

Can Financial Incentive Influence Medical Practice?

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Abstract

Background: Economic policy determines the allocation of funds and provides the framework within which health services are initiated, maintained or abandoned. Its implementation introduces financial incentives/disincentives likely to influence the attitudes and/or conduct of the people involved. The literature review presented in this article documents the existence of personal financial interest as a factor in the clinical decision-making of medical personnel.

Findings: Allocated payments (including merit pay and profit sharing) appear to shift doctors' practice to meet targets (e.g. population coverage, reduced spending) while generating possible perverse effects (e.g. emphasis on quantity vs. quality). Remuneration strategies (e.g. capitation, shared financial risk, fee-for-service and salary systems) alter spending patterns, interrelationships, medical protocols, work codes and statistical recording.

Conclusions: The choice of payment mechanisms is not a neutral decision and has significant policy and practice implications. The extent to which these factors influence care patterns depends on the interplay of financial incentives/disincentives, urgency of patient need and the doctor's value system.

Key words: Financial incentive, remuneration, doctor, physician, gain, motivation.

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Organisations have been described as “fascinating collections of people. The challenge is to make them productive and useful communities. That requires the use of power in its many guises...”⁽¹⁾. The decision-making process that determines the distribution of assets, including financial resources, is part of the power structure of systems, organisations and enterprises.

It is hard to imagine any period in time when economic issues were more visible in health sector decision-making. The search for measures that maximize available resources has never been greater than within the present decade. A staff paybill often represents 60 - 70% of budgeted health service funds⁽²⁾. The cost-effective utilization of human resources is thus an objective of paramount importance.

Using economic incentives and disincentives to direct individuals' energies and behaviour is common practice in all work settings, of which the health care system is no exception. While money may not appear in the literature as a critical human need, it is often assumed as “instrumental in satisfying each and every one of the needs, from hunger to self-actualization”⁽¹⁾.

This article summarises a literature review undertaken to identify financial incentives/disincentives (including remuneration strategies) relevant to medical personnel (i.e. doctors), looking at their objectives and documented outcomes. Three

major data base systems were used: Silver Platter 3.11 (MEDLINE EXPRESS (r), Health STAR and Bath Information and Data Services (Social Sciences Citation Index, Science Citation Index, Social Sciences). The key words introduced during the search were financial incentives, wage incentive, physicians/incentives, gain, motivation, remuneration, fee-for-service, reimbursement, payment. Library searches were also undertaken at the International Labour Organization, London School of Hygiene and Tropical Medicine and the Royal College of Nursing.

Research demonstrates that while “doctors’ remuneration accounted for less than 25 per cent of health care costs, their decisions were responsible for 70-80 per cent of expenditure on treatment”⁽³⁾. How these funds are allocated and the value of consequent outcomes are therefore of primary interest in the present climate of health sector reform. A clearer understanding of factors influencing doctors’ judgement may facilitate the development of a more effective management of financial and human resources within the health sector.

Background

The idealised image of medical personnel in many countries has traditionally been the independent altruist, devoted and striving for the good of the patient⁽⁴⁾. Payment for services was generally negotiated privately between the doctor and the patient and rarely regulated by anyone outside this restricted relationship. The growing number of doctors in salaried positions and the transition to third party reimbursement (i.e. social/private health insurance) introduced a variety of interested persons into the remuneration negotiation process. Representatives from government, insurance companies, professional associations, unions and consumer groups were increasingly involved. The potential for political manipulation of medical practice became apparent and the balance of power between the various social groups was recognised as one of the determining factors shaping the provision of medical care^(2, 5).

Due to the doctors’ pivotal role in the health sector as the major gatekeeper for services (“coordinating patients’ care throughout the medical care system”⁽⁶⁾), any influence exerted on their function has significant ramifications for the entire health system. In parallel, changes in the financing of medical care strongly affects the employment outlook for doctors⁽³⁾.

The choice and implementation of remuneration and reward policies are increasingly recognised as affecting the delivery of health care. As yet however, the literature provides few data on their impact on the quality of care⁽⁷⁾. The aspect of quality is beyond the scope of this article. The primary step of identifying effective rewards (i.e. having an impact on behaviour) will however reinforce the knowledge base needed to support the delivery of improved quality health care in the future.

Policies Affecting Income

Many economic policies¹ have a direct impact on doctors’ income. Within these policies, decision-makers have three options, the introduction of either rewards or penalties to the present system, or both. The majority of these measures relate to actual payments of some kind: a) allocating (or increasing) payment, or b) withdrawing payment for a specific service. This category of payment represents a complementary source of income, in addition to the applied remuneration strategy which provides the major source of income (see below).

¹ Any course of action adopted by the authorities (e.g. government, employer, unit supervisor) requiring an investment or reallocation of funds.

Allocate Payments

Figure 1 Allocated Payments



In general, providing earmarked payments is used as a means for increasing or improving health service coverage.

Target Payments

Target payments reward the provision of a specified percentage of the population with a particular clinical intervention, e.g. screening, immunisation. In the UK, the introduction of target payments for cervical screening is a financial incentive offered to General Practitioners (GPs). A lump sum bonus is allocated to those who achieve 50% coverage of their eligible population. An even higher payment is obtained if an 80% coverage is reached. The strategy's effectiveness was demonstrated when researchers found a 50% increase in the number of cervical cytologies carried out by GPs when compared to the level forecast for the year under study⁽⁸⁾.

Target payments, as all financial incentives, often generate unwelcome results or perverse effects as well as the desired impact. The allocation of target payments for preventive screening measures may have the effect of concentrating the GP's time on throughput and procedure (e.g. Pap smear). Opportunities to assess health needs and develop relevant health promotion strategies could be lost. When payment focuses on quantity and not quality of outcome, there may be actual disincentives to talking with patients⁽⁹⁾. Components of preventive care may be carried out but the required follow-up measures could be weakened by these short term, one-off approaches. Moreover, "financial incentives [in the UK] are only linked to information about patients, not to health promotion activity or, more importantly, to the outcome of that activity"⁽¹⁰⁾.

If targets are set unreasonably high, or the intervals between targets are not calculated correctly, target payments may ironically become disincentives. Furthermore, once the highest target is reached (e.g. 80%), there is no additional financial reward to cover the remaining eligible population.

Special Payments

Special payments are linked with various patient populations. These attempt to recognise any additional GP workload involved as well as encourage improved coverage of a targeted group. Examples in the UK include increased capitation payments for the population aged over 75 and under 5, and newly registered patients.

Deprivation (deprived area) payments have been used to encourage doctors to care for patients from marginalised urban areas in the UK, government subsidised poor populations in the US, as well as isolated rural areas in Norway⁽¹¹⁻¹³⁾. Certain authors however question the basis for such payments. Carr-Hill *et al* specifically refer to the lack of evidence that patients from deprived areas actually represent an increased GP workload⁽¹¹⁾. They go on to critique the tool used to determine which areas are to be considered *deprived* while noting that these payments may result in perverse incentives to increase list size with no guarantee that care will improve or consultation time will increase.

Many countries pay special allowances for staff working in hazardous or arduous conditions⁽³⁾. Caring for patients suffering from a disease stigmatised by society has in certain systems justified special payments, e.g. mental illness, while in others, lower pay scales have been a disincentive imposed on personnel working with these target populations⁽¹⁴⁾.

Managed care plans (US) are reported to encourage the reduction of doctors' use of health care resources for their patients (see below). Doctors in certain cases have received bonuses for decreasing the number of tests ordered⁽⁹⁾. While much of the literature confirms that the tests affected are of a discretionary nature⁽¹⁵⁾, financial incentives appear to have a direct impact on doctors' clinical conduct.

Recruitment Incentives

Strategies have also incorporated financial incentives (i.e. bonus, higher salary) to recruit needed medical personnel in areas of acute shortage, e.g. intensive care, operating room, private/public sector⁽³⁾.

Merit Pay

With the pressure of the economic recession and concern for cost-effectiveness, performance-related pay has recently been introduced in the health sector. This mechanism links pay with skills and performance to provide a career path and stimulate productivity. In the US, doctors have responded to various financial incentives such as productivity payments⁽¹⁶⁾. There is however much debate as to the effectiveness of such measures. Evidence suggests that "at best such schemes produce only marginal improvements and at worst demotivate and divide"⁽¹⁷⁾. In addition, recipients often consider the amounts offered are inadequate to stimulate interest.

Incentives have typically rewarded quantitative and not qualitative outcomes. The specific characteristics of the care, cure and management functions need to be considered and acceptable criteria developed if merit pay is to be accepted by medical personnel. Some of the performance-based payment systems can be very demanding on data collection thus greatly increasing administrative work at the expense of care/treatment. Furthermore, all data reporting systems can be distorted and abused if financial gain is involved.

Professional associations and unions in the health sector as well as individual doctors have strongly lobbied against such measures. There is fear that "productivity requirements may translate into pressure on doctors to see more patients

in shorter time periods, reducing the time to discuss patient values, alternative treatments, or the impact of a therapy on the patient's overall life"⁽⁹⁾. The "lack of consensus between doctors and managers over what constitutes 'good' performance"⁽¹⁸⁾ undermines the widespread introduction of merit pay in the near future.

Profit Sharing

The expansion of for-profit health facilities has provided doctors with increasing opportunities to invest as shareholders in their employing agency or associated enterprise (e.g. laboratory, radiology). The enterprise's benefits directly contribute therefore to raising the doctor's income. Similarly, doctors' involvement in selling medicines and medical equipment could have a major influence on personal income as a direct result of their prescription privileges. Clinical decisions and the allocation of resources may represent an important conflict of interest in such cases.

Withdrawn Payments

The use of special payments is often assumed to be more relevant to the introduction or expansion of a certain practice. It has however also assisted in limiting targeted routines. For example, the UK 1990 General Practitioners Contract (GPC) introduced a system of two-tiered financial incentives to encourage night visiting by GPs while *discouraging* the use of deputies. Researchers found that the rates of night visiting increased by 33% during the year studied while the proportion of visits made by deputies fell by 19%⁽¹⁹⁾.

Clinical trials published in 1983 showed that Intermittent Positive Pressure Breathing (IPPB) was no longer to be considered an effective method of treatment, yet IPPB continued to be widely practised. In the US, a refusal to reimburse the use of this procedure was considered to be a determining factor in the abandonment of an outmoded course of treatment⁽²⁰⁾.

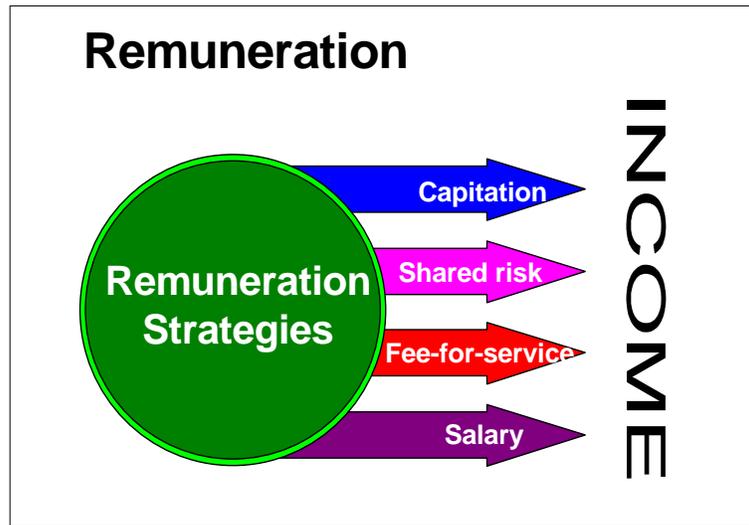
It should be noted that withdrawing benefits (e.g. bonus payments granted to persons working in special units) may be difficult, even if the situation no longer justifies the measure. Careful consideration must be given when choosing to introduce special payments in the light of possible withdrawal problems in future.

Earmarked payments have been used creatively throughout the health system and shown to influence doctors' behaviour in usually straightforward ways. This is not always the case however as the interplay of financial incentives and disincentives will affect the final outcome, magnifying certain forces and weakening others. Understanding the dynamics between allocated/withdrawn payments and outcomes supports an improved use of financial resources targeted for the realisation of health sector goals.

Remuneration Strategies

Allocated payments exist within the context of remuneration strategies. In most countries, doctors' main source of revenue may vary according to the financial framework established within a given health system. Four key remuneration strategies exist.

Figure 2 Remuneration Strategies of Medical Personnel.



Capitation

The term *capitation* refers to a major income payment mechanism. With capitation, “doctors are prospectively allocated a fixed amount of money to expend on health for the patients capitated [registered] to them”⁽²¹⁾. In this way, doctors “guarantee a comprehensive range of defined services for a fixed price”⁽¹⁶⁾. Capitation systems may differ in the goods and services included (e.g. medicines, laboratory tests, physiotherapy). This adds to the complexity of sound comparative studies.

The advantages and disadvantages of capitation provoke lively debate which has not yet been closed. Supporters of capitation argue that:

- Reliance on capitation rates will encourage GPs to respond to patients’ felt needs;
- There is no incentive to carry out tests and treatments of doubtful value;
- Links are created between the GP and their level of performance;
- Estimates of future health expenditures will be more reliable and contained;
- Preventive activities will be increased.

Opponents of capitation counter that:

- Doctors will be encouraged to keep the workload to a minimum;
- Perverse incentives may encourage GPs to register only low-risk (low-cost) patients;
- GPs may have little control over list size;
- There is no evidence that satisfying patients’ desires is necessarily good health care.

The major advantage of capitation lies in that GPs become more accountable to their patient/client population. The great fear however is that they will spend more time attracting potential clients than caring for registered patients.

The hope is that GPs' interest in retaining their patients will provide the necessary incentive to deliver quality care. In theory, this incentive would be weakened in neighbourhoods with poor or transient populations, precisely where the needs are the greatest.

The impact of capitation and the self-interests of the doctor are radically increased when doctors are placed at financial risk for hospital and specialist referrals, laboratory tests and/or treatments by ancillary staff. Capitation is often combined with a scheme of risk-sharing among practising group doctors.

Shared Financial Risk

The most widely known example of a health facility managed with shared financial risk is the Health Maintenance Organization (HMO). This is an increasingly popular approach to health care financing in the United States and is attracting much attention world-wide.

Doctors employed in such a system may be remunerated on a fee-for-service, capitation or salaried basis as their primary source of income. HMOs however differ from traditional financing systems in their distribution of risk among the purchaser of health care, the providers of care, and the insurer. In order to ensure the viability of an HMO, managers introduce mechanisms that encourage doctors to cut costs while maintaining patients' satisfaction levels. Such measures include financial incentives considered to be "a particularly important influence on the behaviour of doctors"⁽¹⁶⁾.

Benefits as well as deficits may be shared by the group doctors. There is therefore a powerful personal incentive to remain well within budget. Penalties may be imposed for what is considered overuse of external services. On the other hand, "doctors whose use of hospitals and expensive ambulatory care services is low receive 30-50 percent of their income in bonuses"⁽⁶⁾.

As mentioned, HMOs have three methods of paying their group doctors: capitation, salary and fee-for-service. Linking capitation practices with risk-sharing often results in producing the most significant cost-reducing mechanisms. Concerns with this financing mechanism are however expressed such as:

- The ultimate outcome is a rationing of services using the doctors' profit motive as a factor in the decision-making.
- It creates an adversarial relationship between the doctor and the patient and risks exploiting an already vulnerable individual.
- Inevitably, patients within the same HMO will compete for services.
- A lower patient satisfaction is reported as compared to fee-for-service models.
- Routinely creates a "moral stress test" for doctors when making clinical judgements⁽²¹⁾.
- The resulting artificial decrease in expressed need may lead to the elimination of certain services.
- There is still no understanding of what constitutes a safe risk pool, i.e. number of doctors, number of registered patients.
- There is still some debate as to whether the beneficial results of risk-sharing are due to this particular mechanism or the establishment of group practice in general.

In summary, capitated risk-sharing practices have been demonstrated to reduce health care costs, primarily by the omission of discretionary tests and treatments. Referrals to specialists have apparently been replaced by more frequent outpatient consultations while the care of major or acute conditions are considered equivalent to other practices. Although these trends have been identified to a greater degree in capitated HMOs, risk sharing associated with fee-for-service or salary payment systems also generate similar trends^(22, 23).

The distribution process of surpluses often stimulates a competitive, rather than a cooperative, relationship among the HMO doctors⁽¹⁶⁾. It is especially true when individual, as opposed to group, productivity is the basis for the calculation of bonuses. In view of the doctor's ambiguous personal interest in the allocation of resources, the decision-making process becomes less than transparent to all those directly involved. This may very well include the doctor⁽⁹⁾.

The role of gatekeeper, however, is familiar to doctors. In a fee-for-service system, doctors control the supply and in part the demand for medical interventions. These traditional payment practices also have their weaknesses and perverse incentives.

Fee-for-service

Frequently, doctors have been remunerated on a fee-for-service basis, e.g. interventions paid at a negotiated rate. There is consensus in the literature that doctors in such systems tend to generate more work (e.g. consultations, prescription items, surgical interventions) than those in other payment structures. Examples include:

- Mothers with private, fee-for-service insurance were shown to have higher Caesarean-section rates than mothers covered by staff-model HMOs⁽²⁴⁾;
- Hourly wages in a major chain of ambulatory care centres were replaced by bonuses calculated on the size of income generated. The number of laboratory tests performed per patient visit and number of X-ray films increased by 23% and 16% respectively while the number of monthly visits rose by 12%⁽²⁵⁾;
- In a study of the inner-city infants whose health status was found to be similar, the fee-for-service infants spent a significantly greater number of days in an incubator and were given more medical attention for diarrhoea, constipation, vomiting and diaper rash⁽²⁶⁾;
- Fee-for-service incentives encouraged GPs to perform statistically more scheduled home visits as opposed to less profitable surgery consultations⁽¹³⁾;
- It has been estimated that fee-for-service settings result in health expenditures 10%-40% greater than those generated by prepaid-group practices⁽²⁷⁾.

Economists identify doctors as sources of vital information in the market for health services. Their position as providers of services, information as well as referrals, has great impact on the decision-making of clients/patients. Comparisons of different financing systems strongly suggest that supplier-induced demand is a major factor in fee-for-service structures⁽⁸⁾. Findings highlight that "almost all excessive doctor-induced demand is the direct consequence of the fact that some activities are more remunerative than others"⁽⁸⁾.

It is interesting to note that the levels at which fees are set also affect the doctor's response. There is evidence that a reduction in the fee rate will result in creative billing and/or an increase in activity to make up for the loss of income. Rice found that a 1% decrease in the reimbursement rate led to a 0.61% increase in service intensity while a 1% decrease in the reimbursement rate for surgical services resulted in a 0.15% increase in service intensity⁽²⁸⁾.

Similarly, the relative value given to interventions on the tariff scale is seen to affect doctors' clinical judgement. While there is a general trend towards more complex and therefore better paid interventions, this phenomenon is even more obvious when tariffs are frozen⁽²⁹⁾.

One interesting development in the search to contain fee-for-service costs is the introduction of expenditure caps (i.e., individual ceiling on the doctor's quarterly income). Rochaix found them to be an effective method to curb high activity rates⁽²⁹⁾.

In summary, fee-for-service payment has traditionally been widely practised in the Western world. In light of efforts to contain costs and reduce existing inequities between the social classes, the suitability of this structure is increasingly being questioned. Doctor payment by salary eliminates many of these concerns while sharing some of the incentives/disincentives inherent in the capitation system.

Salary

Comparative studies often analyse capitation, fee-for-service and salary systems in terms of type and quantity of medical interventions, and cost. Salary structures tend to generate responses somewhere between the figures identified for the other two financing methods.

As opposed to the fee-for-service system, salaried doctors have no financial incentive to create work. In fact, there may be a subtle economic incentive to do as little as possible⁽³⁰⁾. Referrals to other parts of the health system might result as well as a greater dependence on technology in order to reduce the personal effort required⁽²¹⁾.

Contrary to the capitation system, there is no direct link (incentive/income) to patient satisfaction. Rather, the doctor's loyalty, that part which is stimulated by personal profit, would go to the corporate or employing agency. This may facilitate the implementation of institutional/departmental policies but at the cost of reducing, in some measure, the accountability doctors have to their patients.

The domination of doctors in the health sector salary scales has largely been due to their prestige, educational qualifications, short supply, and life/death responsibilities⁽³⁾. The advancement of education with the accompanying expanded role of other health professionals has led to a blurring of roles. Doctor substitutes are being introduced to provide quality care at a lower cost^(9,31). Salary negotiations will continue to be a reflection of the value placed on certain categories of personnel and may be subject to the priorities of the political moment.

In spite of certain disadvantages, there are those who continue to consider the salaried doctor as the "most viable and morally preferable option"⁽²¹⁾. The coming years will hopefully provide policy makers with data which incorporate not only the quantitative but also the qualitative impact of the various doctor payment schemes so that informed decisions may be taken⁽⁷⁾.

Conclusions

This brief exploration of economic policies which affect income has included a review of earmarked payments, capitation, risk-sharing, fee-for-service and salary systems. Each system has its advantages and disadvantages and ultimately medical outcomes. The impact of financial incentives will also depend however on the interplay of other incentives introduced in the health sector environment⁽⁹⁾. Non-pecuniary benefits (e.g. housing, education allowances for children, study leave, vehicle access/use, extra retirement benefits, etc.) may represent a large contribution to the incentive scheme but have not been included in the scope of this article.

Theories addressing motivation, human resources development, organizational management and financial management are relevant in understanding the creation and implementation of economic incentives and disincentives in a work setting. The choice of payment mechanisms used with medical personnel is not a neutral decision and has significant policy and practice implications.

“Doctors are human... No one should be surprised if they readily succumb to excessive temptations to put their interest ahead of those of patients”⁽²¹⁾. Certain doctors have been outspoken in recognising that “the ways we are paid often distort our clinical and moral judgement and seldom improve it”⁽²³⁾. While economic incentives are critiqued as to their targets, their fundamental existence as a motivating force is seldom questioned.

Major income is provided through capitation, fee-for-service and salary systems, each introducing financial incentives and disincentives which may affect clinical judgement and methods of work. These systems are increasingly being redesigned, targeting priority health sector goals by the introduction of additional mechanisms such as financial risk sharing, target payments, etc.

While doctors are strongly motivated to provide the best services possible to their patients, there is substantial evidence that doctors’ behaviour may be influenced by economic incentives. Policy decisions have been introduced, often in a haphazard way, before pilot studies could validate these initiatives. Furthermore, there is concern that many of the incentives are tied to quantitative indicators while qualitative factors have been neglected. Comparative outcome-focused research is necessary to provide the reliable data needed to develop effective payment schemes that will support health policy goals. Similarly, studies within the framework of developing countries’ health sectors are required if a comprehensive understanding of the dynamics is to be generated.

Understanding the value system of medical personnel and how they respond to economic incentives/disincentives facilitates the development of reward systems likely to be more predictable and strategic. If the direct influence of economic incentives on medical personnel is accepted, their direct/indirect impact on other categories of health personnel is implied. However, little, if anything, has yet been written on this subject (e.g. effect on nurses). Huge knowledge gaps remain and research will need to be undertaken to establish a reliable database for informed decision-making and policy formulation.

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