

Review of corruption in the health sector: theory, methods and interventions

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There is increasing interest among health policymakers, planners and donors in how corruption affects health care access and outcomes, and what can be done to combat corruption in the health sector. Efforts to explain the risk of abuse of entrusted power for private gain have examined the links between corruption and various aspects of management, financing and governance. Behavioural scientists and anthropologists also point to individual and social characteristics which influence the behaviour of government agents and clients. This article presents a comprehensive framework and a set of methodologies for describing and measuring how opportunities, pressures and rationalizations influence corruption in the health sector. The article discusses implications for intervention, and presents examples of how theory has been applied in research and practice. Challenges of tailoring anti-corruption strategies to particular contexts, and future directions for research, are addressed.

Keywords Corruption, informal payments, health policy, health care management, transparency, accountability, developing countries, international health

KEY MESSAGES

- Corruption is a pervasive problem in the health sector, with negative effects on health status and social welfare.
- Several tools exist to help measure corruption and define the problem, including corruption perception surveys, expenditure surveys, qualitative data collection and control systems reviews.
- A theoretical framework is presented to guide policymakers in examining corruption in the health sector and identifying possible ways to intervene to increase accountability, transparency, citizen voice, detection and enforcement, and to control discretion and reduce monopoly power.

Introduction

Corruption is a pervasive problem affecting the health sector. At the level of individuals and households, there is mounting evidence of the negative effects of corruption on the health and welfare of citizens (McPake *et al.* 1999; Gupta *et al.* 2002; Azfar 2005; Lewis 2006; Rose 2006). In the last 10 years, efforts to combat corruption have gained the attention of national governments, development partners and civil society organizations (World Bank 2000; Transparency International 2006). While comprehensive government reforms to address endemic

corruption may be needed, sector-specific solutions can be pursued at the same time or even in the absence of political will for more systemic reforms (Spector 2005).

In order to be effective, reforms to combat corruption must be informed by theory, guided by evidence and adapted to context. Efforts to explain abuse of entrusted power for private gain have examined how the structure, management and governance of health care systems contribute to corruption. Based on principles of economics and good governance, these conceptual frameworks have helped policymakers to understand how government monopoly, combined with too much discretion, can lead to abuse of power, while strengthening government accountability, transparency, citizen voice and law enforcement can help to reduce corruption (Klitgaard *et al.* 2000;

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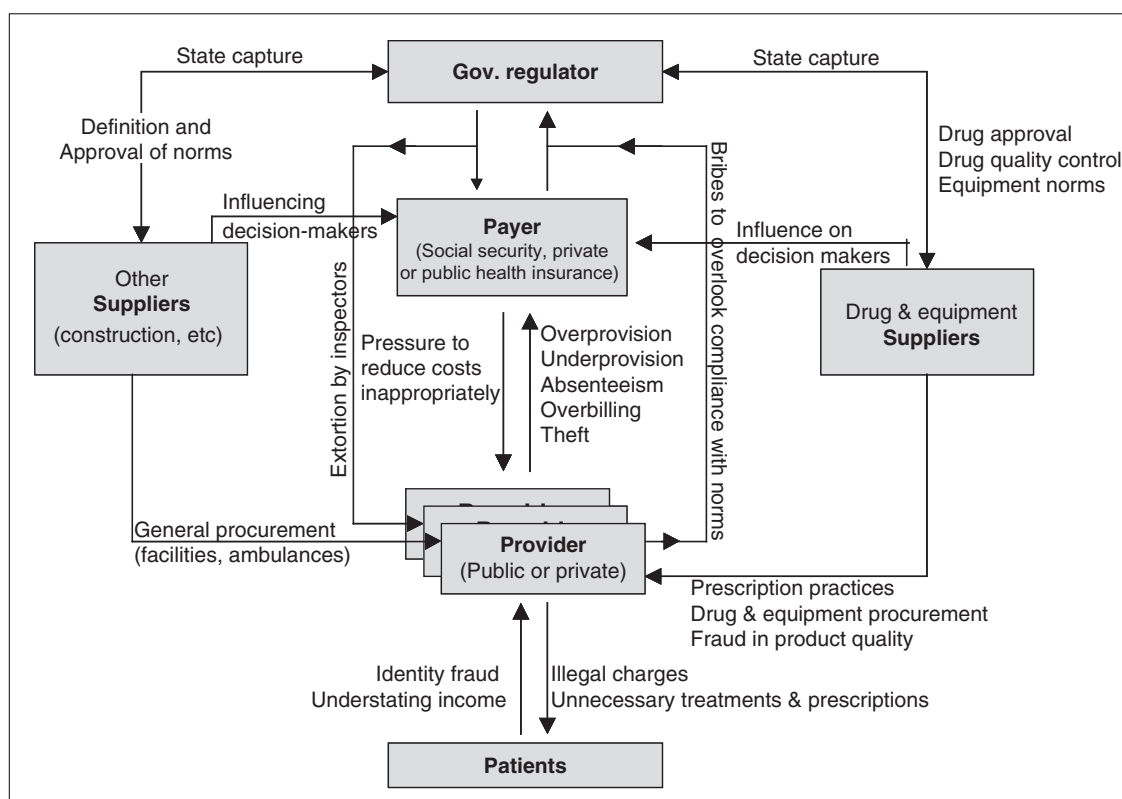


Figure 1 Five key actors in the health system

Source: Savedoff and Hussmann, Chapter 1, The causes of corruption in the health sector, in Transparency International (ed.), *Global Corruption Report 2006*. London: Pluto Press, p. 7.

Kaufmann *et al.* 2002). Individual and social characteristics may also influence the likelihood that officials will abuse power, and need to be considered in developing anti-corruption programmes (Miller *et al.* 2001).

This article explores the many challenges which corruption presents in the health sector. Following a description of the types of corruption that affect government health facilities and services, the article applies a theoretical framework to explain factors that influence corruption, reviews methods used to identify and measure abuse of power, and describes anti-corruption strategies appropriate to the health sector. The article concludes with suggestions for applied research needed to extend our understanding of corruption, and to help policy-makers craft effective interventions.

What is corruption?

Defined by Transparency International as 'misuse of entrusted power for private gain', corruption occurs when public officials who have been given the authority to carry out goals which further the public good, instead use their position and power to benefit themselves and others close to them. Corruption in the health sector may be viewed by examining the roles and relationships among the different players to identify potential abuses that are likely to occur (Ensor and Antonio 2002; Savedoff 2006). Such an organizational view is shown in Figure 1. Another way to look at types of corruption is to review the functions of the health care delivery process, and examine the potential abuses that can occur at each step. This view is shown in Table 1.

Risks of corruption in the health sector are uniquely influenced by several organizational factors. As Savedoff (2006) explains, the health sector is particularly vulnerable to corruption due to: uncertainty surrounding the demand for services (who will fall ill, when, and what will they need); many dispersed actors including regulators, payers, providers, consumers and suppliers interacting in complex ways; and asymmetric information among the different actors, making it difficult to identify and control for diverging interests. In addition, the health care sector is unusual in the extent to which private providers are entrusted with important public roles, and the large amount of public money allocated to health spending in many countries (Savedoff 2006).

Expensive hospital construction, high tech equipment and the increasing arsenal of drugs needed for treatment, combined with a powerful market of vendors and pharmaceutical companies, present risks of bribery and conflict of interest in the health sector (Lantham 2001; Kassirer 2006). Government officials use discretion to license and accredit health facilities, providers, services and products, opening risk of abuse of power and use of resources. The patient-provider relationship is also marked by risks stemming from imbalances in information and inelastic demand for services. Resulting corruption problems include, among others, inappropriate ordering of tests and procedures to increase financial gain; under-the-table payments for care; absenteeism; and use of government resources for private practice (Di Tella and Savedoff 2001).

It must be noted that definitions of corruption will vary by country and even within areas of a country (Werner 2000).

Table 1 Types of corruption in the health sector

Area or process	Types of corruption and problems	Results
Construction and rehabilitation of health facilities	<ul style="list-style-type: none"> • Bribes, kickbacks and political considerations influencing the contracting process • Contractors fail to perform and are not held accountable 	<ul style="list-style-type: none"> • High cost, low quality facilities and construction work • Location of facilities that does not correspond to need, resulting in inequities in access • Biased distribution of infrastructure favouring urban- and elite-focused services, high technology
Purchase of equipment and supplies, including drugs	<ul style="list-style-type: none"> • Bribes, kickbacks and political considerations influence specifications and winners of bids • Collusion or bid rigging during procurement • Lack of incentives to choose low cost and high quality suppliers • Unethical drug promotion • Suppliers fail to deliver and are not held accountable 	<ul style="list-style-type: none"> • High cost, inappropriate or duplicative drugs and equipment • Inappropriate equipment located without consideration of true need • Sub-standard equipment and drugs • Inequities due to inadequate funds left to provide for all needs
Distribution and use of drugs and supplies in service delivery	<ul style="list-style-type: none"> • Theft (for personal use) or diversion (for private sector resale) of drugs/supplies at storage and distribution points • Sale of drugs or supplies that were supposed to be free 	<ul style="list-style-type: none"> • Lower utilization • Patients do not get proper treatment • Patients must make informal payments to obtain drugs • Interruption of treatment or incomplete treatment, leading to development of anti-microbial resistance
Regulation of quality in products, services, facilities and professionals	<ul style="list-style-type: none"> • Bribes to speed process or gain approval for drug registration, drug quality inspection, or certification of good manufacturing practices • Bribes or political considerations influence results of inspections or suppress findings • Biased application of sanitary regulations for restaurants, food production and cosmetics • Biased application of accreditation, certification or licensing procedures and standards 	<ul style="list-style-type: none"> • Sub-therapeutic or fake drugs allowed on market • Marginal suppliers are allowed to continue participating in bids, getting government work • Increased incidence of food poisoning • Spread of infectious and communicable diseases • Poor quality facilities continue to function • Incompetent or fake professionals continue to practice
Education of health professionals	<ul style="list-style-type: none"> • Bribes to gain place in medical school or other pre-service training • Bribes to obtain passing grades • Political influence, nepotism in selection of candidates for training opportunities 	<ul style="list-style-type: none"> • Incompetent professionals practicing medicine or working in health professions • Loss of faith and freedom due to unfair system
Medical research	<ul style="list-style-type: none"> • Pseudo-trials funded by drug companies that are really for marketing • Misunderstanding of informed consent and other issues of adequate standards in developing countries 	<ul style="list-style-type: none"> • Violation of individual rights • Biases and inequities in research
Provision of services by medical personnel and other health workers	<ul style="list-style-type: none"> • Use of public facilities and equipment to see private patients • Unnecessary referrals to private practice or privately owned ancillary services • Absenteeism • Informal payments required from patients for services • Theft of user fee revenue, other diversion of budget allocations 	<ul style="list-style-type: none"> • Government loses value of investments without adequate compensation • Employees are not available to serve patients, leading to lower volume of services and unmet needs, and higher unit costs for health services actually delivered • Reduced utilization of services by patients who cannot pay • Impoverishment as citizens use income and sell assets to pay for health care • Reduced quality of care from loss of revenue • Loss of citizen faith in government

Source: Vian T, The sectoral dimensions of corruption: health care, Chapter 4 in Spector BI (ed.). *Fighting corruption in developing countries*. Bloomfield, CT: Kumarian Press Inc., 2005, p. 45-46.

Often there is not a clear line between bribe and gift, and some forms of reciprocity which are seen as normal in one country will be illegal in another (Gaal and McKee 2005). An area where this is especially apparent is informal payments, or unofficial payments given to medical personnel for services that are supposed to be provided free of charge at the point of delivery. Recent research has explored this problem in some detail (Lewis 2002; Allin *et al.* 2006; Lewis 2007; Tatar *et al.* 2007).

A conceptual model of corruption in the health sector

Figure 2 presents a theoretical framework of corruption in the health sector which consolidates some of the concepts and models that have been developed previously (Klitgaard 1988; Di Tella and Savedoff 2001; Miller *et al.* 2001; Duncan 2003; Ramos 2003; Brinkerhoff 2004; Oliver 2004; Lewis 2006;

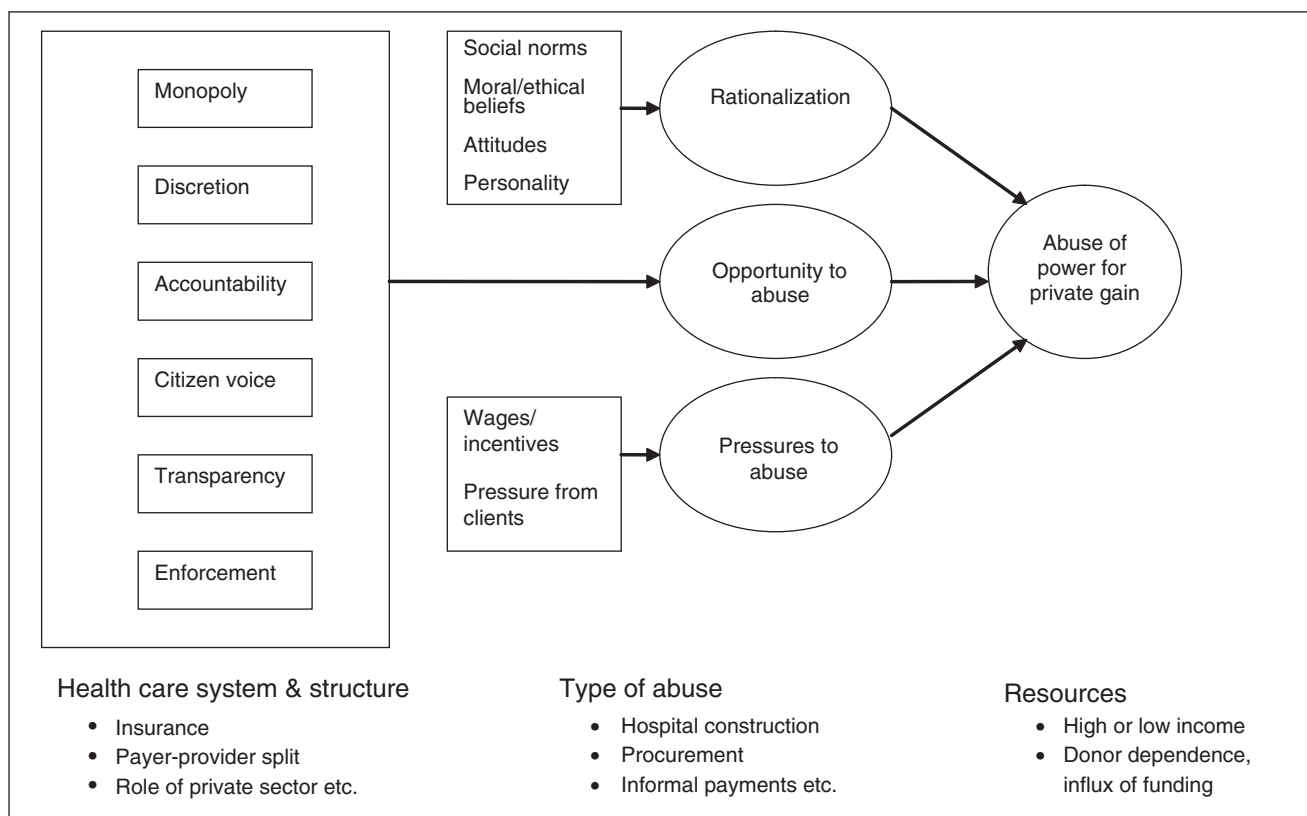


Figure 2 Framework of corruption in the health sector

Fung *et al.* 2007).¹ Looking at corruption from the viewpoint of the government agent, the framework suggests that corruption is driven by three main forces: government agents who abuse public power and position for private gain do so because they feel pressured to abuse (financially or by clients), because they are able to rationalize their behaviour or feel justified (attitudes and social norms support their decision), and because they have the opportunity to abuse power. The factors involved, and the application of this model to the health sector, are discussed below, looking in most detail at the opportunities to abuse.

According to economic theory, officials weigh the costs and benefits of acting corruptly against the costs and benefits of acting with integrity, and choose to act in the way that maximizes their self-interest (Jaen and Paravisini 2001). Opportunities for corruption are greater in situations where the government agent has *monopoly power* over clients; officials have a great deal of *discretion*, or autonomous authority to make decisions, without adequate control on that discretion; and there is not enough *accountability* for decisions or results (Klitgaard 1988).

Monopoly creates opportunities for corruption by limiting the ability of citizens to choose other providers of services. If the government is the only provider offering medical services, for example, patients could be compelled to pay bribes to access those services. General strategies to reduce monopoly include health reforms to separate payer and provider, privatization or contracting of services with many providers, and increasing the number of government agents providing particular services (Klitgaard *et al.* 2000). In one of the few studies that has tested

the relationship between monopoly and corruption in the health sector, researchers in Bolivia found that the existence of alternatives to government services (competition) was associated with lower informal payments (Gray-Molina *et al.* 2001).

Discretion refers to the autonomous power of a government official to make decisions, such as hiring staff or deciding what medicines are needed and in what quantities to procure them. Clinical care providers also exercise discretion by making decisions about the amount and types of health care services a patient should have. High amounts of discretion without adequate controls can create opportunities for corruption. For example, a department head can choose to hire an unqualified relative, or a procurement agent can decide to procure a new, high priced drug in quantities that greatly exceed need, in order to obtain a promised kickback. The goal of anti-corruption strategies is to increase appropriate control on discretion without creating dysfunctional bureaucracy. Strategies can include dividing tasks between individuals to create checks and balances; clarifying the decision-making process through standard operating policies and procedures; and strengthening information systems such as personnel management, drug inventory control and internal financial control systems. To control discretion in drug warehouses, for example, one South African distribution agency strictly segregates duties for order fulfilment, order checking and transport; staff working in each area have access only to the information needed to fulfil their own task, thus minimizing chances for collusion and drug diversion (Vian 2006).

Reforms to improve control on discretion may not be possible if there are so few health workers available that tasks cannot be separated and there is no time for control, and it is of limited use when there is extensive collusion among health workers at different levels in the hierarchy.

Accountability is government's obligation to demonstrate effectiveness in carrying out goals and producing the types of services that the public wants and needs (Segal and Summers 2002). Lack of accountability creates opportunities for corruption. Brinkerhoff (2004) identifies three key components of accountability, including the measurement of goals and results, the justification or explanation of those results to internal or external monitors, and punishment or sanctions for non-performance or corrupt behaviour. Strategies to help increase accountability include information systems which measure how inputs are used to produce outputs; watchdog organizations, health boards or other civic organizations to demand explanation of results; performance incentives to reward good performance; and sanctions for poor performance. In South Africa, a district health planning and reporting system was used to improve management control and hold government agents accountable for their decisions. By combining financial and service data, the reporting system drew attention to clinics and programmes that had unusual indicators, and helped officials to explore root causes for performance differences, including possible corruption (Vian and Collins 2006).

Citizen voice refers to the channels and means for active participation by stakeholders in planning and provision of services (Thompson 2005; Lewis 2006; Milewa 2006). One purpose of citizen voice is to increase external accountability of government. Strategies to promote citizen voice include local health boards where citizens can have input into the budgeting and planning processes; patient surveys to provide feedback on satisfaction; and complaint offices to record and mediate reports of unethical or corrupt conduct. Research conducted by the Center for Civic Education (<http://www.civiced.org>), in countries such as Russia, Latvia and Indonesia, suggests that civic education can be effective in increasing citizens' willingness to participate in civic and political life, and their skills in explaining their problems. In Bolivia, citizen health board activism was an important deterrent of informal payments and was associated with lower prices in government procurement of essential supplies (Gray-Molina *et al.* 2001). However, increasing citizen voice is not always easy; in countries where citizen participation was repressed for many years, there may be limited experience with non-governmental organizations and other forms of civic activism, and more work may be needed to develop effective approaches. In addition, incentives must be structured, and the nature of accountability defined, so that local committees have power to influence the actions of centrally managed staff (Lewis 2007).

Transparency is another concept which is closely related to accountability. The idea behind transparency is that by actively disclosing information on how decisions are made, as well as measures of performance, we can improve public deliberation, reinforce accountability and inform citizen choice. In addition, transparency helps to document and disseminate information on the scope and consequences of corruption, information which can help build support for anti-corruption programmes and target enforcement efforts.

Transparency policies may include government-mandated disclosure of information, or may involve external agents such as civil society or the media (Fung *et al.* 2007). Strategies to increase transparency include public service 'report cards', price monitoring and release of government documents or decisions through web sites, public databases, public meetings and the media (World Bank 2003). Examples of transparency initiatives in Argentina, Morocco and Uganda show the range of interventions possible. The Ministry of Health in Argentina created a price monitoring system that tracked prices paid by 33 public hospitals for common drugs, sharing this data with the reporting hospitals. The effect of the transparency policy was that purchase prices fell immediately by an average of 12%, and stayed below the baseline for over a year (Schargrodsky *et al.* 2001). In Croatia, regulations have been proposed which will require hospitals to make waiting lists public, to reduce the practice of patients bribing doctors to jump ahead of the queue (Transparency International 2006). In Uganda, an information strategy was used to reduce leakage of central government education grants to local governments (a problem first identified through a Public Expenditure Tracking Survey). Before the grant transfer amounts were publicized in newspapers and posted in schools, only 13% of grant allocations reached the schools; after the reforms, 80–90% of grant funds were reaching recipients (Reinikka and Svensson 2002).

Detection and enforcement includes steps taken to collect evidence that corruption has occurred, and to punish those who engage in corruption. The goal of detection and enforcement is both to get rid of bad agents, i.e. those government officials abusing their power, and to deter others from engaging in corruption in the future. Mechanisms of enforcement can function within the Ministry of Health bureaucracy (for example, an Inspector General's Office or Internal Auditor) or externally through policing and the criminal justice system. Enforcement includes such activities as surveillance, internal security, fraud control, investigation (including investigative journalism), whistle-blowing and punishment. Effective disciplinary systems can increase accountability and deter corruption, although they may require difficult changes in organizational culture. While a hospital in Cambodia found it hard to punish employees, it was able to withhold bonus payments from poorly performing employees (Barber *et al.* 2004). This is a start at changing incentives.

Rationalization: in addition to the institutional or organizational factors described above, which collectively affect the opportunities for corruption, behavioural scientists have studied the ways in which individual beliefs, attitudes and social norms influence corruption. Although a sense of moral obligation and concern for others is an important influence on behaviour, especially in the medical professions and among public servants (Randall and Gibson 1991; Kurland 1995; Raats *et al.* 1995), researchers point to eroding public service values which create a vacuum in which corruption appears justified (Miller *et al.* 2001). Miller *et al.* hypothesize that severe economic and political disruption, such as that which has occurred in post-communist Europe and Central Asia since 1991, can contribute to the problem by creating confusion over values: for example, capitalism suggests that 'everything has its price', which seems to endorse aggressive pursuit of self-interest even within

government institutions. Officials may not even perceive themselves to be morally conflicted, in their government role, when they pursue self-interest instead of the interests of others.

Other social scientists have called attention to 'practical logic' which helps explain corruption in cultural settings. According to anthropologist Paul Brodwin, when an unexpected bounty of resources became available to Haitian communities through a donor-funded health programme, the community leaders used these resources to advance their own economic position and reputation—actions that were logical, sensible and effective ways to act by this community's own cultural norms (Brodwin 1997). In a similar way, Olivier de Sardan explores social norms which permit African societies to justify corruption, arguing that these "'logics" of negotiation, gift-giving, solidarity, predatory authority, and redistributive accumulation' allow corruption to become 'socially embedded', and must be considered in developing anti-corruption policies and interventions (Olivier de Sardan 1999).

Very little research exists to link these concepts to corruption in the health sector, but it is an important area for future study. A clearer understanding of these factors can help in crafting professional education programmes, codes of conduct, information campaigns to correct misinformation which may be influencing beliefs, and to promote effective role modelling.

Personality character traits and demographic characteristics may also be important in explaining corruption. Hessing *et al.* studied the relationship between personality traits and tax evasion, observing that traits reflecting a 'self-serving personality', such as a tolerance of illegal behaviour and a competitive orientation, were associated with tax evasion (Hessing *et al.* 1988). Strategies to carefully select and train government agents may mitigate these types of influences. Gender and marital status may also be associated with corruption, as was suggested by Giedion *et al.* (2001) in their study of irregularities in Bogota hospitals. Their study found that procurement prices were lower when the purchasing agent was unmarried or a woman (Giedion *et al.* 2001).

Pressures to abuse: a government agent may feel pressure to embezzle to pay-off personal financial debt, or may accept informal payments because government salaries are too low to make a living. One strategy to address such pressures is to perform credit checks during the hiring process or periodically during employment (Vian 2006). Increasing salaries is often suggested as a strategy to reduce financial pressure leading to corruption (Van Lerberghe *et al.* 2002; Ferrinho *et al.* 2004); yet higher salaries alone will not reduce risk of abuse if opportunities and incentives do not also change. Accordingly, some reforms have tried to link compensation to achievement of targets for quality and/or productivity, or to exert professional or peer pressure for performance. Performance-based incentives have been studied and used in some low-income countries, including Haiti, the Philippines and Cambodia (Eichler *et al.* 2000; Management Sciences for Health 2001; Soeters and Griffiths 2003; Dugger 2006).

Government agents may also feel pressured by clients to accept bribes. This is especially true in situations where people are sick and suffering, and feel that bribes are the only way to ensure they receive the best possible treatment

(Vian *et al.* 2006). Pressure may also be exerted by suppliers, or by other agents involved in corruption.

Measuring corruption

The first step in applying theory to practice is to measure corruption and the different mediating factors described above. While a number of assessment tools exist to help measure corruption and describe the circumstances in which it is found, there are several difficulties faced by researchers working in this field. First, the administrative systems in poorer countries are often weak, making it difficult to collect measures of corruption such as unauthorized absences recorded in personnel records, or the percentage of procurements that did not meet standards. Abuse of power is also hard to measure because corruption is a practice that is frequently (though not always) hidden. To overcome these difficulties, researchers have used indirect measures of abuse of power such as perceptions of corruption, or procurement price data suggesting over-payment for supplies. As summarized in Table 2, methods for measuring corruption in health systems include perception surveys, household and public expenditure surveys, qualitative data collection and review of control systems. These methods are discussed below, including examples of how the methods have been applied in practice.

Corruption perception surveys

Perception surveys can provide a sense of whether citizens in a country consider the health sector to have serious problems. Summarizing data from corruption perception surveys in 23 countries, Lewis (2006) found that in 10 countries, over 50% of respondents perceived high levels of corruption in the health sector; in Pakistan and Sri Lanka, over 90% of respondents perceived the health sector as highly corrupt. This kind of data can help donors decide whether to target the health sector for assistance. Following the example of Di Tella and Savedoff (2001), perception surveys can also be used to compare the opinions of doctors and nurses, or to look at specific kinds of problems such as absenteeism or private use of public facilities and equipment. One disadvantage of perception surveys is that individuals' perceptions of corruption may not reflect actual experience with corruption; in Bulgaria, researchers found that perceptions of corruption were consistently higher than actual experience (Krastev 2004).

Household and public expenditure surveys

Household expenditure data can be an important tool for measuring accountability, documenting expenditures on government services that are supposed to be offered free of charge (Balabanova and McKee 2002a,b; Hotchkiss *et al.* 2004). They can also show whether public health spending is providing benefits according to government's stated priorities and budget. While household surveys can be expensive to undertake, these data are already being collected in many countries for other purposes.

Other forms of financial corruption have been diagnosed using methods such as Public Expenditure Tracking Surveys (PETS) and similar techniques (Reinikka and Svensson 2002;

Table 2 Measuring corruption: data collection and analysis

Approach	Description	Benefits	Weaknesses
Corruption perception surveys	Surveys of perceptions about corruption, citizens in general, or particular classes of health workers. Examples: World Bank Corruption Perception Surveys, Transparency International's <i>Corruption Perceptions Index</i> , Freedom House's <i>Freedom in the World Survey</i>	<ul style="list-style-type: none"> • Highlights areas of concern • Establishes baseline and allows monitoring of changes over time • Asking different health workers about the same problem can illuminate issues • Provides public information for external accountability 	<ul style="list-style-type: none"> • Current debate on best methodology, and how results may be affected by local understanding of terms • Perceived behaviour may differ from actual behaviour
Household and public expenditure surveys	Household surveys measure expenditures including health care and informal payments. Public expenditure analysis can identify leakages in flows of public funds between levels of government. Examples: World Bank Living Standards Measurement Surveys; Public Expenditure Tracking Surveys	<ul style="list-style-type: none"> • Provides detail on household health spending by income and region, formal or informal • Data can be compared with goals to provide measures of accountability, e.g. amounts paid for allegedly free services, percentage of government spending actually reaching service delivery points 	<ul style="list-style-type: none"> • Existing data sets may not have asked questions in ways that allow one to distinguish between formal and informal payments • Public expenditure tracking surveys depend on public records, which may be patchy
Qualitative data collection	Qualitative data collection through in-depth interviews and focus groups, to determine areas of concern. Example: Vian <i>et al.</i> (2006); Balabanova and McKee (2002a,b)	<ul style="list-style-type: none"> • Provides details on attitudes, norms, beliefs, pressures • Helps to define terms, clarify the 'how' of corrupt acts, inform development of perceptions surveys • Allows follow-up 	<ul style="list-style-type: none"> • Social desirability bias or reticence may influence results • To get full cross-cultural meaning requires careful attention to translation and training of research staff
Control systems review	Examines inherent risks given mission/mode of operation; control environment; and existing safeguards against corruption. Examples: US Office of Management and Budget internal control guidelines (Klitgaard 1988, p. 84-85), US hospital compliance programmes to combat fraud (OIG 1998); pharmaceutical assessment (WHO 2007)	<ul style="list-style-type: none"> • Good for comparing actual systems with best practice • Provides deep analysis of particular government departments or units 	<ul style="list-style-type: none"> • Assumes systems are stable, therefore not good for systems undergoing health reform • Works better in countries with developed administrative systems and good documentation

Khemani 2004; Lindelow *et al.* 2006). Analysis can highlight weaknesses in recordkeeping, oversight and control procedures, or other bottlenecks causing delays and losses. For example, Khemani (2004) studied the problem of non-payment of salaries in 252 health facilities in Nigeria. Linking data from survey respondents and financial records, she found no correlation between non-payment of staff and local government revenues; even when budget allocations were sufficient, staff non-payment was a problem. This kind of assessment can be useful to promote transparency and build pressure on governments to explain and correct performance problems.

Qualitative data collection

Qualitative data can help to define the pressures and social norms related to corruption, and to assess the detailed pathways by which corruption happens. For example, interviews with providers and patients in Bulgaria, Albania, Armenia, Azerbaijan and the Republic of Georgia revealed many details about why providers feel pressured to accept unofficial payments for services that are supposed to be offered free of charge, and why patients feel pressured to make these payments (Balabanova and McKee 2002a,b; Belli *et al.* 2002; Emerging Markets Group 2005; Vian and Burak 2006; Vian *et al.* 2006). In another example, Ferrinho *et al.* (2004) used qualitative methods to better understand pressures behind the pilfering of public supplies of drugs

by government employees in Mozambique and Cape Verde. Qualitative data may identify potential barriers to accountability, citizen voice and the other factors that influence opportunities for corruption.

Control systems review

A key assessment tool for measuring vulnerability to corruption is a control system review or risk audit. Control systems are the internal operational processes by which an organization makes decisions and uses resources to perform its mission. A control system review can help measure discretion, accountability, transparency and enforcement. This approach compares an organization's processes with best practice standards, to see how well the organization is controlling discretion of decision-makers, complying with laws and regulations, and safeguarding resources. The review starts by identifying areas with high inherent risk of corruption, such as units with frequent cash transactions (more at risk of theft), or offices that award approvals, permits or licenses (vulnerable to bribes). The existence of 'best practice' safeguards is then assessed, looking for such things as clear operating policies and procedures, appropriate division of responsibilities, use of computers for collecting and analysing data, and procedures for financial management and audit. This approach has been used in the US to develop hospital compliance systems to prevent fraud and abuse (Mills 2001). As delineated

by the federal government, the seven elements of effective hospital compliance systems include: written standards, policies and procedures addressing specific problem areas; designated responsibility structures; education and training; an internal reporting system; disciplinary procedures; audit function; and an evaluation system (Office of Inspector General 1998).

Control reviews can also help develop measures of transparency and accountability. A control system review of the pharmaceutical supply system in Costa Rica measured compliance with standardized processes and decision-making criteria in the sub-systems of drug registration, selection, procurement and distribution (Cohen *et al.* 2002). The procurement function was rated as moderately vulnerable, due to problems such as lack of documentation of prices paid and criteria used for awards. The approach used in Costa Rica has served as a model for a new WHO guide on measuring transparency in the pharmaceutical sector, and was recently used to detect vulnerabilities to corruption in Lao People's Democratic Republic, Malaysia, Thailand and the Philippines (World Health Organization 2006; World Health Organization 2007).

The control systems review approach works best when systems are stable, and is difficult to apply in countries where the health sector is undergoing radical but still uncertain changes in how services are organized, financed and managed. When major health reforms are taking place, it may be useful to examine proposed health laws and regulations, and try to influence the design to control for potential conflict of interest and close off opportunities for corruption (Vian 2003).

Applying the framework to design interventions

Data collection and analysis strategies help policymakers to create an evidence base for anti-corruption policy by defining the circumstances in which corruption occurs, the scope and seriousness of the problem, and the existing opportunities, pressures and rationalizations for the corruption. With this information, health policymakers can intervene to change the calculus of corruption by modifying some of the elements of the model. The multi-dimensional nature of corruption often requires policy interventions that address several aspects of the problem at once.

The examples below show how anti-corruption strategies can be tailored to deal with particular types of corruption, such as abuses involving HIV/AIDS drug supply and user fee corruption.

HIV/AIDS drugs

The AIDS pandemic, and the accompanying influx of funding to expand access to treatment in low-income countries, has heightened concern about corruption in drug supply systems. The President's Emergency Plan for AIDS Relief (PEPFAR), the Global Fund for AIDS, TB and Malaria, and other development partners are contributing hundreds of millions of dollars per year, creating pressure to rapidly spend funds, which increases the risk of corruption by requiring hasty decisions with limited data. Country-level procurement infrastructure is often weak, lacking clear policies, documentation and other management tools to control discretion and assure accountability,

while procurement staff often have inadequate knowledge of relevant laws, regulations and procedures (Woodle 2000). General strategies to mitigate risk of corruption in drug supply include procurement technical assistance to strengthen systems which are open and competitive; price transparency; and security interventions to protect the pipeline.

The PEPFAR-funded Supply Chain Management System (SCMS) Project (<http://www.pfscm.org>), responsible for procurement of over US\$500 million in AIDS drugs, provides an example of how these general strategies are applied in practice. First, the project is providing procurement technical assistance, especially for the functions of forecasting and commodity quantification. The process of estimating AIDS drug needs is complex, due to issues such as first- and second-line treatments, adherence and laboratory availability. This complexity can create opportunities for procurement agents to procure more drugs or more expensive drugs than are needed, or to channel orders to particular suppliers, in order to gain a kickback. By providing technical assistance in this area, the Project helps to control discretion and increase transparency. Secondly, the SCMS is establishing an online database of price information, providing a standard against which other procurements can be measured. The information can be used by local procurement agents, national audit offices, development partners or civil society organizations, to inform decisions and hold government agents accountable. Other donors are supporting similar price transparency initiatives, including the DFID-funded Medicines Transparency Alliance, which analyses AIDS drug price data from Global Fund-financed procurements in an effort to control corruption (Anderson 2006; Waning and Vian *in press*).

Finally, SCMS has worked with private sector partners to make sure regional drug distribution centres employ industry best practices for security, to detect and avoid diversion of drugs. Some of the strategies employed include locked and gated compounds, divided areas with controlled access based on drug value, security guards, surveillance systems, and risk analysis of routes and shipments. Information management is also being used to detect diversion through batch monitoring and the use of radio frequency technology (Vian 2006).

User fee corruption

A large government provincial referral hospital in Kenya identified a problem with theft of user fee revenue.² This problem was seen as serious, both because user fee revenue accounted for about 24% of the hospital's non-personnel expenditure budget, and because patients had complained about the abuse. With donor assistance, the hospital conducted a patient survey and review of control systems to collect more information. They found many systemic weaknesses, including a large number of fee collection points, manual receipt and ledger book system that did not allow timely account reconciliation, unclear policies, and infrequent supervision.

The main intervention used to address these abuses was the installation of networked electronic cash registers. To limit discretion, multiple cash collection points were reduced to five, and procedures were put in place to separate the functions of billing and fee collection. The cash registers helped improve internal accountability by speeding the data collection and analysis, producing automated reports which allowed managers

to see daily and cumulative monthly revenue, by item, cash collection point, cost centre and by cashier. The system helped to detect corruption by facilitating the comparison of reported revenue with expected revenue, based on prices and number of patients or services provided. The system increased transparency by providing patients with an itemized receipt for the services billed, amount paid and change received. External accountability and citizen voice were improved by sharing information on user fee system performance with the hospital management committee, which had citizen representation, and with other district and MOH officials. Within 3 months, user fee revenues increased 47% with no effect on service utilization. Over the next 3 years, annual collections increased 400%, due mainly to better revenue controls (though one modest price increase did take place as well during this period).

Several factors were essential to the successful application of anti-corruption theory in this case. First, the hospital management team and Board of Directors were committed to improving the quality and responsiveness of the hospital, and were not colluding with the fee collection agents. Where collusion is present, this type of control system might not be implemented fully, and external accountability mechanisms become more important. In addition, the hospital management team had sufficient autonomy that fee collection agents who resisted the new system could be removed from their jobs and replaced by carefully screened new agents. Without this level of autonomy in merit-based personnel management, it is doubtful the system would have achieved its goals.

Discussion

This article has presented a conceptual framework to guide policymakers in examining corruption in the health sector and to identify possible ways to intervene. Further research is needed to refine and expand this framework, and to evaluate and document effective anti-corruption policies and programmes in the health sector.

First, the model in Figure 2 examines corruption only from the viewpoint of the government agent. A complete theory of corruption would also model how the involvement of others—their beliefs, motivations and behaviour—influences each of the factors in the model. This is especially important to explain social and interpersonal pressures to abuse power for private gain, and ability to resist. For example, better understanding of local perceptions of power and the role of government may shed light on why so many local health boards are ineffective, and what can be done to improve the design of accountability structures involving community oversight groups.

Secondly, more research is needed to explain how the goals of prevention and cure interact. Enforcement is sometimes viewed narrowly as a strategy to fight corruption once it occurs. Yet, lack of enforcement is itself an opportunity for corruption, and a complete policy to prevent corruption must recognize enforcement as a critical element. Future research should explore the ways in which enforcement can deter corruption in the health sector, including the cost-effectiveness of alternative strategies for detection and enforcement such as fraud control units, training of internal auditors, or surveillance systems.

Thirdly, more work is needed to distinguish individual-level versus organizational-level influences on corruption, and to analyse interactions among the different influences. While the current framework suggests that opportunities to abuse are mainly organizational-level variables, it could be that norms and attitudes influence these variables as well, and that interventions to educate or change beliefs could contribute to the effectiveness of organizational-level anti-corruption strategies. In addition, interactions between the different model elements such as transparency and citizen voice, or discretion and accountability, need to be clarified in order to better predict their effects on the level of corruption in particular programmes.

Finally, increased attention should be focused on designing and testing anti-corruption interventions in the health sector. Transparency initiatives funded by DFID's Medicines Transparency Alliance, and the WHO Good Governance in Medicines Program show keen stakeholder interest, especially in the area of pharmaceuticals. This work, now focused on measuring transparency, should be expanded to other aspects of accountability: how do we use transparency as a policy tool? Who is responsible for holding government accountable for their performance according to the indicators measured? What is the role of civil society organizations in strengthening accountability for government performance in the health sector?

In addition to pharmaceuticals, policymakers have been closely studying the problems of absenteeism and ghost workers (Alcazar and Andrade 2001; Chaudhury and Hammer 2004; Garcia-Prado and Chawla 2006), and policies to address informal payments (Kutzin *et al.* 2003; Ensor 2004; Lewis 2007). Here, the focus should be on evaluating policy effectiveness and identifying preconditions needed for success. The policy implementation process should be documented as well, making it easier for other countries to adopt reforms and avoid mistakes. In addition, we should consider ways to refine and adapt other, more general anti-corruption strategies—such as public finance management reforms, watchdog agencies and whistle-blowing programmes—to the particular risks and needs of the health sector.

Conclusion

Corruption is a complex problem which threatens health care access, equity and outcomes. Increasingly, health sector leaders, and citizens of all countries, are recognizing the pernicious effects of corruption, and the need to take action. Efforts to disaggregate specific corruption problems in the health sector, and to identify and understand the root causes, can help us face this difficult challenge. Applying theory to carefully studied local realities, we can craft more effective programmes to close off opportunities, alleviate pressures and strengthen resistance to corruption.

Endnotes

¹ The three predictors—pressures, opportunities and rationalizations—in Figure 2 are drawn from the 'Fraud Triangle' included in the statement of accounting standards used in training of certified public accountants (Ramos 2003). The authors cited have analysed one or more of the elements contained in Figure 2: Klitgaard (monopoly, discretion, accountability); Duncan (accountability,

transparency, enforcement); Brinkerhoff (accountability, transparency); Lewis (citizen voice, accountability, enforcement); Di Tella and Savedoff (citizen voice, accountability, transparency); Oliver and Fung *et al.* (transparency); Miller *et al.* (social/moral values). In addition, the case studies presented in Di Tella and Savedoff's book *Diagnosis corruption: fraud in Latin America's public hospitals* (2001) use components of the economic theories of the principal-agent relationship, and crime, to predict corruption and test hypotheses of corruption prevention. See especially Chapter 3, 'Wages, capture and penalties in Venezuela's public hospitals' for a clear description of this theory.

² This example draws on details from the U4 Policy Brief No. 3, 'Reducing vulnerabilities to corruption in user fee systems' (October 2006, <http://www.u4.no>).

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