

Are Incentives Everything?

Payment Mechanisms for Health Care Providers in Developing Countries

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Summary: This paper assesses the extent to which provider payment mechanisms can help developing countries address their leading health care problems. It first identifies four key problems in the health care systems in developing countries: 1) public facilities, which provide the bulk of secondary and tertiary health care services in most countries, offer services of poor quality; 2) providers cannot be enticed to rural and urban marginal areas, leaving large segments of the population without adequate access to health care; 3) the composition of health services offered and consumed is sub-optimal; and 4) coordination in the delivery of care, including referrals, second opinions, and teamwork, is inadequate. The paper examines each problem in turn and assesses the extent to which changes in provider payments might address it.

Keywords: provider payments, incentives, contracts

1. Introduction

Health care delivery systems involve a variety of actors, including physicians, nurses, hospitals, pharmacists, and payers, many of whom interact with each other and with patients in decentralized settings that are difficult to observe. Most, especially physicians, can influence the kinds, quantities, and quality of health care goods and services delivered and consumed. Physicians' routine practices for making appointments, diagnosing illness conditions, recommending and administering treatments, offering counseling and health information, charging for services and materials, and referring patients to their colleagues greatly affect utilization, efficiency, and quality. That is why so many health care reforms, and still more arguments in favor of other reforms, focus on the incentives believed to condition those routine practices, and particularly on the mechanisms for paying providers.

Reforms in the health care systems of developing countries frequently focus on “getting the incentives right” and aim to use provider payments to optimize the utilization of scarce health care resources, transform clinical practice, and improve the quality of care. To what extent can provider payment mechanisms achieve those objectives in developing country settings? For most readers, it will be not giving away the punch line to disclose at the beginning that no magic bullet is available, and that, because of data limitations, selection effects, and numerous confounding variables, a body of convincing empirical research on the effects of various payment mechanisms on provider behavior in developing countries is several years away, at the least. But health policy makers and

others interested in improving the health systems of developing countries must act in the interim with imperfect knowledge. For that reason, this paper is written in the spirit of an essay. It is an effort to glean practical knowledge, from the partial theoretical and empirical findings that are available, on whether and how to use payment mechanisms in health care reform in developing countries. The paper first identifies four leading problems in the health care systems in developing countries. The succeeding sections reflect on each of the problems in turn, and assess the extent to which changes in provider payment mechanisms can address it.

2. Health care problems in developing countries

An analysis of provider payments is complicated not only by heterogeneity among health care providers but by the diversity of institutions, practices, and preferences in developing countries. This typology, largely based on McPake (1997), divides health care systems in developing countries into three patterns. The first pattern uses as exemplars Nepal, Tanzania, many of the smallest and poorest nations in sub-Saharan Africa. In those countries large public hospitals are located in the capitals and a few of the largest cities, and smaller public hospitals, clinics, and health posts are scattered in rural areas. Budget allocations finance public facilities, whose employees are usually salaried physicians and nurses who sometimes supplement their incomes by selling goods and services under the table. Patients who have conditions of varying severity crowd emergency rooms, and little medical information is passed from one facility to another. Shortages of supplies are common. In rural areas patients also frequent traditional healers, drug sellers, and semi-trained health providers that work largely in isolation from the public facilities. Religious orders and philanthropic groups run hospitals and clinics that people regard more highly than those in the public sector. In the capitals and largest cities, well-to-do executives, professionals, government officials, and foreign nationals pay out-of-pocket or draw coverage from the thin insurance market to access better trained physicians and more technologically sophisticated hospital wards.

Poor countries with larger and more concentrated populations, such as Pakistan and Kenya, exhibit a second pattern of health care provision. This pattern resembles the first with one exception: in these countries semi-trained private providers dominate the supply of health care in most rural and marginal urban areas. These private providers utilize a mix of Western and indigenous medical concepts, make money purchasing and reselling drugs from local chemists, often engage in agricultural or other activities part-time, and have limited contact with the formal, public health care system. Patients are

usually uninsured and pay these providers out-of-pocket, resulting in substantial household outlays. For example, about three-quarters of health expenditures in India come directly from households. (Chakraborty 1998)

Middle-income countries such as Chile, Mexico, Thailand, and South Africa, have a distinct, third pattern of health care provision. Risk-pooling, often financed with formal sector payroll taxes, is far more common. A government-managed social security organization usually collects taxes and pays physicians and hospitals, which are either public or contracted private providers. Most of these countries also have general revenue-financed hospitals and clinics for informal sector workers, and growing or already substantial private insurance markets for the relatively well-off in the larger cities.

These patterns are heuristic devices only, and many countries' systems are hybrids, with different patterns predominating in distinct geographic areas. Nevertheless, the typology helps to illuminate the main challenges facing the health systems of developing countries and to make clear what is hoped for from reforms that implement new incentive structures. Four key institutional problems facing the health systems of developing countries emerge from the preceding account: 1) public facilities, which provide the bulk of secondary and tertiary health care services in most countries, offer services of poor quality; 2) the composition of health services offered and consumed is sub-optimal; 3) providers cannot be enticed to rural and urban marginal areas, leaving large segments of the population without adequate access to health care; and 4) the referral system and coordination in the delivery of care is inadequate. The next sections analyze the extent to which getting the incentives right might help address each of these problems.

3. Improving the quality of care in public hospitals

Most public hospitals in developing countries are financed through budget allocations that are not directly related to the amount and quality of health care services they provide. These hospitals are nominally under the nominal supervision of a health ministry, and gross violations of expected norms can lead to dismissal of hospital directors or staff and penalties in the form of reduced budgets or the withdrawal of certain privileges in subsequent years. But in practice supervision is weak, and penalties for poor performance are the exception. The most commonly suggested change in provider payments for hospitals is to make hospitals residual claimants on revenues, and/or to expose hospitals to competitive markets through the establishment of renewable and competitively offered contracts for specific services. The motivation for these ideas

comes from classical agency theory, which holds that time-based payments for services (salaries or budgets) do not charge agents (in this case hospitals) for on-the-job leisure. (Harding and Preker 2000) As a result, the managers of public and not-for-profit organizations do not personally lose income when they hold a Friday afternoon office party, misplace a patient's file, or otherwise slack off.

What do contracts that do impose penalties on hospital managers for inattentiveness and lethargy look like? Optimal contracts turn out to be complex agreements that attempt to reconcile competing objectives. Most analyses of these contracts, drawing from classical agency theory, focus on the tradeoff between risk and efficiency. Given that patients do not pay the marginal cost of health care in hospitals, either because they have insurance coverage or because governments offer subsidies, and that the amount and type of health care needed when a patient arrives at a hospital are unknown, either the hospital or the payer must assume financial risk. Hospitals will refuse contracts in which they are paid a flat rate to treat all presenting patients, but contracts that reimburse hospitals for all incurred costs provide no incentives to reduce unit costs and encourage hospitals to see as many patients as possible. The optimal solution lies in the middle. Under some conditions, transferring some but not all risk to providers, some "supply-side cost sharing" or "partial capitation," can improve social welfare by mitigating the excess consumption from moral hazard without eviscerating the risk-pooling function of insurance, which imposing very high co-payments or user fees would do. (Pope 1989, Ellis and McGuire 1990, Ellis 1998, Newhouse 1998) In practice, many contracted hospitals are paid, both in industrialized and in some low and middle-income countries, such as the Kyrgyz Republic and Brazil, on a per patient basis adjusted for the resources associated with the diagnosis at entry, a method inspired by the diagnosis-related groups (DRGs) in the U.S. Medicare system. This type of payment method assumes that hospitals can influence patient decision making about how many resources to consume after they are admitted, and that that influence should be exploited by payers to dampen moral hazard. Other countries, such as Germany and the Czech Republic, reimburse contracted hospitals on the basis of the number and case-mix of patients, but at a price that declines as the volume of patients increases, a method used in Germany, the Czech Republic, and elsewhere. This contract assumes more explicitly that hospitals have market power over patients because of the lack of competitors or because of asymmetric information with patients, that hospitals use that power to entice larger numbers of patients to their facilities, and that, therefore, hospitals should be reimbursed at rates less than marginal cost over some ranges.

The literature on the tradeoff between risk and efficiency for hospitals is directly relevant for several pattern three countries, such as the Mexico and Argentina, where the rate of increase in medical prices is an emerging priority. But pattern one and two developing country markets do not have widespread third-party payment, do not have private hospitals in large numbers, and most have weak information systems for reporting treatment quantities and marginal costs. Cost-containment is achieved simply in those contexts – by shrinking the public sector health budget. But budgetary caps are ham-fisted instruments that force facilities to ration care arbitrarily, creating confusion, distrust, patient dumping, and steadily eroding the credibility of government incentives for providers. Explicit rationing would create less arbitrary distribution rules, and limiting government financing to packages of basic, cost-effective services has been proposed (World Bank 1993), but most governments resist official rationing on political and normative grounds. Another solution to the moral hazard problem that does not rely on supply-side cost-sharing is to encourage the creation of medical savings accounts, as Singapore and Hong Kong have done, and to charge patients the full price of health care; but medical savings accounts need to be combined with insurance for more expensive and catastrophic care for hospital services that, in pattern one and two countries, are not feasible in the short- to medium-term. By far the most common means to limit consumer demand are informal payments, whether proscribed, tolerated, or officially sanctioned as user fees. These are widespread in all three patterns of health care systems, but especially in patterns one and two.

Empirical studies on the risk-efficiency tradeoff have found that supply-side cost-sharing seems to be associated with shorter average length-of-stay in hospitals. There is as yet no conclusive evidence on whether supply-side cost sharing is forcing cuts in medically necessary care or are otherwise damaging the quality of care provided; but the concern that they might fuel research in the area. One study have found evidence that decreases in reimbursement associated with prospective payment in the United States were associated with inpatient hospital mortality rates, but not with mortality in the year after discharge. (Cutler 1995)

The possibility that providers are skimping on care-giving leads to the recognition that the classical agency model is not the full story. There is more going on than the transfer of risk to providers. When agents perform multiple tasks, basing rewards on just one or two of them can distort agents' incentives, leading to perverse outcomes. Hospitals, among the most complex organizations in the modern world, obviously perform multiple tasks, including patient intake, emergency care, thousands of different

medical procedures, patient education, billing and payment, training residents and interns, case conferences and grand rounds, epidemiological surveillance, charity, procuring new equipment, stocking pharmaceuticals, disposing biohazards, building construction, and fundraising. Basing hospital contracts on a few indicators, even fundamental ones such as patient intake, bed days provided, or risk-adjusted diagnosis at entry, might compromise other objectives, such as the quality of care delivered.

A number of theoretical models attempt to identify optimal payment methods when both efficiency and quality enter into the payer's objective function. One of these papers departs from the common premise in the literature that higher quality health care is equivalent to higher treatment levels, and it explores the possibility of cost-reducing quality improvements and technological spillovers. (Kesteloot and Voet 1998) Another finds that managerial limits, such as HMO utilization protocols, combined with copayments can reduce the reliance on supply-side cost sharing to dampen moral hazard. (Pauly 1998) A third finds that when patients cannot monitor the quality of care, first best contracts are not possible because "the purchaser has only two instruments [quantities and cost], but three margins [quantities, quality, and cost-reducing effort] to induce the hospital to get right"; and that second-best outcomes depend on "benevolence," or the extent to which providers value patient well-being. (Chalkley and Malcolmson 1998) Where patients observe and respond to physician effort and quality, the existence of optimal outcomes depends on constraints for truthful reporting (Ma and McGuire 1997) and on whether costs are known to the payer and on the dimensionality of quality. (Ma 1994) A general conclusion is that a "a consistent finding from this literature is that mixed reimbursement systems are necessary to optimally balance cost and quality," (Dranove and Satterthwaite 2000) but how much supply-side risk sharing is optimal depends on parameters such as beneficence, competition, and the elasticity of demand for quality.

That suggests some of the problems that limit the applicability of these models. When retrospective reimbursements are set below marginal cost (there is supply-side cost sharing), physicians have no incentive to exert effort above the minimal level. Corner solutions result unless physicians value their patients' well-being ("beneficence") or unless patients set their demand levels after observing physician effort. In the former case, the existence of provider beneficence increases health care utilization at any given level of supply- or demand- side cost sharing. So some writers have noted that payers can "exploit 'ethical' behavior" to extract greater physician effort, by increasing copayments (Ma and McGuire 1997) or lowering physician reimbursement rates, which also saves

(presumably distortionary) tax revenues. (Ma 1994) But this understanding of “beneficence” as an exogenous characteristic of providers is simplistic. In reality, physicians will become less beneficent once they observe payers extracting effort from them. This is an example of the way in which the use of extrinsic incentives might crowd out intrinsic incentives (Kreps 1998), and how economic organization can change agents’ objectives. (Bowles 1998). There is evidence that intrinsic incentives motivate the behavior of social workers (Heckman 1997), and they are undoubtedly critical for physicians and hospitals as well. (Newhouse 1970) Designing incentives systems that support, rather than detract from provider beneficence, is a real concern that, though difficult to document, deserves careful consideration when new payment systems are being considered.

Evidence of distortionary effects of new payment systems is scant because measures of the other hospital objectives are not easily available, but examples from other industries abound. Analyses of a job-training program in the United States in which training agencies were paid on the basis of the salaries and employment rates of their clients found evidence that agencies chose to work with the more employable clients in the eligible population, and that employment and salaries at three months, the indicator on which payments were made, were in fact not correlated with long-term earnings and employment. (Cragg 1997, Heckman 1996) In another study, paying mutual fund managers on the basis of asset size was related to risky portfolio choices, even among conservative funds, because the demand for funds exhibited a non-linear relationship with rates of return, with high elasticities of demand at rates above 20%. (Chevalier and Ellison 1997, cited in Prendergast 1998) One noteworthy example from health care involves a system in New York state in which cardiac surgeons were penalized for high mortality rates. Evidence suggests that the probability of a patient being rejected for cardiac surgery under the system increased with case risk and when the surgeon’s mortality rates approached the “high mortality” rate threshold. (Leventis 1998) Because health care providers can decline to offer non-emergency care, and because third parties cannot easily determine the reasons for the refusal, linking hospital payments to quality measures could lead to perverse outcomes in almost any setting, and particularly in developing countries, where information systems are generally weak. Concerns like these regarding gaming and task complexity motivate the use of subjective performance evaluations, in which employers sum up the overall contribution of an employee to the firm’s objectives. But the relationship between payers and contracted provider is by nature more distant than that between employee and a supervisor, and observing the work of contracted hospitals would be difficult for payers. In addition,

summarizing the overall value of a hospital is complex (a problem that is perhaps on par with the difficulty of ranking the performance of national health systems), so contracts with hospitals cannot easily utilize quality measures or other global performance indicators to condition payments.

If consumer demand, or exit signals, can force improvements in the quality of hospital care, payers will be able to avoid the technical problem of conditioning reimbursement contracts on quality variables. They could focus on the efficiency and risk tradeoff and let the marketplace deal with quality issues. Several theoretical models address this issue, including two that hypothesize interactions in which patients set demand after observing the effort or quality of providers (Ma and McGuire 1997) and engage in a bargaining game with physicians (Ellis and McGuire 1990). But these models abstract from a complex clinical reality. The asymmetric power of physicians regarding diagnosis and treatment undoubtedly varies. It probably is highest in hospitals, declines with patient education, is smaller in cases involving minor and familiar complaints, and might not exist at all in preventive care or when the patient is not ill. (Friedson 1989) There is some evidence consistent with the idea that patients are aware of and do respond to crude measures of hospital quality, such as the availability of drugs and infrastructure (Leonard 2000), but there are conflicting findings in other settings. For instance, in New York state, despite the availability of mortality measures for cardiac surgeons and hospitals, one study found that in making treatment choices both patients and purchasers prioritize convenience and cost over clinical quality measures. (Jencks 2000) Still, even if patients can observe average hospital quality, patients' choices inside hospitals are limited, as is, therefore, the information conveyed by patient demand. If, as is generally the case, hospital physician incomes are linked to the number of procedures performed or the number of procedures performed is otherwise important for developing expertise or reputation, and if professional referrals and organizational protocols, not patient choice, determine demand for a physicians' services *within* hospitals, physicians are likely to have stronger incentives to please their colleagues than their patients. While professional referrals and case reviews remain best available check on medical quality, they do blunt the effect of exit signals.

That is another way of way saying that granting autonomy to, corporatizing, or privatizing a public hospital, even in a competitive market with informed consumers, does not by itself resolve principal-agent problems within the facility. Lab workers, nurses, doctors, and others often have divergent interests, and the use of high-powered incentives could intensify conflicts. As two theorists note, "the use of low-powered

incentives within the firm, although sometimes lamented as one of the major disadvantages of internal organization, is also an important vehicle for inspiring cooperation and coordination.” (Holmstrom and Milgrom 1994, cited in Gibbons 1998). In addition, doctors have unusual power in comparison to employees in most firms: they usually enjoy the power, and often the exclusive legal authority, to admit and discharge patients in hospitals. They, rather than a CEO or senior management, directly control the key short-term drivers of costs and revenues of their organization; and exposing the managers of a hospital or its board to market forces will not raise the price of on-the-job leisure for hospital staff if doctor’s practices do not change (and if the information and assistance that labs and nurses provide doctors do not support changes in treatment protocols). Private or corporate hospitals can, in turn, make doctors residual claimants on revenues as well, or hire them with renewable contracts if public sector hiring rules allow it; but the effects of profit-sharing and other schemes that tie physicians’ income to corporate performance will be diluted as a function of the size of the hospital. And whether or not hospitals create such incentive schemes, and how they do it, will vary. Because of the uncertainties regarding optimal contracts sketched above, the separation of financing from provision probably will not result in a unique, let alone a first best, set of incentives within hospitals. There are few if any studies regarding the incentive schemes adopted by newly corporatized hospitals, but, if evidence from HMOs operating in competitive markets is a guide, no single pattern is likely to emerge. In the U.S., Hillman and others (1992) found that one-third of HMOs in their sample transferred payments to an intermediate entity (the medical staff of a hospital or a physician group), not to physicians themselves, and that half of the intermediate entities that were paid by the HMO on a capitation basis went on to pay primary care physicians on some other basis, fee-for-service or salary. Why physicians behave the way they do, and what instruments should be used to motivate them, remains unclear. Existing models of physician behavior explain less than 10% of inter-physician hours worked (Reinhardt 1999).

There are as of yet no conclusive studies on the relative performance of public and private or quasi-private providers in developing countries, though some case studies are available and others are underway. (Over and Watanabe 1999, Govindaraj and Chawla 1996). Anecdotal evidence suggests that mission hospitals provide better quality of care than government hospitals in Africa, among other regions; but whether this is attributable to the ability to hire and fire staff, the recruitment of altruistic personnel, organizational clarity, or other causes remains unclear. Case studies have found no systematic difference in productivity between public and private hospitals in Thailand

(Pannarunothai and Mills 1997). A literature on the topic is emerging in the United States, where longitudinal data sets on patient outcomes are available. (Cutler 2000) There is evidence that patients admitted to for-profit hospitals incur more total expenditures in the six months after discharge than patients admitted to government hospitals, but that survival rates are not significantly different between those ownership types. (Sloan and others 1999) Between for-profit and non-profit private hospitals, there is little difference in cost and patient outcome measures. (Sloan 1998) One research program is focusing on ratios of nurses to patients, arguing that they appear to predict health outcomes better than the juridical status of providers. (Aiken 2000) A fifth U. S. study found that for-profit hospitals exhibit higher mortality rates among elderly patients with heart disease than nonprofit hospitals, and that this difference has grown over the last decade, but that most of this difference in outcomes is due to the location of for-profit hospitals. That study's conclusion sums up the principal findings of the empirical literature to this point: "[T]he small average difference in mortality between for-profit and not-for-profit hospitals masks an enormous amount of variation in mortality within each of these ownership types. Overall, these results suggest that factors other than for-profit status per se may be the main determinants of quality of care in hospitals." (McClellan and Staiger 2000)

The strongest arguments for coporatization emerge not from property rights theory but from accounts of public sector organization. Public bureaucracies, orderly and regimented hierarchies in the simple, stylized Weberian conception, are in reality often divided and politicized. The problem for some public managers is not that they lack over their agency discretion, as the stylized account suggests, but that they are responsible to several principals with differing interests. One theoretical model demonstrates that if a manager can achieve the goal of one principal only at the expense of the goals of the others, a situation might result in which the principals find it optimal to reward the manager on the basis of performance criteria that subvert the goals of the other principals. (Dixit 1997) This account is plausible for public hospitals, which in developing countries are answerable to ministries of health, education, finance, as well as to local governments. The account suggests that mission clarification for public hospitals could allow principals to set clearer performance benchmarks and use higher power incentives. The same is true for some discrete tasks in the health sector as a whole, such as immunization: carving out those tasks from others would allow for the use of higher power incentives and could enhance performance in specific areas.

4. Improving the composition of health care utilization

Patients do not always demand and providers do not always deliver the right kind of health care. Increasing or decreasing the utilization of specific medical procedures as technologies evolve is a continual health policy problem, and encouraging greater utilization of public health and preventive care is a preoccupation of public health officials in industrial and developing countries alike. Financial incentives play a role in these efforts.

On the demand side, some payers set relative consumer prices with the objective of promoting certain kinds of health care. Governments, for instance, frequently subsidize services with large positive externalities, such as immunization and health information. Private payers set low co-payments for certain preventive services, such as ante-natal care, on the basis of a calculation that their utilization lowers expected claims for hospitalization and other costly procedures. Relative consumer prices are occasionally used to promote specific treatments or devices (say, condoms instead of sterilization), but their use is not widespread because cross-price elasticities with *other* health services and behaviors (say, abstinence or the female condom) are generally unknown or disputed, and because a complicated, variable co-payment schedule for all health care services would lead to controversies regarding actuarial fairness and the equitable treatment of different medical conditions. Co-payments are rarely negative, but paying people to consume health care with positive externalities might make sense. One comprehensive literature review identified 11 “randomized trials with quantitative data concerning the effects of financial incentives (cash, vouchers, lottery tickets, or gifts) on compliance with medication, medical advice, or medical appointments,” and found that 10 of the 11 studies showed that some form of financial incentives promoted compliance better than any alternative. (Giuffrida and Torgerson 1997) It is conceivable that specific financial incentives could “crowd out” altruistic motivations, such as the willingness to donate blood (Titmuss 1970). But in Brazil and other countries a program that pays poor families to send their children to school has met with success; and paying poor families to utilize health services, particularly those with positive externalities, might under some conditions be an effective way to change utilization patterns in developing countries.

Supply side approaches are more common than demand side ones. Initiatives to alter the composition of health care utilization by changing the relative reimbursement rates to providers for various procedures take as given the notion that health care providers have significant power to induce patient demand, and also make several other assumptions regarding health care provision. Lowering the relative supply price of a

procedure might not increase its utilization if physicians cannot induce patient demand (the field is competitive, discretion limited, or patient needs and preferences are strong), if physicians can make up the lost income from some other source (selling more pharmaceuticals, gaining referrals from colleagues, increasing referrals to labs or other facilities from which they receive revenue, substituting into patients covered by a payer that has not lowered the price of the procedure), if physicians prefer to substitute leisure for the lost income, or if practicing the procedure sufficiently enhances physicians' reputations. The long-term effects of changes in relative provider prices, including their impact on entry and exist into specific specialties, is difficult to study empirically but warrants historical examination. It might be the case that policy decisions regarding medical training and licensing have a greater (though belated) impact on patient decisions and service utilization rates than changes in relative prices. (Arrow 1963)

Changing relative provider prices can occur through reimbursement rates from third-party payers or in the form of specific "target payments" to public or private providers. Initiatives in this area have taken a number of forms. In the United States and Canada, "relative value scales" have increased the fees of "cognitive" services, such as consultations with primary care physicians, relative to some procedural services, such as surgery and testing. Target payments for immunization and other services have been provided in the UK, the Czech Republic, and elsewhere. A blueprint for a health system reform in Brazil, supported by the World Bank and the Inter-American Development Bank, explicitly targeted the composition of patient demand by attempting to raise the supply prices of services deemed cost-effective. (World Bank 1996) In addition, some initiatives have been proposed to use clinical criteria to bundle certain services, such as surgery and post-acute care under Medicare (Prospective Payment Assessment Commission 1997) and deliveries with ante-natal care visits (World Bank 2000).

Despite these efforts, detailed studies of the effectiveness of changing utilization through provider payments is scanty. In Haiti, payments to NGOs based on immunization rate coverage and other targets produced sharp increases in utilization rates; but the study did not include control groups (Eichler 2000). There is more evidence that fee changes can impact specific clinical decisions where medical discretion is large, such as the balance between cesarean and normal child births (Gruber and others 1999). No effect was found in an attempt to increase breast cancer screening rates by paying small financial bonuses to physicians in managed care organizations in the United States, a finding that the authors attribute to a lack of awareness of the payments among physicians and to the difficulty of affecting treatment protocols when physicians have

multiple payers. (Hillman and others 1998: AJPH) Studies of the effects of general changes in relative provider prices have found limited and inconclusive effects (Hurley and Labelle 1995), and one literature review of target payments found only two studies using randomized controls (both employing non-linear bonus payments based on immunization rates). One of these studies found a significant effect of target payment, and the other did not. (Giuffrida and others 2000) Further experiments in developing countries are certainly warranted, but results to date suggest that marginal changes in provider payments have a limited effect on the composition of utilization. It might be more useful to focus on the composition of health care providers (nurses versus doctors, generalists versus specialists), which can affect health care consumption over the long term.

5. Attracting physicians to work in outlying areas

Serving in remote areas in developing countries constitutes a personal hardship for physicians, who must forego income from private practices they could establish in urban areas as well as educational and other opportunities for their children. As a result, premiums for enticing physicians to serve in those areas must be high. One analysis based on both the revealed and stated preferences of medical school graduates in Indonesia found that that bonuses of as much as 100% of salary would be necessary to attract graduates from Jakarta to the outer islands, but that bonuses of as little as 30% were required to attract physicians originally from remote regions to return there to practice after finishing medical school. That study suggested that establishing medical training centers in outlying areas, hiring public health graduates as rural health center managers, and increasing the representation of local students in medical schools could help staff health clinics in peripheral areas. (Chomitz and others 1998) Several countries, such as Mexico and Indonesia, have compulsory a service requirements in outlying areas for new physicians. This system helps staff the outer clinics at low cost, but does so usually at the expensive of a quid pro quo from the government, such as free tuition in public medical school, guaranteed placement in the civil service, or specialist training, that carries larger efficiency costs than direct cash subsidies to physicians.

There might a reason, however, that governments recruit younger physicians to work in rural regions and tie their pay to career opportunities. Monitoring costs are exceptionally high in those areas, so incentives in the form of piece-work (fee-for-service) or payments tied to performance measures are nearly impossible to enforce. The difficulty of monitoring might also increases the risk of perverse effects following from

the distortionary incentives associated with those payment structures. For instance, Palmer and Mills (2000) found that part-time district surgeons in South Africa paid on a fee-for-service basis expend minimal time and effort on their public sector patients. On the other hand, salaried physicians can easily shirk on the job because of the isolation in which they work – indeed, the job, if adequately remunerated, might actually attract individuals looking for low stress positions. The promise of entry into specialist training or the civil service essentially constitutes a deferred compensation contract with a large bonus. Younger physicians might be motivated enough by such contracts to avoid negative reports from their patients or the itinerant supervisors that do visit them. To work as an incentive, however, entry into the civil service or specialist training should not be guaranteed but should be contingent on good performance. But young physicians, who even with explicit guarantees of a deferred bonus are not attracted in larger numbers to service in outlying areas, probably will not accept the increase in risk associated with contingent bonuses (what if the government reneges?) unless paid to do so. A salary increase and a mixed contract, with both high and low-powered incentives, would result. A problem with relying on younger physicians to staff rural clinics is that the new workers have little experience and few opportunities for learning. Recruiting older clinicians will to serve in those areas is difficult both because the deferred bonus payment would have to be quite high, and because career concerns will be less effective in solving the monitoring problem.

6. Referrals and coordination

Problems with referrals and the coordination of health care, while vexing for health policy makers everywhere, are acute in most developing countries. In most countries there are too few professional referrals. Patients go directly to emergency rooms and hospital outpatient centers, receive a diagnosis and/or treatment, and return to their communities with little or no transfer of medical information between the hospital and their local clinic or health center. In pattern two countries such as India, the private practitioner working in isolation has an incentive to avoid referring patients and recommending second opinions –the referring physician might lose a customer if the patient prefers the colleague. That is a social loss because a physician who refers a patient to a colleague has his work effectively evaluated by the colleague, and the counter-referral then results in the second colleague being evaluated as well. (Friedson 1989) In other words, medically indicated professional referrals carry social benefits that the referring physician cannot internalize: there are positive externalities to professional referrals. By contrast, lay referrals have a weaker quality control function. Practitioners

who rely exclusively on lay referrals, including isolated private providers in developing countries, are forced to meet patient expectations, dispensing excess pharmaceuticals. Although professional organizations can encourage referrals, they sometimes prioritize union interests over quality monitoring, and professional norms that encourage keeping quiet and not criticizing colleagues can undermine the quality-enhancing potential of professional referrals.

There exist few studies evaluating explicit incentives for cooperation. Profit-sharing might promote cooperation, but the incentives tend to be diluted in large organizations. (Prendergast 1998) One study argues that, theoretically, the use of promotions or tournaments to reward individuals will be negatively related to helping behavior, and finds empirical evidence to support the claim. (Drago and Garvey 1998) In health care, some patterns of payment can affect the frequency of medical referrals. Weakly monitored physicians on salary exert effort have an incentive to pass off a patient to a colleague. Withheld payments to physicians, in which payers exclude physicians from bonuses or withheld payments when their referral rates for laboratory tests or hospitalizations exceed plan norms, reduce referral rates. Some of the strongest empirical findings in the provider payment literature document that capitation payments and fundholding arrangements can reduce hospitalization. In the U.K., the NHS reform that established general practitioner fundholding has apparently increased the referral power of general practitioners, though at the expense of a 9-12% increase in transaction costs. (Le Grand 1999, Klein 1998) One reason many developing countries might chose to pay for and provide primary health care, even though there are larger market failures in insurance for catastrophic care, is to use low-powered incentives to establish functioning referral systems and coordination. There is some evidence, for instance, that private facilities are less likely to cooperate with public health objectives. In the United States public hospitals are twice as likely to collaborate, either formally or informally, with public health departments than not-for-profit hospitals, which in turn are twice as likely to do so as for-profit hospitals. (Halverson and others 2000) Similarly, there is greater involvement in preventive activities on the part of public hospitals in Malaysia (Alijunid and Zwi 1997), though not in Kenya (Berman and others 1995). But low-powered incentives result in efficiency losses, so some combination of low- and high-powered incentives, such as those embedded in fundholding, might be able to optimize the balance between coordination and efficiency. This is speculative at this stage, however, and further research is needed to determine if and how fundholding arrangements might be useful in developing countries.

7. Conclusion

Most analytical and empirical research on provider payment mechanism has focused on the distinction between prospective and retrospective payment systems. The findings of that body of work suggest that prospective payment systems can reduce the cost of care. But that research to date is inconclusive about or tangential to the largest problems facing the health systems of developing countries – financing and managing insurance schemes, improving the quality of care, influencing the composition of demand, and coordinating medical referrals. To identify the best policy instruments to address those problems, further research is needed on the relative performance of public and non-public providers, institutional factors that explain variation in outcomes among hospitals, factors that affect the demand for health care, the long-term effects of relative provider prices, informal payments to providers, and mechanisms to coordinate referrals.

On the basis of the research conducted to date, this essay recommends that experiments and pilot projects for improving public sector hospitals should focus on mission clarity and organizational simplification, programs for improving the composition of utilization should experiment with payments to consumers and with medical and nursing training, initiatives for attracting providers to rural areas should use explicit deferred compensation contracts to improve monitoring, and that developing mechanisms for increasing medically indicated professional referrals requires more research.

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