilemma.

In the remainder of this paper, we will first summarize recent developments in ethics and incentive structures; second, present evidence from our survey concerning the perceived extent of three types of unethical medical practice and the popularity of different strategies for dealing with them; third, develop hypotheses about the distribution of preferences between strategies across Chinese society; and fourth, examine bivariate relationships as an initial test of the hypotheses. In the conclusion, we will speculate on the implications of the analysis for attempts to mitigate patients' agency risks and describe directions for future research.

II. MEDICAL ETHICS AND INCENTIVE STRUCTURES IN CHINA

The Ministry of Health's response to the recognition of medical ethics as a problem area in the 1980s was to introduce first the "Regulations for Hospital Workers" (1981) which emphasised that health care workers should "carry forward the spirit of healing the wounded and rescuing the dying, sympathise with and respect the patients and serve the people wholeheartedly" (Z. Gao et al. 2002: 47). The next step was to introduce a code of conduct (MOH 1988). This code exhorted medical personnel to put the interests of patients first in the name of socialist humanitarianism (*shehuizhuyi de rendao zhuyi*), respect the patients' rights and treat them equally regardless of nationality,

gender, profession, position or financial condition, be courteous and considerate, avoid using medicine for selfish gain, respect patients' confidentiality, be collegiate and strive continually to improve their knowledge and skills. It thus provided a broad normative framework. The same year the Chinese Society of Medical Ethics, affiliated to the Chinese Medical Association, was also founded. The Chinese debate about medical ethics, conducted in two journals, *Yixue yu zhexue (Medicine and Philosophy)* founded in 1980 and *Zhongguo yixue lunlixue (Chinese Medical Ethics)* founded in 1988, has largely revolved around the principles of the code of conduct and different methods of institutionalizing it in systems for training medical personnel and assessing their performance, including the establishment of effective incentive structures and monitoring systems (such as ethics committees) within hospitals and the health care administration more broadly (Ip 2005: 178; Z. Gao, et al. 2002:49). In 1993, the MOH ordered that medical ethics should be included in the curricula of higher schools of medicine, at least as an option. In 1998, the NPC passed a law on the licensing of physicians spelling out their moral duties and in 1999 medical ethics became a compulsory subject for licensed physicians' examinations (Z. Gao et al. 2002: 47f). The same year the MOH issued further "Regulations for the Morality of Medical Employees" (Ke 2002: 61).

Medical ethical education in China has suffered from deeper problems, including lack of training in higher skills such as independent judgment and critical thinking with the result that graduates lack an ethical sensibility; teaching typically involved preaching about rules of conduct often in the framework of political and ideological education, with little concern for the issues that worry ordinary citizens and especially underprivileged groups (Nie 2002:64f). Chinese medical ethicists have recognized that their subject encompasses "the socialistic macro view of health for all" (Z. Gao et al. 2002: 52f) implying shared responsibility of the government, the medical profession and individuals for public and individual health, as well as recognition of the contribution of medical ethics to social stability (Z. Gao et al. 2002; 54). In other words, medical ethics is not seen to include not only the morality of physicians as demonstrated in their professional conduct,

but also considerations of the implications of medical technology and the ethics of health care policies (Ke 2002: 58).

In the 1980s and 1990s lacklustre ethics training coincided with the introduction of market-oriented reforms, leading to changes in the doctor-patient relationship and a general weakening of moral responsibility in the society (Liu, Han et al. 2002; Ip 2005). The market is sometimes presented as the source of an unwelcome change in values and in the terms of doctors' relationships with patients: whereas in the socialist system doctors saw their role as "serving the people," once market reforms were introduced, health care became a commodity like any other. Those with more money "consumed" more and better care, and doctors focussed on serving them, with the result that resources were redistributed in a way that was, from the point of view of the collective interest in better health for all, irrational (Ip 2005: 178f).

Focussing on professional conduct, Fan Ruiping (2007) argues that the problem has not been market reforms *per se* but the distorting effects of government policies in a commercialized system of state-owned hospitals: namely the low salaries of doctors, hospitals' practice of providing bonus payments to doctors for prescribing expensive drugs or procedures, and the ban on direct payments from patients to doctors for higher quality care. According to Fan (2007, 125f) bonus payments have been linked to the amount of revenue generated by the physicians' department and hospital, and in big cities these bonuses are thought to have often equalled or exceeded basic salary. Under this system, for most public hospitals approximately one half of total hospital revenue came from drug sales. There have also been cases where pharmaceutical companies have entered into illegal deals with hospitals or physicians to provide kickbacks in proportion to the amount of drugs prescribed. The underlying problem was a government-prescribed fee schedule which set the prices for some labour-intensive services such as general consultation below cost, whilst allowing hospitals to set prices for technology-intensive services above cost and also charge a 15% mark-up on drug sales (Yip et al. 2010: 1121; Yip et al. 2012: 840). Fan (2007) argues that solutions to the ethics problems may be found in the

development of a "Confucian" approach to remuneration of physicians.[2] Claiming that a positive regard for justified remuneration is evident in the *Analects* and Mencius, Fan (2007: 119f) suggests that this means recognizing that higher quality work deserves higher pay, and that there is no conflict between receiving high pay for high quality work and the ethical intention of helping patients. Essentially, this involves embracing market principles within a humanitarian framework, and recognizing the utopianism of a socialist morality which presumes that highly skilled physicians should take a low salary for the public good. However, aside from liberalizing pay scales this "Confucian" approach does not contain solutions to the problems with incentive structures which Fan identifies. As Döring (2002: 76) puts it "A medical system governed by reason and ethics might well allow and encourage commercial profits, but it will at the same time contain them and make them serve the overall welfare of the people." Chinese medical ethicists have acknowledged real inconsistencies between the aspirational declarations in official codes and the real incentive structures which exacerbate price inflation and unethical practices (Z. Gao et al. 2002: 51).

The Chinese government has made a number of experiments to change the incentive structures (Yip et al. 2010: 1121f) including some which have been rolled out nationwide as part of the three-year $850 billion health care reform package announced in April 2009 (Yip et al. 2012). A particular focus of reform has been China's primary care sector. Experiments carried out with urban community health centres in Shanghai suggested that prospective payment and performance-related pay were able to deliver cost control, although their benefits in the management of chronic diseases were harder to assess (Yip et al. 2010: 1124). In rural Shaanxi, a scheme to pay village doctors a salary and a performance-related bonus, combined with centralized purchasing of drugs, reduced costs and unnecessary prescriptions whilst increasing

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[2]. As an example of Confucian reasoning, Fan (2007: 120) paraphrases Mencius as follows: "When a student challenged Mencius concerning whether a gentleman could live a luxurious life, Mencius replied: if there not be a proper ground for taking it, a single bowl of rice may not be received; if there be such a proper ground, receiving all-under-Heaven is not to be considered excessive." See also Lee (2002).

utilization of formal health care (Yip et al. 2010: 1125). Following these successes, in 2009 the government began paying primary health care providers a fixed per capita fee to deliver a defined package of basic public health services to the population in their catchment areas, introduced a zero-profit drug policy for primary health care providers (but not hospitals), and tied the allocation of their public health budget to an annual performance assessment (Yip et al. 2012: 834). It introduced a National Essential Medicine List to cap prices for the most needed drugs and ensure that all these medicines count for reimbursement, with competitive bidding between suppliers organized at province level (Docherty et al 2012; Yip et al. 2012: 834). Media reports suggest the bidding process is still plagued by corruption (Yip et al. 2012: 837). A Ministry of Health report suggests the use of essential medicines lists has not so far effectively reduced over-prescribing (Yip et al. 2012: 838f). Many local governments, on whom the task of implementing the reforms falls, lack the capacity and data to assess the performance of providers. Nevertheless, the 2009-2012 reforms may represent a sea-change for primary care in China. Eventually, the government hopes that primary health care providers will play their proper role as gate keepers for more specialized services in hospitals.

Reforming the governance of public hospitals, which provide 90% of inpatient and outpatient services, is proving much more difficult partly due to the competing priorities of different branches of government (Yip et al. 2012: 835ff). The government has designated 16 cities to experiment with different governance models. Although these models vary considerably, all cities have instituted monitoring measures to control over-prescribing and over-testing; and hospitals in these cities have increased discretionary power to hire, fire and promote staff, relaxing civil service rules which guarantee doctors job security. Two of the cities, Kunming and Luoyang, prioritized the introduction of market competition between public and private hospitals by privatizing public hospitals. Case-based charging began to be encouraged by the Ministry of Health as early as 2004. An experiment involving treatment protocols in Jining appears to have been successful in reducing costs by as much

as 33% (Yip et al. 2010: 1125f). The Ministry has started to implement case-based payment with treatment protocols nationwide.

Given all these efforts at reform, we would expect to find that some of the problems with incentive structures cited in the literature have now been ameliorated. However, in nearly all Chinese cities, hospitals still retain their profits and physician bonuses are still linked to profits (Yip et al. 2012: 838). Moreover, any incentive structure will remain open to abuse through manipulation and misreporting if ethical standards remain lax. In the Chinese saying, *shang you zhengce, xia you duice* (above they have policies, below we have counter measures). In its battle to reform the incentive structures which encourage unethical practices, the government needs allies, not the least of whom is the general public. It is to our data about public attitudes that we now turn.

III. DATA AND RESEARCH DESIGN

This study is based on analysis of data from a nationwide survey commissioned by the authors in mainland China from 1 November 2012 to 17 January 2013[3]. Fieldwork was carried out by the Research Center for Contemporary China at Peking University. The target population was mainland citizens age 18 to 70 residing for more than 30 days in family dwellings in all 31 provinces. The survey used the GPS Assisted Area Sampling Method (Landry and Shen 2005). Stratification took place in stages. At the first stage, the country was divided into three official macro-regions, Eastern, Central and Western; each macro-region was divided into urban and rural administrative areas, giving six layers in total; 60 primary sampling units (PSU) corresponding to county-level administrative divisions were selected at random across the six layers with probability proportionate to population. Within each PSU, three half-square minutes (HSM) of latitude and longitude were chosen with probability proportionate to population density, within each of these, again proportionate to population density, a number of spatial square seconds (SSS) corresponding to 90m x 90m squares was selected at

[3]. Performance Evaluations, Trust and Utilization of Health Care in China Survey, 2012-13. Funded by the UK Economic and Social Research Council, Grant No. ES/J011487/1. More information at http://www.gla.ac.uk/petu.

random. Within each SSS, all dwellings were enumerated, and 27 were selected in each HSM by systematic sampling. Within each dwelling respondents were identified by the Kish method. The result was a sample of 5,424 dwellings in which 3,684 valid interviews were completed, giving a response rate of 67.9 per cent.

To get an estimate of how widespread unethical medical practices are in China, we asked survey respondents how likely it is that in their local city or county hospital medical staff would unnecessarily prescribe medicines not covered by insurance, take bribes or "red envelopes" (*hong bao*) for treatment which has already formally been paid for, and require comprehensive check-ups from patients even when the diagnosis is clear (Figure 1). The last practice appears to be the most common: 61 per cent consider it very or somewhat likely; 57 per cent consider unnecessary prescription of medicines not covered by insurance to be very or somewhat likely; and only 30 per cent consider bribe-taking to be likely. A substantial proportion of respondents say "don't know", but for each question less than 2 per cent refuse to answer. Bribe taking is considered unlikely by 57 per cent, unnecessary comprehensive check-ups and prescriptions not covered by insurance by 28 per cent each. The data suggest that medically unethical behaviour is relatively common, at least in the eyes of Chinese citizens.

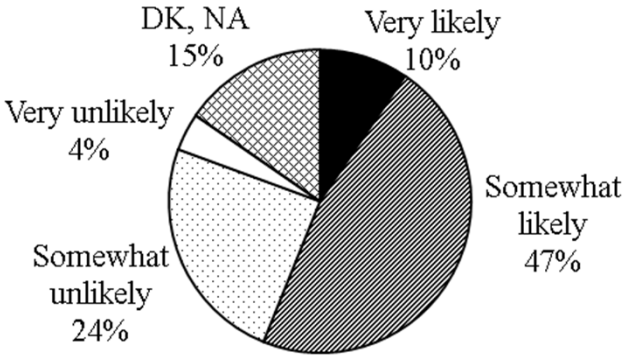
We can combine the three questions into an index to see whether respondents who see unethical behaviour as likely in one situation see it in all situations. This procedure shows that 28 per cent of respondents do not see unethical behaviour as likely in any situation, 20 per cent see it as likely in one situation, 28 per cent see it as likely in two situations and 24 per cent see it as likely in three situations. The data thus imply that a large majority of respondents see unethical behaviour as likely at least some of the time, and a substantial minority see it as endemic.

Our survey included three items prompting respondents to recommend one course of action to deal with unethical behaviour by doctors. For each, we asked respondents to choose amongst several strategies which differ along the main dimensions discussed above (Table 1): the extent to which they are proactive or passive, universalistic or particularistic and whether they involve voice or exit.

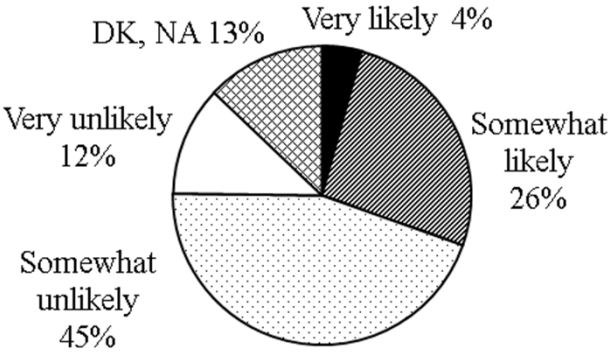
Figure 1. PERCEIVED PREVALENCE OF UNETHICAL MEDICAL PRACTICES

Q. Some people say medical ethics is a big problem in this country, but others say such reports are just exaggerated. Judging from your own personal experience, how likely do you think it is that you would encounter the following types of situations in city or county hospitals around here?

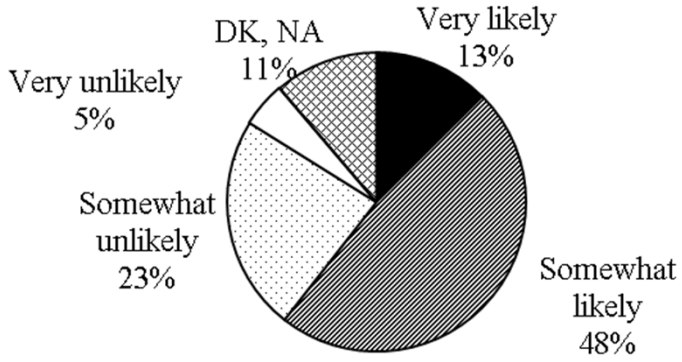
a) Prescribing medicines not covered by insurance even when effective alternatives covered by insurance are available



b) Taking bribes ("red envelopes" or hongbao) for treatment which has already formally been paid for.



c) Requiring comprehensive check-ups from patients even when the diagnosis is perfectly clear.



Source: Performance Evaluations, Trust and Utilization of Health Care in China Survey, 2012-13. Funded by the UK Economic and Social Research Council, Grant No. ES/J011487/1. Fieldwork 1 November 2012-17 January 2013, N=3,684.

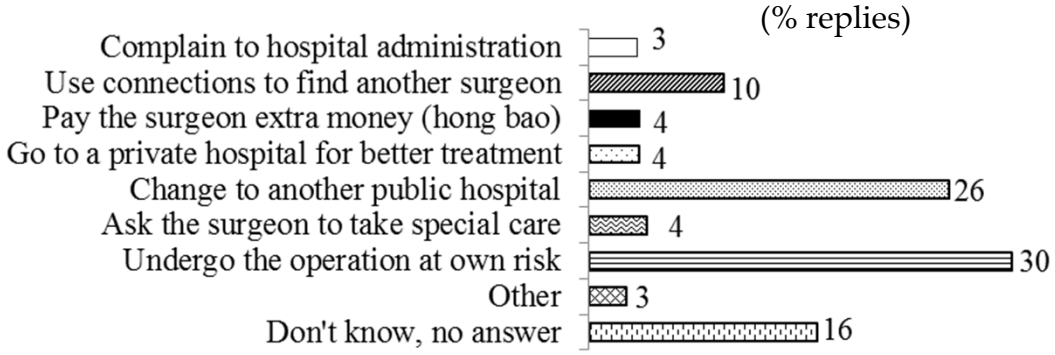
The data show that in dealing with a surgeon who tells the patient that he cannot guarantee the success of a life-saving operation, almost one third of respondents say that they would recommend just undergoing the operation at one's own risk (Figure 2). The second most popular strategy, recommended by just over one quarter, is to change to another public hospital. Using connections to find another surgeon is the third most popular strategy, chosen by one in ten respondents. Paying a bribe is the recommendation of less than one in twenty, as is going to a private hospital. Only three per cent would recommend making a formal complaint and the same number give other replies. Slightly less than one in six say "don't know", and we combine them with the one per cent who give no answer.

If a doctor prescribes a lot of expensive medicine which is not covered by insurance, even when cheaper alternatives are available, slightly less than a quarter of respondents would just buy the medicine prescribed. The same number would just ask the doctor to change it; just over one in eight recommend changing to another public hospital. Around half as many would try a private hospital. Less than one in ten would complain to the hospital administration. Only one in twenty would resort to use of connections; less than half that number would pay a bribe; and other strategies are also marginal. Around one in six say don't know, including a handful who give no answer.

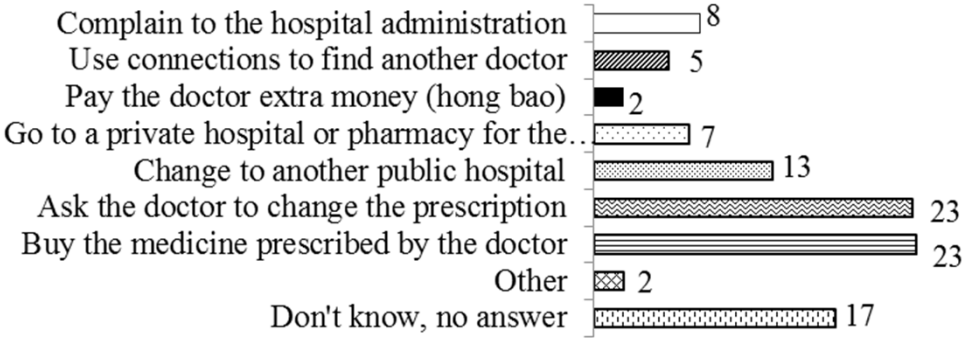
If a public hospital appears to be requiring unnecessary diagnostic tests, a bit less than one third would recommend doing the tests anyway, just under one in five think that asking the doctor to keep the tests to a minimum would suffice. Slightly less than one in eight would recommend changing to another public hospital. Less than one in ten would complain to the hospital administration. Just over one in twenty would use connections to find another doctor. Just over one in twenty volunteer other replies, and when we look at these in more detail, we find that nearly all of them recommend just refusing to do the tests. Only one in fifty think bribery would help. Around one in six are don't knows, with whom we combine the few who give no answer.

Figure 2. PREFERRED STRATEGIES FOR DEALING WITH UNETHICAL MEDICAL PRACTICES

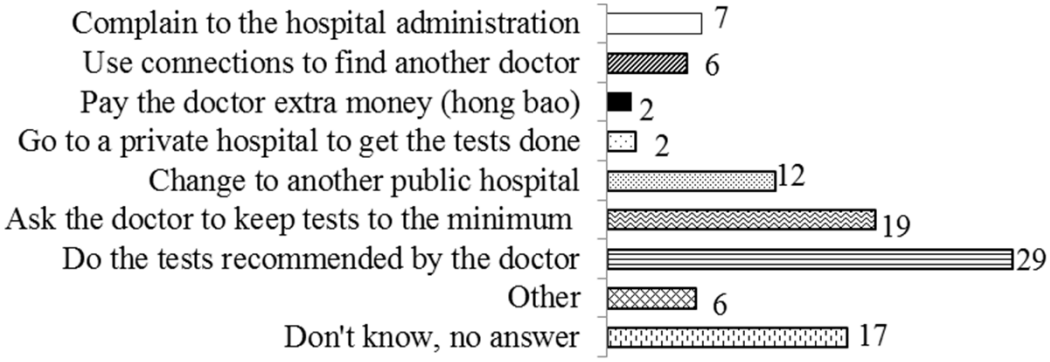
Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).



b) What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)



c) What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)



Source: Performance Evaluations, Trust and Utilization of Health Care in China Survey, 2012-13. Funded by the UK Economic and Social Research Council, Grant No. ES/J011487/1. Fieldwork 1 November 2012-17 January 2013, N=3,684.

Again, we can combine the replies to different questions to get an overall picture of the popularity of different types of strategies and to see to what extent respondents choose one type of strategy across situations. Three types of strategies are main-stream, although none is consistently endorsed by a majority of respondents. The most popular overall is to simply accept the treatment recommended by the doctor without question: nine per cent would do recommend it in all three situations, 15 per cent in two situations, 25 per cent would in one situation, and a bare majority, 51 per cent, would never recommend it. Although least costly in terms of hassle, this "loyalty" option is not a way of reducing agency risks. Changing to another public hospital is the second most popular strategy overall: four per cent would recommend it in all three situations, six per cent would recommend it in two, 26 per cent would recommend it in one situation, and 64 per cent would never recommend it. Asking the doctor to modify his or her behaviour or the treatment regime is the third most popular strategy: only one per cent would recommend it in three situations, 11 per cent would recommend it in two, 22 per cent would in one situation, and 66 per cent would never recommend it. Four fifths of respondents would use one of these mainstream strategies at least once.

Four types of strategies are marginal. These include use of connections (*guanxi*) to find another provider. Only two per cent are consistent connections users (*guanxihu*), the same percentage would recommend it in two situations, 11 per cent would recommend it in one situation, and as many as 85 per cent would never recommend *guanxi* as a way of dealing with unethical medical practices. Just over one per cent would recommend going to a private hospital in two or three situations, just over nine per cent would recommend it in one situation and 89 per cent, would never recommend going to a private hospital. Consistent complainers are less than two per cent, three per cent would recommend complaining in two situations, six per cent in one situation and 89 per cent would never recommend complaining to the hospital administration. Paying bribes is the most marginal strategy of all: only one per cent would recommend it in two or three situations, four per cent would recommend it one situation, and just over 94 per cent would

never recommend it. Although these are all marginal strategies, more than one third of respondents choose at least one of them once.

IV. HYPOTHESES

Since decentralization and marketization have been significant trends in China's provision of social services (Chan, Ngok et al. 2008), both household resources and level of development of the community have been significant factors in determining the availability and quality of health care (Henderson and et al. 1995; Liu 2004; Adams and Hannum 2005; Liu, Zhang et al. 2007; Eggleston, Li et al. 2008). Urban-rural inequality and inequality between communities have grown against a background of overall improvement in health facilities and outcomes (Gao, Qian et al. 2002; Akin, Dow et al. 2005; Reddy 2008). For poor rural residents lack of access has often meant doing without desperately needed treatment (Li 2008; Lora-Wainwright 2011). In his research on strategies to obtain a government permit, Munro (2012: 164-7) found that rural respondents were less likely than urban respondents to use connections and less likely to write a letter to an official: in other words, they were less proactive. If the same applies in the dealing with doctors, we would expect (*H1) urban residents to be more proactive than rural residents in dealing with unethical behaviour by health care providers.*

Related to urban-rural difference is level of economic development. Doug Guthrie (1999) made the case that economic development encourages the establishment of rational-legal authority. Munro (2012: 164-7) didn't find strong effects from level of development on strategies to obtain a government permit: GDP per capita of the city or county was not a significant influence. An infrastructure measure, based on the utilities available in the area, showed that there was a weak relationship between underdevelopment and passivity, and that people in communities at a medium level of development were slightly more inclined to use universalistic strategies. We propose to test the following hypothesis in relation to unethical medical practices: *(H2a) residents in more developed areas are more proactive than residents in less developed areas.* We also need to consider that there is a legitimate market for health care services providing people with choices, or in other words options for

exit from a relationship with a particular physician if it proves unsatisfactory. We therefore propose to test whether *(H2b) residents in more developed areas are more likely to use exit strategies than those in less developed areas.*

We know from prior research that Chinese men more readily take part in non-electoral politics than Chinese women (Tong 2003: 142ff). This conforms to traditional gender stereotypes. Munro's research (2012: 164-7) on preferred strategies for obtaining a government permit found that men were more likely to use particularistic strategies, but not necessarily more proactive. We can test the following hypotheses in regard to strategies for dealing with unethical health care providers: *(H3a) men are more proactive; and (H3b) men are more inclined to particularism.*

Under Mao, China's governing ideology was ascetic and egalitarian. Yang (1994: 146ff) suggested that the money fever which began in the 1980s stimulated the rise of particularistic strategies. Generational differences in socialization may generate different normative expectations about the acceptability of for example using connections to get what one wants. Munro (2012: 164-7) found that those born in the 1940s and earlier were less inclined to particularism, but also less inclined to universalistic voice, that is to utilizing bureaucratic channels of appeal, as were those born in the 1950s. In relation to strategies for dealing with unethical health care providers, we can test the following hypotheses*: (H4a) the oldest cohorts are less inclined to particularism and (H4b) they are less inclined to voice.*

It is well established that education enhances social capital (Lin 2001: 23). We would expect education to provide both the social skills and opportunities to get to know people in positions of authority and learn how to deal with them (Wank 1999: 129). We know that education and income correlate strongly. The richer and better educated people are, the more confidence they are likely to have in dealing with medical professionals. We would therefore expect: *(H5a) the better educated and the higher the income of the respondent, the more proactive they are in dealing with unethical medical practices.* In Munro's (2012: 164-7) multivariate analysis, education was found to be insignificant when income was controlled,

but income on its own significantly increased the tendency to use particularistic strategies. DiFranceisco and Gitelman's (1984: 612) study of Soviet émigrés in the late 1970s and 1980s suggested education was a positive influence on use of connections. We can test the following hypothesis: *(H5b) the more educated and the higher the income of the respondent, the greater the tendency to rely on particularism.* Education and income usually confer purchasing power, which gives people additional choices in terms of health care provision. In a commercialized system, we would expect *(H5c) the more educated and the higher the income of the respondent, the greater the tendency to use exit strategies.*

V. ANALYSIS

In order to identify patterns in bivariate relationships between preferred strategies and independent variables corresponding to our hypotheses, we run cross tabulations by social structure and compute mean household income against different strategies. This procedure allows us to identify the statistically significant differences between the categories and shows that some hypotheses fail, in the sense that we cannot reject the null hypothesis, whilst others pass (Table 2). Of course, a bivariate analysis detects gross rather than net effects. Multivariate analyses will be needed to identify net effects of individual variables, but from a policy viewpoint, understanding gross effects is often more important than developing a multivariate model, and it is in any case the prior step.

In China, counties (*xian*) are rural areas, county-level cities are smaller cities, whilst bigger cities are divided into urban districts (*qu*), and these administrative categories correspond respectively to 45 per cent, 17 per cent and 38 per cent of our sample. If Hypothesis 1 is correct, we would expect that urban district respondents would be more likely to choose the proactive strategies of making a formal complaint, changing providers, paying a bribe, pleading with the provider or using connections to find another provider, and less likely to either accept the treatment offered, give up treatment or say don't know. Cross-tabulation shows that compared to rural respondents urban dwellers are indeed consistently more likely to complain or to use connections and

Table 2. SUMMARY OF FINDINGS FROM BIVARIATE ANALYSIS

	Surgery	Over-prescription	Unnecessary tests
(*H1) Urban residents are more proactive than rural residents in dealing with unethical behaviour by health care providers.*	Fail*	Fail	Fail
(H2a) Residents in more developed areas are more proactive than those in less developed areas.	Pass**	Fail	Fail
(H2b) Residents in more developed areas are more likely to use exit strategies than those in less developed areas.	Pass	Pass	Fail
(H3a) Men are more proactive than women	Fail	Fail	Fail
(H3b) Men are more likely than women to use particularistic strategies.	Fail	Fail	Fail
(H4a) The oldest cohorts are less inclined to particularism.	Pass	Pass	Pass
(H4b) The oldest cohorts are less inclined to voice.	Fail	Pass	Pass
(H5a) The more educated and the higher the income of the respondent, the more proactive they are in dealing with unethical practices.	Pass	Pass	Pass
(*H5b) The more educated and the higher the income of the respondent, the greater the tendency to rely on particularism.*	Fail	Fail	Fail
(H5c) The more educated and the higher the income of the respondent, the greater the tendency to use exit strategies.	Pass	Fail	Fail

* Fail=fail to reject the null hypothesis; **Pass=reject the null hypothesis.

Source: Cross-tabulations reported in the Appendices

less likely to say don't know (see Appendices 1 to 3 for details). For example in the case of surgery, 14 per cent of urban respondents would use connections as against eight per cent of rural respondents, giving a difference of six per cent (P<.001), five per cent would complain as against three per cent of rural respondents (difference P<.05) and 11 per cent say don't know as against 18 per cent of rural respondents (P<.001). Urban respondents are also more likely to change to a private hospital for surgery: five per cent versus three per cent (P<.001). However, urban and rural respondents do not significantly differ in the likelihood of simply accepting what the health care provider offers, and in terms of willingness to change to another public hospital, rural respondents are more active in the cases of surgery and over-prescription. On the basis of this evidence, we cannot reject the null hypothesis that urban and rural respondents are equally proactive. Instead, they appear to be proactive in different ways.

Our survey asked respondents about the availability of four public utilities in the respondent's home: electricity, running water, LPG gas and an internet connection. More than 99 per cent had electricity but only 84 per cent had running water, 64 per cent had gas, and 44 per cent had an internet connection. Since these facilities rely on publicly provided infrastructure, we use them to construct an infrastructure index measuring the level of development of the local area. If Hypothesis 2a is correct, we would expect that respondents in areas with maximum utilities would be more likely to choose proactive strategies and less likely to say don't know or just accept the treatment offered. Cross-tabulation shows that this is broadly true in the case of surgery but not the other two situations (see Appendices 4 to 6 for details). For example, in dealing with an unethical surgeon, only 27 per cent of those in the most developed areas would undergo the operation at their own risk compared to 48 per cent in the least developed (P<.001), and nine per cent say don't know compared to 16 per cent in the least developed (P<.001). However, in the other two situations although there are fewer who say don't know in the most developed areas, there is no significant difference by level of development in willingness to just accept the treatment offered. Hence, we cannot reject the null hypothesis that in the

case of over-prescription and unnecessary testing, level of development makes no difference to how proactive respondents are.

If Hypothesis 2b is correct, those in the most developed areas should be more likely to choose the exit strategies of changing providers and using connections, and less likely to use the voice strategies of making complaints and paying bribes. Cross-tabulation shows that they are indeed more likely to use connections and to change to another public hospital to avoid dealing with an unethical surgeon and with over-prescription. For example, in dealing with an unethical surgeon, 30 per cent in the most developed areas would change to another public hospital as against 17 per cent in the least developed and 16 per cent would use connections as against five per cent in the least developed (both $P<.001$). In dealing with over-prescription, 14 per cent in the most developed areas would change to another public hospital as against 10 per cent in the least developed ($P<.05$), and nine per cent in the most developed areas would use connections, as against two per cent in the least developed areas ($P<.001$). In the case of dealing with unnecessary testing, they are also more likely to use connections: nine per cent versus two per cent ($P<.001$) but not to change hospitals. On the basis of this evidence, we can reject the null hypotheses that people in less developed and more developed areas are equally likely to choose exit strategies in dealing with an unethical surgeon and with over prescription, but not in dealing with unnecessary testing.

If Hypothesis 3a is correct, we would expect to find that men are more likely than women to complain, use connections, plead, pay bribes or change providers. In fact, the genders are equally likely to choose these strategies (see Appendix Tables 7 to 9 for details). Our survey shows that women are significantly more likely to say don't know in response to each of the questions: this shows more circumspection but it is not sufficient to support the thesis that women are more passive in the face of unethical medical practices. They are slightly less likely to ask the doctor to keep the diagnostic tests to the minimum in the case of unnecessary testing—18 per cent versus 21 per cent ($P<.05$), which suggests they may be more reticent. But this is too little evidence to reject the null hypothesis. If Hypothesis 3b is correct, we would expect

to find that men are more likely than women to use connections or pay bribes. Again, the cross tabulations show this is not the case.

If Hypothesis 4a is correct, and age is associated with universalism, we would expect to find that the oldest cohorts, those born in the 1940s and 1950s in our survey are less likely to use connections, bribe or plead with the provider. We find that across all three scenarios the youngest cohorts are more likely to use connections and to plead with the provider (see Appendix Tables 10 to 12 for details). For example, in dealing with unnecessary testing, seven per cent of those born in the 1980s and 1990s would use connections as against four per cent of those born in the 1940s and 1950s (P difference <.01); 23 per cent of the youngest cohorts would ask the doctor to keep the tests to the minimum as against 15 per cent of the oldest cohorts (P<.001). We therefore reject the null hypothesis that the generations are equally inclined to universalism. If Hypothesis 4b is correct, and the elderly are less inclined to voice, the oldest cohorts should be less inclined to complain to the hospital administration or pay a bribe. Younger complainers outnumber older complainers by two to one in the cases of over prescription and unnecessary testing, but not surgery. In sum, we cannot reject the null for Hypothesis 4b in respect of surgery, but we can for over-prescription and unnecessary testing.

If Hypothesis 5a is correct, meaning education and income are associated with proactive strategies, then we would expect to find that more educated and richer respondents will be more likely to make a formal complaint, pay a bribe, plead, change provider or use connections to find another provider, and less likely to say don't know or simply accept the treatment on the terms suggested by the physician. This is generally the case across all three situations examined (see Appendix Tables 13 to 18 for details). For example, in the case of surgery, we find that 20 per cent of those with university education would use connections as against six per cent of those with primary education or less; and six per cent would go to a private hospital as against two per cent of those with primary education or less. (P<.001 for both). Just six per cent of those with university education say don't know as against 27 per cent of those with primary education (P<.001);

and 30 per cent of those with university education would just undergo the operation at their own risk as against 35 per cent of those with primary education (P<.05); Appendix Table 13). In the case of over-prescription, those who would complain to the hospital administration, use connections or ask the doctor to change the prescription have annual average household incomes which are respectively 20,000, 17,500 and 8,500 yuan higher than those who would simply buy the medicine recommended (P<.001 for all three, Appendix Table 17). We can therefore reject the null hypothesis that poorer and less educated respondents are equally proactive in dealing with unethical medical practices.

If Hypothesis 5b is correct and privilege is associated with particularism, then more educated and wealthier respondents should be more willing to use connections, pay bribes or ask the doctor to change their behaviour. We find that those with university education are more likely to use connections across all three situations; and in the cases of over-prescription and unnecessary testing, they are more likely to ask the doctor to change their behaviour; although there is no difference in bribery (Appendix Tables 13 to 15). Thus, for example, to deal with unnecessary testing, 11 per cent of the university educated would use connections, as against only three per cent of those with primary education or less (P difference <.001, Appendix Table 15). In the case of over-prescription, 29 per cent of the university educated would ask the doctor to change the medicine, as against only 20 per cent of those with primary education or less (P<.001). Across all three situations, those who use connections consistently have higher average annual household income than those who simply accept treatment on the terms offered, as do in the case of surgery bribe payers and those who plead, and in the case of over-prescription those who plead. We can therefore reject the null hypothesis that richer and more educated respondents are equally as likely as poorer and less educated respondents to choose particularistic strategies.

However, we should also note that those who choose the universalistic strategy of making a formal complaint are also richer than those who simply accept treatment. For example, in the case of

unnecessary testing, the mean annual household income of complainers is 22,200 yuan higher on average than accepters (P<.01). In the case of over-prescription, their income is 20,000 yuan higher (P<.001), and in the case of surgery it is 14,500 yuan higher (P<.01). There is an association between education and complaining, too: in the case of over-prescription, 12 per cent of those with university education would complain as against only five per cent of those with only primary education (P<.001); and in the case of unnecessary testing, 10 per cent of those with university education would complain as against only five per cent of those with primary education (P<.001). So in other words, it seems possible that the greater propensity of the richer and more educated to engage in particularist strategies is a function of being more proactive, rather than being less inclined to universalism.

If Hypothesis 5c is correct, meaning privilege is associated with exit strategies, then more educated and higher income respondents should be more willing to go to private hospitals, change to another public hospital, or use connections to find another doctor. What we find is that although the university educated are more four per cent more likely than those with primary education to go to a private hospital for surgery (P difference <.001), there are no significant differences in preference for going private or changing hospitals in the other two situations. When we look at income, we find that those who would change to another public hospital for surgery live in households earning on average 9,200 yuan more than those who would undergo the operation at their own risk, but there are no significant income differences for propensity to change public hospitals or go private in the other situations. As mentioned those with university education are consistently more likely to use connections to find another surgeon, and those who do so have higher incomes than those who just accept the treatment offered. In the case of surgery, we can reject the null hypothesis that those who are more educated and have more money are equally as likely as the less privileged to choose exit strategies. But we cannot reject the null hypothesis in the other two situations.

VI. CONCLUSION

Patients, especially well-to-do patients, are part of the problem as well as part of the solution in unethical medical practice. Most analyses focus on the perverse incentive structures within Chinese hospitals that reward unethical practices. They are part of a culture of health care seeking and medical treatment in which the burden of insuring against agency risk, that is of ensuring that doctors act in the best interests of patients, is shifted onto the patients themselves. The fact that pluralities of patients see no alternative but to accept the burden of risk gives little ground for comfort about the nature of the system. Rather it testifies to the existence of a trap of low expectations on the part of the public with respect to the medical profession. Use of particularistic rather than universalistic strategies to influence doctors is rational in circumstances where codes of conduct and formal regulations are unreliable guides to practice.

To what extent does the market provide solutions to the problem of unethical medical practices? The logic of supply and demand suggests that more and better services should reduce the price of medical care and encourage exit if providers behave unethically. We do not have trend data or cross-regional comparative data which would allow us to judge whether or not this is occurring. However, we do have variations in income and levels of development, which allow us to make a judgment that market forces do to some extent encourage both activism and exit strategies in dealing with unethical surgeons. The fact that the well-to-do in China are more inclined to resort to particularistic strategies as well cautions against any simplistic assumption that activism and exit necessarily operate in favour of the construction of universalistic institutions.

Empowerment of patients within the public hospital system may offer another way of altering incentive structures and ensuring better enforcement of regulations. The age differences suggest a nuanced conclusion. On the one hand, as older cohorts die off, the demographic trend is towards a more assertive public. On the other hand, except in the case of surgery, that assertiveness is likely amongst the young to take a particularistic form. It is striking how few respondents believe

that complaining to the hospital administration does any good in dealing with unethical medical practices. Since the administration and unethical practitioners are probably in most hospitals embedded in circular relationships of mutual cooperation and mutual guarantees, patients are right to be wary of formal complaints procedures. There is a need for regulatory institutions which command public confidence such as, for example, a system of patients' ombudsmen, perhaps chosen from amongst local people's congress delegates, who stand at arm's length from the hospitals, are empowered to investigate complaints and have real powers to punish doctors who transgress the code of conduct, and to reward patients who report transgressions. In other words, there is a need to move beyond exhortation towards enforcement.

The present paper is no more than an initial pass through the data we have collected. Further analysis is needed both of the changes in institutional incentive structures emerging from the latest reforms and of the data on patient behaviour and public attitudes. The survey data analysed here offers the opportunity to develop predictive models of which patients prefer which strategies, isolating net effects of significant independent variables, and identifying patterns in their relationships. In addition, we need to systematically examine the wealth of qualitative and anecdotal evidence, including some collected by the authors of this paper, to try to understand the circumstances in which unethical medical practices are likely to occur and to relate this to the findings of our survey. Nevertheless, we believe the present study represents one of the first published attempts to analyse the phenomenon of unethical medical practices on the basis of a large body of empirical evidence.

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Appendix Table 1. STRATEGY TO DEAL WITH UNETHICAL SURGEON: TABULATION BY ADMINISTRATIVE CATEGORY

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

All		County	County-level city	Urban district	Difference: urban-county	
		(% respondents)				
4	Complain to the hospital administration	3	3	5	2	*
10	Use connections to find another surgeon	8	8	14	6	***
4	Pay the surgeon extra money (*hong bao*)	4	3	4	-1	
4	Go to a private hospital for better treatment	3	3	5	2	***
27	Change to another public hospital	29	25	26	-3	*
4	Ask the surgeon to take special care	4	4	5	1	*
32	Undergo the operation at own risk	32	32	32	0	
16	Don't know	18	22	11	-7	***

Significance of difference: *. 05 level, ***. 001 level

Source: Performance Evaluations, Trust and Utilization of Health Care in China Survey, 2012-13. Funded by the UK Economic and Social Research Council, Grant No. ES/J011487/1. Fieldwork 1 November 2012-17 January 2013, N=3,684.

Appendix Table 2. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: TABULATION BY ADMINISTRATIVE CATEGORY

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All		County	County-level city	Urban district	Difference: urban-county	
		(% respondents)				
8	Complain to the hospital administration	5	8	12	7	***
6	Use connections to find another doctor	4	4	7	3	***
2	Pay the doctor extra money (*hong bao*)	3	2	2	-1	*
7	Go to a private hospital or pharmacy for the prescription	7	8	7	0	
13	Change to another public hospital	15	16	10	-5	***
24	Ask the doctor to change the prescription	22	21	27	4	**
24	Buy the medicine prescribed by the doctor	25	20	25	0	
16	Don't know	20	21	11	-8	***

Significance of difference: *. 05 level, **.01 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 3. STRATEGY TO DEAL WITH UNNECESSARY TESTING: TABULATION BY ADMINISTRATIVE CATEGORY

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All		County	County-level city	Urban district	Difference: urban-county	
		(% respondents)				
7	Complain to the hospital administration	4	7	11	7	***
6	Use connections to find another doctor	5	6	7	2	*
2	Pay the doctor extra money (*hong bao*)	2	2	2	0	
2	Go to a private hospital to get the tests done	2	1	3	1	
12	Change to another public hospital	13	12	11	-2	
20	Ask the doctor to keep the tests to the minimum	20	19	19	-1	
30	Do the tests recommended by the doctor	30	26	31	1	
6	Refuse the tests	6	7	5	-2	*
16	Don't know	18	19	11	-7	***

Significance of difference: *. 05 level, **.01 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 4. STRATEGY TO DEAL WITH UNETHICAL SURGEON: TABULATION BY INFRASTRUCTURE LEVEL

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

		Infrastructure: number of utilities					
All		None	One	Two	Three	Difference: three-none	
		(% respondents)					
4	Complain to the hospital administration	4	4	3	4	0	
10	Use connections to find another surgeon	5	5	9	16	10	***
4	Pay the surgeon extra money (*hong bao*)	2	3	4	4	2	
4	Go to a private hospital for better treatment	2	3	5	4	2	
27	Change to another public hospital	17	23	29	30	13	***
4	Ask the surgeon to take special care	5	4	5	4	-1	
32	Undergo the operation at own risk	48	34	30	27	-20	***
16	Don't know	16	24	16	9	-7	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 5. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: TABULATION BY INFRASTRUCTURE LEVEL

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All		*Infrastructure: number of utilities*					
		None	One	Two	Three	Difference: three-none	
		(% respondents)					
8	Complain to the hospital administration	6	5	8	10	4	**
6	Use connections to find another doctor	2	3	5	9	7	***
2	Pay the doctor extra money (*hong bao*)	3	3	2	2	-1	
7	Go to a private hospital or pharmacy for the prescription	8	5	9	6	-2	
13	Change to another public hospital	10	13	14	14	4	*
24	Ask the doctor to change the prescription	26	22	23	25	-1	
24	Buy the medicine prescribed by the doctor	27	25	22	24	-2	
17	Don't know	19	24	17	10	-10	***

Significance of difference: *. 05 level, ** .01 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 6. STRATEGY TO DEAL WITH UNNECESSARY TESTING: TABULATION BY INFRASTRUCTURE LEVEL

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All		*Infrastructure: number of utilities* None	One	Two	Three	Difference: three-none	
		(% respondents)					
7	Complain to the hospital administration	6	4	7	9	3	*
6	Use connections to find another doctor	2	3	6	9	6	***
2	Pay the doctor extra money (*hong bao*)	2	2	1	2	0	
2	Go to a private hospital to get the tests done	2	2	3	2	0	
12	Change to another public hospital	13	13	11	13	0	
20	Ask the doctor to keep the tests to the minimum	18	18	22	19	2	
30	Do the tests recommended by the doctor	34	29	25	33	-1	
16	Don't know	19	23	17	8	-11	***
6	Refuse the tests	5	6	7	5	0	

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 7. STRATEGY TO DEAL WITH UNETHICAL SURGEON: TABULATION BY GENDER

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

All		Female	Male	Difference: male-female	
		(% respondents)			
4	Complain to the hospital administration	3	4	0	
10	Use connections to find another surgeon	10	11	1	
4	Pay the surgeon extra money (*hong bao*)	4	4	0	
4	Go to a private hospital for better treatment	3	4	1	
27	Change to another public hospital	26	28	1	
4	Ask the surgeon to take special care	5	4	0	
32	Undergo the operation at own risk	32	31	-1	
16	Don't know	17	14	-3	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 8. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: TABULATION BY GENDER

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All		Female	Male	Difference: male-female	
		(% respondents)			
8	Complain to the hospital administration	8	8	0	
6	Use connections to find another doctor	6	5	0	
2	Pay the doctor extra money (*hong bao*)	2	2	0	
7	Go to a private hospital or pharmacy for the prescription	7	7	0	
13	Change to another public hospital	13	14	1	
24	Ask the doctor to change the prescription	23	24	1	
24	Buy the medicine prescribed by the doctor	23	25	2	
17	Don't know	18	15	-4	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 9. STRATEGY TO DEAL WITH UNNECESARY TESTING: TABULATION BY GENDER

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All		Female	Male	Difference: male-female	
		(% respondents)			
7	Complain to the hospital administration	6	8	1	
6	Use connections to find another doctor	6	5	-1	
2	Pay the doctor extra money (*hong bao*)	2	2	0	
2	Go to a private hospital to get the tests done	2	2	-1	
12	Change to another public hospital	12	13	1	
20	Ask the doctor to keep the tests to the minimum	18	21	3	*
30	Do the tests recommended by the doctor	30	29	0	
6	Refuse the tests	6	6	0	
16	Don't know	17	14	-3	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 10. STRATEGY TO DEAL WITH UNETHICAL SURGEON: TABULATION BY AGE COHORT

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

All		Born 1940s, 50s	Born 1960s, 70s	Born 1980s, 90s	Difference: young-old	
		(% respondents)				
4	Complain to the hospital administration	3	4	4	1	
10	Use connections to find another surgeon	7	10	12	5	***
4	Pay the surgeon extra money (*hong bao*)	3	4	4	0	
4	Go to a private hospital for better treatment	3	3	5	2	*
27	Change to another public hospital	21	25	33	11	***
4	Ask the surgeon to take special care	3	5	5	2	*
32	Undergo the operation at own risk	36	33	28	-8	***
16	Don't know	24	16	10	-13	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 11. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: TABULATION BY AGE COHORT

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All		Born 1940s, 50s	Born 1960s, 70s	Born 1980s, 90s	Difference: young-old	
		(% respondents)				
8	Complain to the hospital administration	5	8	10	5	***
6	Use connections to find another doctor	5	5	7	2	*
2	Pay the doctor extra money (*hong bao*)	2	2	2	0	
7	Go to a private hospital or pharmacy for the prescription	7	7	7	0	
13	Change to another public hospital	12	13	15	2	
24	Ask the doctor to change the prescription	19	23	28	9	***
24	Buy the medicine prescribed by the doctor	25	25	22	-3	*
17	Don't know	25	17	10	-15	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 12. STRATEGY TO DEAL WITH UNNECESSARY TESTING: TABULATION BY AGE COHORT

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All		Born 1940s, 50s	Born 1960s, 70s	Born 1980s, 90s	Difference: young-old	
		(% respondents)				
7	Complain to the hospital administration	5	6	10	5	***
6	Use connections to find another doctor	4	6	7	3	**
2	Pay the doctor extra money (*hong bao*)	2	2	1	-1	
2	Go to a private hospital to get the tests done	2	2	2	0	
12	Change to another public hospital	11	12	13	2	
20	Ask the doctor to keep the tests to the minimum	15	20	23	7	***
30	Do the tests recommended by the doctor	30	31	28	-1	
16	Don't know	25	16	10	-16	***
6	Refuse the tests	5	6	6	1	

Significance of difference: *. 05 level, **.01 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 13. STRATEGY TO DEAL WITH UNETHICAL SURGEON: TABULATION BY EDUCATION

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

All		Primary or less	Junior high	Senior high, technical	University	Difference: university-primary	
		(% respondents)					
4	Complain to the hospital administration	3	3	5	5	2	
10	Use connections to find another surgeon	6	10	11	20	14	***
4	Pay the surgeon extra money (*hong bao*)	3	4	6	4	1	
4	Go to a private hospital for better treatment	2	4	5	6	4	***
27	Change to another public hospital	20	31	31	23	4	
4	Ask the surgeon to take special care	4	5	4	6	1	
32	Undergo the operation at own risk	35	31	29	30	-5	*
16	Don't know	27	14	10	6	-20	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 14. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: TABULATION BY EDUCATION

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All		Primary or less	Junior high	Senior high, technical	University	Difference: university-primary	
		(% respondents)					
8	Complain to the hospital administration	5	8	9	12	7	***
6	Use connections to find another doctor	3	6	6	11	7	***
2	Pay the doctor extra money (*hong bao*)	2	3	2	2	0	
7	Go to a private hospital or pharmacy for the prescription	6	8	7	6	0	
13	Change to another public hospital	12	14	15	10	-2	
24	Ask the doctor to change the prescription	20	24	26	29	10	***
24	Buy the medicine prescribed by the doctor	25	24	23	21	-4	*
17	Don't know	27	14	11	8	-19	***

Significance of difference: *. 05 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 15. STRATEGY TO DEAL WITH UNNECESSARY TESTING: TABULATION BY EDUCATION

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All		Primary or less	Junior high	Senior high, technical	University	Difference: university-primary	
		(% respondents)					
7	Complain to the hospital administration	5	7	9	10	5	***
6	Use connections to find another doctor	3	6	7	11	8	***
2	Pay the doctor extra money (*hong bao*)	1	2	2	2	1	
2	Go to a private hospital to get the tests done	2	3	2	2	0	
12	Change to another public hospital	11	12	14	10	-1	
20	Ask the doctor to keep the tests to the minimum	18	19	21	22	5	***
30	Do the tests recommended by the doctor	29	31	29	32	3	
16	Don't know	26	15	9	6	-20	***
6	Refuse the tests	6	6	7	4	-2	

Significance of difference: *. 05 level, **.01 level, ***. 001 level

Source: As in Appendix Table 1.

Appendix Table 16. STRATEGY TO DEAL WITH UNETHICAL SURGEON: MEAN INCOMES

Q. If your friend needed a life-saving operation but the surgeon in a public hospital told them that he could not guarantee that the operation would be successful, what would you advise the patient to do? (One answer).

All %		Mean h'hold income (1) (thousand Yuan)	Difference from mode (undergo operation)	Significance(2)
4	Complain to the hospital administration	61.3	14.5	**
10	Use connections to find another surgeon	67.7	20.9	***
4	Pay the surgeon extra money (*hong bao*)	63.3	16.5	*
4	Go to a private hospital for better treatment	85.8	39.0	
27	Change to another public hospital	56.0	9.2	***
4	Ask the surgeon to take special care	64.2	17.5	**
32	Undergo the operation at own risk	46.8	0	--
16	Don't know	44.4	-2.3	

(1) Includes pooled mean income for five imputations for the 26.3% of households not reporting their income. Imputations based on education of the respondent and the maximum amount of money which the respondent thinks his/her household could access in an emergency.

(2) Independent samples t-test comparing the mean income in each category to the modal category of "undergo the operation at own risk": * significant at .05 level, ** .01 level, *** .001 level.

Source: As in Appendix Table 1.

Appendix Table 17. STRATEGY TO DEAL WITH OVER-PRESCRIPTION: MEAN INCOMES

Q. What would you advise your friend to do if the doctor at a public hospital prescribes a lot of expensive medication which is not covered by insurance even when cheaper alternatives are available? (One answer)

All %		Mean h'hold income (1) (thousand Yuan)	Difference from mode (buy the medicine)	Significance(2)
8	Complain to the hospital administration	68.6	20.0	***
6	Use connections to find another doctor	66.1	17.5	***
2	Pay the doctor extra money (*hong bao*)	56.1	7.5	
7	Go to a private hospital or pharmacy for the prescription	67.5	19.0	
13	Change to another public hospital	53.9	5.3	
24	Ask the doctor to change the prescription	57.1	8.5	***
24	Buy the medicine prescribed by the doctor	48.6	0	--
17	Don't know	43.7	-4.9	

(1) Includes pooled mean income for five imputations for the 26.3% of households not reporting their income. Imputations based on education of the respondent and the maximum amount of money which the respondent thinks his/her household could access in an emergency.

(2) Independent samples t-test comparing the mean income in each category to the modal category of "buy the medicines prescribed by the doctor": * significant at .05 level, ** .01 level, *** .001 level.

Source: As in Appendix Table 1.

Appendix Table 18. STRATEGY TO DEAL WITH UNNECESSARY TESTING: MEAN INCOMES

Q. What would you advise your friend to do if he thinks doctors in a public hospital are requiring him to do unnecessary diagnostic tests? (One answer)

All %		Mean h'hold income (1) (thousand Yuan)	Difference from mode (do the tests)	Significance(2)
7	Complain to the hospital administration	73.9	22.2	**
6	Use connections to find another doctor	67.8	16.0	*
2	Pay the doctor extra money (*hong bao*)	57.7	5.9	
2	Go to a private hospital to get the tests done	59.6	7.9	
12	Change to another public hospital	53.3	1.5	
20	Ask the doctor to keep the tests to the minimum	57.2	5.4	
30	Do the tests recommended by the doctor	51.8	0	--
16	Don't know	43.9	-7.9	
6	Refuse the tests	52.7	0.9	

(1) Includes pooled mean income for five imputations for the 26.3% of households not reporting their income. Imputations based on education of the respondent and the maximum amount of money which the respondent thinks his/her household could access in an emergency.

(2) Independent samples t-test comparing the mean income in each category to the modal category of "do the tests recommended by the doctor": * significant at .05 level, ** .01 level, *** .001 level.

Source: As in Appendix Table 1.