Corruption in health-care systems and its effect on cancer care in Africa

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Cancer health-care systems in Africa 2

Corruption in health-care systems and its effect on cancer care in Africa

Saskia Mostert, Festus Njuguna, Gilbert Olbara, Solomon Sindano, Mei Neni Sitaresmi, Eddy Supriyadi, Gertjan Kaspers

At the government, hospital, and health-care provider level, corruption plays a major role in health-care systems in Africa. The returns on health investments of international financial institutions, health organisations, and donors might be very low when mismanagement and dysfunctional structures of health-care systems are not addressed. More funding might even aggravate corruption. We discuss corruption and its effects on cancer care within the African health-care system in a sociocultural context. The contribution of high-income countries in stimulating corruption is also described. Corrupt African governments cannot be expected to take the initiative to eradicate corruption. Therefore, international financial institutions, health organisations, and financial donors should use their power to demand policy reforms of health-care systems in Africa troubled by the issue of corruption. These modifications will ameliorate the access and quality of cancer care for patients across the continent, and ultimately improve the outcome of health care to all patients.

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This is the second in a **Series** of four papers about cancer health-care systems in Africa

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Introduction

In many African countries, international financial institutions, health organisations, and donors finance an important portion of the health sector, and may determine health policies in these countries.[1,2] Despite their potential influence, these agencies have not sufficiently used their power to ameliorate the access and quality of medical care for people with low incomes or from poor socioeconomic backgrounds.[1] Why should African countries not determine their own health policies independently of these agencies? The answer is clear and simple: because of widespread corruption.[3–8] In this paper, we discuss the scale, susceptibility, and effect of corruption on health-care systems in Africa, as well as discussing the role both African and high-income governments can play in delivering quality health care to patients with cancer across the continent.

Scale of corruption

The Corruption Perceptions Index annually scores countries worldwide on how corrupt their public sectors are perceived to be.[4] Countries are scored on a scale from 0 (highly corrupt) to 100 (very clean). The index is currently lower than 50 in 91% of African countries, although some geographical variation exists. In 2013, all countries in northern and central Africa had scores lower than 50, as did 88% of countries in western and eastern Africa and 83% of countries in southern Africa.[4,9] Additionally, the score is below 50 in 89% of other low-income and middle-income countries worldwide. By contrast, 21% of high-income countries have a score of less than 50; high-income countries such as the USA, Canada, Australia, and New Zealand, and all countries in northern and western Europe, have scores higher than 50.[4,9]

Corruption can be defined as an "abuse of entrusted power for private gain".[6] Three forms of corruption can be distinguished: bribery (a clandestine order for additional money for civil services); extortion (demands for gifts and favours for civil services or depleting funds for private intents); and nepotism (allocation of public service contracts to relatives or acquaintances, irrespective of their competence).[10,11] Corruption purposely subordinates public welfare to private welfare. Corruptors' behaviour is denoted by dualism: their conduct emerges from their occupation and self-interest.[10,11] Corruption involves breach of trust, deception, repression, exploitation, disparity, and indifference to victims' torment. Individuals on low incomes and from poor socioeconomic backgrounds are disproportionately affected by corruption compared with those on high incomes and with higher socioeconomic backgrounds because they cannot afford bribes and private alternatives.[11–13]

Effect on economic growth and development

Corruption reduces economic growth and development because of its effects on investment, taxation, public expenditures, and human development.[14] Corruption subverts the efficiency of government institutions, and hinders equal distribution of resources and income across populations. For instance, corruption can decrease the ratio of investment to gross domestic product and can lead to tax evasion. In countries where corruption is an issue, government officials allocate more public funds on opportunities for private gain than on public welfare.[14] Annually, billions of US dollars from international and national funds and potential taxable income are stolen from the African continent (table).[16,19] Although political leaders from African countries vowed to spend at least 15% of their annual budget to improve the health sector by 2015 in the Abuja Declaration,[35] almost no African countries have accomplished this Millennium Development Goal. This deficit is particularly damaging because Africa is confronted with a high burden of disease. Proper investment in the health sector could substantially prevent

	Specific examples of African countries
Lower Corruption Perception Index is associated with poor population health	Burkina Faso,[15] Chad,[15] Comoros,[15] Congo (Brazzaville),[15] Côte d'Ivoire,[15] Ethiopia,[15] Ghana,[15] Kenya,[15] Malawi,[15] Mali,[15] Mauritania,[15] Mauritius,[15] Morocco,[15] Namibia,[15] Senegal,[15] South Africa,[15] Swaziland,[15] Tunisia,[15] Zambia,[15] Zimbabwe[15]
Western businesses bribe African leaders and pollute the African environment	Angola,[16] Congo (Brazzaville),[16] Democratic Republic of Congo,[16] Equatorial Guinea,[16] Gabon,[16] Ghana,[16] Guinea,[16,17] Liberia,[16] Nigeria,[16] Senegal,[16] Sierra Leone,[16] Somalia,[16] South Africa,[16] Zimbabwe[18]
Bank accounts of high-income countries hide misappropriated funds, tax evasion, and money laundering	Algeria,[19] Angola,[16] Cameroon,[16] Cape Verde,[19] Congo (Brazzaville),[16] Côte d'Ivoire,[19] Democratic Republic of Congo,[19] Djibouti,[19] Egypt,[19] Equatorial Guinea,[16] Gabon,[16] Ghana,[16] Guinea,[16] Kenya,[16,19] Nigeria,[16,19] Rwanda,[19] Senegal,[19] Sierra Leone,[19] South Africa,[19] Togo,[16] Tunisia,[19] Zaire,[16] Zimbabwe[18,19]
Misappropriation of funds and aid	Burkina Faso,[6] Burundi,[1] Cameroon,[20] Chad,[20] Ethiopia,[8] Ghana,[13,20,21] Kenya,[8,20,22] Liberia,[3] Malawi,[5] Morocco,[6] Mozambique,[20] Namibia,[20] Nigeria,[13,20] Rwanda,[13,20] Senegal,[13,20] Sierra Leone,[8] South Africa,[6] Sudan,[8] Tanzania,[13,20] Uganda,[13,23,24] Zambia[5]
Procurement, theft, and resale of drugs and medical equipment	Cameroon,[5] Cape Verde,[6] Central African Republic,[5] Chad,[5,20] Congo (Brazzaville),[5] Democratic Republic of Congo,[5] Ethiopia,[5,13,25] Ghana,[5,20] Kenya,[5,6,20,22] Madagascar,[5] Malawi,[5] Mali,[5] Mozambique,[6] Nigeria,[5,13] Rwanda,[5] Senegal,[5] Tanzania,[5,20] Uganda,[5,6,13,20,23,24,26] Zambia,[5,20] Zimbabwe[5]
Absence or failing of quality control of drugs and medical equipment	Cameroon,[5] Central African Republic,[5] Chad,[5] Congo (Brazzaville),[5] Côte d'Ivoire,[8] Democratic Republic of Congo,[5,8] Ethiopia,[5,8] Ghana,[5] Kenya,[5,6] Mali,[5] Nigeria,[5,7] Rwanda,[5] Senegal,[5] Tanzania,[5] Uganda,[5] Zambia[5]
Low government salaries, physician dual practices and absenteeism	Burundi,[1] Chad,[20,27] Ghana,[20] Egypt,[28] Ethiopia,[13,25] Kenya,[20,22] Mozambique,[13] Nigeria,[13,29] Tanzania,[5,20] Uganda,[13,20,23,24,26,27] Zambia[20]
Informal payments	Burkina Faso,[5] Burundi,[30] Chad,[20] DR Congo,[30] Ethiopia,[13,25,30] Ghana,[13,20] Kenya,[6,20,22] Malawi,[8] Morocco,[6] Mozambique,[13] Rwanda,[30] South Africa,[6] Sudan,[30] Tanzania,[5,20,30] Uganda,[8,13,20,23,24,26,30] Zambia,[20] Zimbabwe[6]
Waiver procedures	Burundi,[1,30,31] DR Congo,[30] Ethiopia,[30] Kenya,[22,32,33] Rwanda,[30] Sudan,[30] Tanzania,[30] Uganda[30]
Hospital detention practices	Benin,[32] Burundi,[1,31] Cameroon,[32,33] Democratic Republic of Congo,[1] Ghana,[1,32,33] Kenya,[1,22,31-34] Nigeria,[32,33] Zimbabwe[1]

Table: **African country-specific examples of corruption**

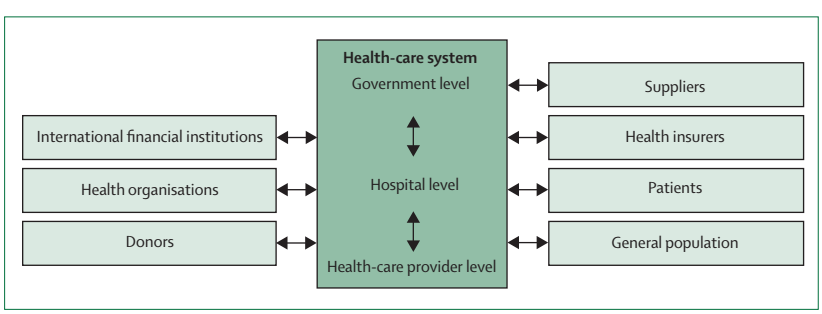

Figure: **Interaction of multiple players within the health-care system at the government, hospital, and health-care provider level**

a loss of income from the African population and stimulate economic growth and development.[14,36]

Susceptibility of health-care systems

The scale of corruption within a health-care system often mirrors the society that the system functions in. Although most health-care providers and stakeholders are honest and involved in the health sector for fundamentally altruistic reasons, the problem of corruption in African health-care systems needs to be realistically addressed. Improvements can be made that can benefit not only patients, but also all benevolent health-care providers and stakeholders. We provide a general overview of the scale and issues of corruption in African health-care sectors and do not judge the extent of corruption or the measures of prevention in different settings across Africa.

Some characteristics of health-care systems make them more susceptible to corruption: a large number of implicated players (international financial institutions, health organisations, donors, government officials, hospital administrators, health-care providers, suppliers, health insurers, patients, and the general population) and the complexity of their interactions; imbalance of medical knowledge between various players (eg, between doctors and patients, between pharmaceuticals and procurement officers); uncertainty in the health-care market makes prediction difficult when patients need specific types of health-care services and how to best allocate limited resources; difficulties in distinguishing between honest mistakes and corrupt practices; and poor record keeping.[6,11] All these aspects can be applied to oncology care in Africa. The effect of corruption in cancer care cannot be addressed without first addressing the structures of health-care systems themselves and the interaction with various individuals at the government, hospital, and health-care provider level (figure).

Effect on the structure of health-care systems

Corruption has a major effect on the structure of health-care systems in Africa. These systems are solely as strong as their management at the government, hospital, and health-care provider level.[13,23] Health-care delivery relies on effective assembly and allocation of financial resources, personnel, and supplies in a prompt, transparent manner across a country. This system demands a structure in which budgets, health-care providers, and supplies are consistently monitored, correct performances are rewarded, and misconduct is penalised. If monitoring systems and incentives for good staff performance and discipline and accountability for misconduct are not provided, management of health-care

systems is disempowered and corruption can affect the health-care structure as a whole (panel 1).[13] As a result, performance of health-care services can be dismal and the general population can be disadvantaged.[6,15]

Government level

Good governance is decisive in enabling structures of health-care systems to run well but is unfortunately not present in many African countries.[6,13,23] Corruption and distortion of health policies start with health ministers and government officials who pillage public health budgets or international and national funds for private gain.[9,20] Depletion of public funds can happen during conveyance from public treasuries to ministries, from ministries to hospitals, and within hospitals.[13] Inadequate prioritisation of projects is also an issue. Health ministers and high-ranking officials create health-care facilities in areas where these services are not useful or practical but as an attempt to gain support from those areas during elections. Most of these projects consume funds that would have otherwise been put to better use.[6] As a result of looted health budgets, governments can reduce expenses through underpayment of health-care providers. Doctors working in public hospitals are poorly remunerated and excellence is not rewarded, which can lead to poor motivation. Thus, quality of medical care deteriorates for those patients on low incomes who are confined to public hospitals.[6,23]

Governments should supply public hospitals with needed drugs and medical devices. Scarcity of inventory systems, straightforward policies, and price lists for medical goods enables the rise in corruption within the health-care sector.[6,23] Often, governments are the only regulators and have absolute procurement power over these assets. Thus, opportunities for officials and suppliers to increase their wealth are rife through kickbacks, overbilling, or grafts.[6] Government officials determine what medicines and in what amounts need to be acquired from pharmaceutical companies. To receive promised kickbacks, excessive quantities of expensive drugs may be procured.[29] Selection of national essential drug lists might also be more determined by bribes of manufacturers than by recommendations of the WHO essential medicines list. Consequently, drugs on national lists might neither be the most cost effective nor the most suitable.[6] Moreover, access to supplies is not controlled, making them susceptible to theft, where those responsible are not held accountable for their actions. Officials can sell purchased medicines and medical devices, intended for use in public hospitals, to private hospitals, or on the black market.[6,13] Some African governments might not regulate the quality and the price of products from pharmaceutical and medical device companies, which results in overpriced substandard medicines and medical devices.[6,23] Government officials can be bribed to ignore production, importation, and exportation of counterfeit drugs.[6]

***Panel 1:* Key components of health-care system structures affected by corruption**

- Absent or failing monitoring systems for health budgets, personnel, and supplies
- No reward for good performance
- No punishment for misconduct
- Salaries for health-care providers in public hospitals not in line with their educational background, skills, and training
- Physician dual practices, absenteeism, and informal payments

Sale of public positions or promotions also plays a key part in the subversion of health-care systems in Africa. Unqualified personnel who are ready to pay bribes can get better jobs than can those who are unwilling to pay bribes. This creates a profound discrepancy between the competences and job requirements of these individuals. Recently hired or promoted employees engage in more corrupt practices to fulfil illegal monetary requirements to sustain employment and career progression.[13,23,24]

Hospital level

Health ministers can transfer reduced health budgets to public hospitals. Subsequently, these hospitals might not receive sufficient revenues from government funding, financial donors, and patient reimbursements to operate effectively.[6,13,23,29] Moreover, funds are often misappropriated. Administrators of public hospitals might first take their illegal share from depleted health funding.[20,21,29] As a result of these plundered budgets, administrators are forced to cut public hospitals' expenses by ensuring that patients who cannot afford medical care do not use it. Access can be hindered by demands for unofficial administration fees, or staff checking families' financial situations before diagnostics or treatment and sending home those patients who cannot afford treatment.[1,6,15] Some hospitals can both detain patients, or retain bodies of deceased patients until their families pay their medical bills.[1,22,31–34]

In some instances, public hospitals have instituted waivers to assist the poorest families' access to medical care.[13,22,32,33] Although in theory these procedures sound beneficial, in reality, waivers can be exploited and create extra opportunities for corruption.[32,33,37] Frequently, no clear rules or selection criteria exist in issuing waivers. Waivers might not be made available to those who need them most or some individuals might be coerced to offer bribes for the waivers. Waivers can also be given to the rich and the powerful who might render favours in return.[13,22] Therefore, under these circumstances, waivers lead to more social injustice, corruption, and unequal access to medical care.[32,33,37]

As a result of inappropriate procurement, theft, and resale of drugs and medical equipment by health ministries, supplies can be out of stock, overpriced, and unaffordable to patients.[6,13,22,23] Accordingly, public hospitals

are compelled to rely on donated supplies. Inadequate logistical management, little oversight and poor quality monitoring can lead to drugs and medical devices that have often expired or are counterfeit.[6,13]

Another major challenge in the African health-care sector is equipment maintenance. Engineers responsible for this task usually do not act fast enough whenever equipment needs to be repaired. Engineers often overprice the cost for repair and keep the profits for themselves. Corruption also exists when some engineers and technicians work with doctors to delay repairs or disable equipment so that they can send patients to private facilities or are paid commission by owners of these facilities.[38,39]

In public hospitals, already deficient medical supplies can be sold by administrators, health-care providers, and pharmacists to private hospitals or on the black market.[11] Substantial proportions of drugs and devices go missing. Depleted stocks can force public hospitals and patients to buy from private pharmacies or distributors.[1] Illegal deals ensure that the referral of patients to these pharmacies and distributors leads to promised kickbacks.[23] Additionally, bribes can be used to obtain employment and promotions in public hospitals.[13,24] Personnel who refuse bribes can be exposed to retribution.[11,13]

Health-care provider level

In many African countries, health-care providers in public hospitals are paid low salaries. Therefore, involvements in other economic activities during office hours or making use of possibilities for private gain through public health-care systems are ubiquitous.[6,23]

Health-care providers working at public hospitals are paid fixed monthly salaries irrespective of their performance and output. Doctors generally deem this payment too little to support their own families and subsequently attend various other jobs at private practices.[23,27,29] This combination of public and private employment is called physician dual practice. Doctors can improperly refer patients from public hospitals to their private practices in which every action implies direct remuneration. Subsequently, these new private patients receive preferential treatment at public hospitals in cases in which a facility or procedure is only available in the public hospital, forcing other patients at public hospitals to wait.[6,11]

Staffing at public hospitals is the most crucial component of health-care provision as hospitals cannot function without staff.[13,23,27,29] However, physicians having dual private–public practices lead to staff shortages in public hospitals. The term ghost workers refers to personnel who never attend public hospitals yet receive wages for their position in the public profession.[13,40] Health-care providers often justify their absences in public hospitals by responsibilities at private practices,[13] and remorse by physicians for not attending to responsibilities at public hospitals is often scarce.[13] General disregard exists in relation to the necessity of health-care workers to adequately staff public hospitals and to take care of the patients. Absenteeism of health-care workers is ubiquitous because public hospitals do not have systems to monitor and sanction staff who fail in their public responsibilities.[26,27] The culture within public hospitals is highly tolerant towards absenteeism. Absence of management and a manager's reluctance to confront doctors encourage other employees to also be absent during working hours.[13,27] As a result, high absenteeism and low productivity is widely reported in public hospitals.[13] Physicians are the most absent; however, all levels and types of personnel are less absent when physicians in charge are more present,[41] as when staff physicians and nurses are absent, interns, residents, and auxiliary nurses are not supervised.[10] Understaffed health-care services therefore rely on untrained personnel without supervision.[25,28] No supervision also implies an underinvestment in the quality of future health-care providers.[13] In the public health-care sector, full-time salaries are thus paid to medical staff who only work part-time.[23] This mismanagement of pay results in closed departments and facilities, slow diagnostics, delays in treatment, arrears, underuse of medical equipment, waiting lists, prolonged time spent in hospital, ill-trained personnel, and eventually, adverse patient outcomes.[13,22,25,28] Thus, absenteeism and dual practices of physicians fundamentally undermine equal access and quality of health-care services to patients across the continent.[13,23,27,29]

Informal payments to doctors, nurses, and other personnel for health-care services that either should be given for free or that are higher than formal charges are widespread.[6,13,25,26] Medical staff can insist on bribes for every service they provide, such as registration, changing bed linen, giving injections, prioritisation in queues for treatment, giving better care, and acquiring subsidised medicines.[13,29] Moreover, patients are not offered a choice: either bribes are paid or medical care is refused. Multiple payments are so rife in the health-care sector that patients can get confused about which payments are legal and which ones are not.[13] Informal payments can surpass families' annual income and result in serious financial debts.[13]

Location of private practices and private hospitals adjacent to public hospitals can contribute to the theft of drugs and medical devices. Stolen goods are either used by doctors in private practices, sold to private hospitals, or sold on the black market.[23,26,41] Doctors can make deals with pharmaceutical and medical companies to only prescribe their expensive drugs or devices.[6] If families cannot afford these products, cheaper alternatives are not offered and patients are sent home without care. Chronic drug shortages, malfunctioning equipment, inflated prices for medical devices, and drugs dispensed to non-existent patients affirm corruption is widespread within the African health-care sector.[13]

Health-care providers can use donated aid to benefit financially.[6,20,23] Monetary amounts can be immediately pocketed or charged to patients for donated drugs, whilst goods can be used or sold to private practices, or sold on the black market.[23]

Interaction of multiple players

Various players interact with health-care systems and might facilitate corruption at the government, hospital, or health-care provider level (figure).

Policies of international financial institutes might sometimes aggravate corruption. For example, most African countries do not prioritise the health sector and spend only a small proportion of their annual budget on health. To build a sustainable health-care system, the World Bank introduced cost sharing in communities to raise health-sector revenues. This implied that patients had to pay for their medical costs to make the system and use of resources more financially efficient and enhance equitable access. However, strict user fees and hospital detention practices resulted, which further restricted access to health care.[1,22,31]

Some donor agencies bribe government and hospital officials to allow their programmes to run. Collusion of some donor representatives with officials occurs to provide mediocre services for private gain. Donor agencies sometimes use per diem policies that create opportunities for corruption. Per diems can lead, for instance, to retarding work, needless trainings, overstating time required for tasks, negative working environment in which people insist on payments for all activities, unfair acquisition by superiors of per diems meant for others, subsequent distrust of subordinates toward their superiors, and conflicts. Donors often do not understand local scenarios and insufficiently engage beneficiaries to make them understand what their project needs to achieve.[6,12,42]

Suppliers are known to overprice products or sometimes supply fake products either by collusion with procurement officials, or by taking advantage of officials who know little about these health products. In oncology, where drugs and equipment are not common and new products come onto the market frequently, this collusion is widespread.[6,13,22,23]

Public, commercial, and non-profit health-insurance agencies can be swindled by other players in the health sector, such as doctors billing for unnecessary or undelivered procedures and patients using forged insurance cards, but can also be involved in corrupt practices themselves. Public health insurers can misappropriate funds or allocate funds for political gain. Commercial and non-profit health insurers can engage in fraudulent billing, illegally rejecting insurance claims, and bribing insurance regulators to ignore unlawful practices.[6]

Scarcity of information available for patients contributes immensely to corruption. Patients do not know what to expect from health-care systems and therefore cannot defend their rights and demand proper health care.[6,8] Conversely, some patients might under-report their capability to pay hospital fees or use insurance plans that do not belong to them. The general population also adds to the issue of corruption in health institutions by expecting to receive favours, especially if friends or relatives run those institutions. Health-care workers are not looked upon favourably by their community if they do not extend favours to their friends or family.[10]

Cancer care

Damage imposed by corruption on the structure of health-care systems has an irrefutable effect on the provision of cancer care in Africa (panel 2). To the general public, health ministries, public hospitals, and health-care providers are generally known to be corrupt and the law does not protect individuals seeking health care. Corruption generates social injustice and a feeling of insecurity in the general population.[10,13,22] Corrupt services in public health care might scare poor families and encourage them to use alternative treatment, such as herbal medicine or witchcraft.[1,32,43–46]

Reported cancer incidences are substantially lower than actual incidences in service areas of public hospitals, which might be mitigated by an avoidance of corrupt public health-care services.[1,15,47,48] Corruption might also invoke delays in people seeking health care, resulting in patients only being diagnosed at a late stage of the disease. By the time patients finally visit hospital, the disease is often no longer curable.[1,49,50] As patients on low incomes are less able to pay bribes or afford private health-care alternatives, their access to cancer care is restricted: many low-income families are immediately sent home after diagnosis without receiving any cancer care. Other families will start treatment but high costs, additional bribes, and little access to available donations force them to stop treatment prematurely.[1,6,11]

In Africa, very few staff are appropriately qualified in the field of oncology, and their absenteeism greatly worsens the quality of care provided to patients. Oncology care is a specialty with complex protocols and patients who need multidisciplinary approaches for treatment. An absence of senior doctors to provide leadership results in delays to decision making or in wrong treatments being offered to patients. Because of the absenteeism of senior doctors, junior staff do not acquire appropriate knowledge and skills from mentorship. These junior doctors continue to practice medicine in a substandard manner and possibly pass on wrong information to other health workers.[25,28] Complex cancer cases are thus taken care of by rotating junior staff rather than supervised by experienced doctors. Residents, interns, and auxiliary nurses have little experience and knowledge of oncology protocols without the appropriate supervision.[37,41]

Panel 2: **Effects of corruption on cancer care**

Health-care providers
- Unmotivated medical staff due to low government salaries
- No experienced medical staff available in public hospitals due to physician dual practices and absenteeism
- Inexperienced medical staff provide cancer care without supervision
- Difficulties in the application of complex chemotherapeutic protocols
- Demand of informal payments by medical staff
- Doctors improperly refer patients from public hospitals to their private practices
- Disregard by medical staff of responsibility to take care of patients on low incomes
- Poor cancer education for patients and families
- No supervision of inexperienced medical staff implies underinvestment in quality of future health-care providers

Drugs and medical equipment
- Scarcity of drugs and medical devices at public hospitals
- Drugs and medical devices are overpriced, substandard, or counterfeit
- Lack of motivation to use generic anticancer drugs by medical staff
- Patients are forced to buy drugs and medical devices at private pharmacists or distributors, incurring additional costs
- Selection of national essential drug lists done on the basis of bribes
- Underuse and malfunctioning of medical equipment
- Medical equipment in public hospitals is purposely disabled and repair is overpriced and delayed to improperly send patients to private health facilities
- No access to donated drugs or medical devices for patients on low incomes

Treatment
- No or little access to cancer care for patients on low income
- Closed departments and facilities
- Long waiting lists
- Delayed diagnostics and late or intermittent cancer treatment
- Prolonged stays in hospital
- Traumatising experience of hospital detention
- Unfair waiver procedures without clear rules or selection criteria
- Undertreatment, overtreatment, and mistreatment

Patients
- Bad reputation of public health sector
- Encouragement of alternative treatment
- Lower reported incidence than actual cancer incidence
- Delayed seeking of medical help and advanced stages of disease at diagnosis
- Families drawn deeper into long-term poverty
- Low adherence to cancer treatment
- Abandonment of cancer treatment
- Poor cancer survival

Chemotherapeutic protocols from high-income countries cannot simply be used in low-income countries.[37,51] Intensive chemotherapy needs supportive care facilities and trained personnel that are not present in low-income countries. In these countries, patients are often malnourished or have concomitant infections and therefore react differently to chemotherapy. Intensive drug schedules that are hazardous if not properly applied should be avoided.[51,52] Because senior doctors are working at private practices, unsupervised, inexperienced staff will more easily not adhere to complex protocols.[13] Not only should intensity of treatment be changed but also duration of treatment as medicines are often neither available nor affordable.[53] Therefore, less intensive, less toxic, shorter, and cheaper protocols than those used in high-income countries are needed.[37,51–53]

Doctors engaging in physician dual practices have no time to plan and execute research. As a result, the size of the cancer burden in Africa is not accurately documented and no local, applicable solutions to the problems are being explored. Subsequently, the level of cancer care is unlikely to improve for future generations.[54]

Because of the absence of medical staff, unavailable or malfunctioning imaging techniques, closed surgery rooms, non-functional laboratory facilities, inadequate drugs supplies, and closed hospital wards, waiting lists in public hospitals can be extensive.[6,11,13,38] These lists result in delayed diagnostics, late start or intermittent cancer treatment. Long waiting times enable cancer progression and reduce chances of survival.

Additionally, because of theft and resale, supplies of drugs and medical devices in public hospitals are frequently out of stock. Families are forced to buy medicines and materials from private distributors, which inevitably incur additional costs to the individual. If private alternatives are not available or affordable, adequate cancer treatment according to prescribed treatment schedules is made impossible for large swathes of the population.[11] Although a reduction in the price of generic anticancer drugs could decrease total costs of cancer care and improve access to medicine for those patients on low incomes, motivation to produce, distribute, and prescribe these drugs might be low because generic drugs provide less personal revenues and kickbacks for pharmaceutical companies, distributors, pharmacists, and doctors.[6,55] When regulatory authorities ignore the distribution of counterfeit drugs, they compromise the wellbeing of patients who receive inefficacious drugs.[6,23]

African populations often have low literacy levels and little notion of the need to proceed with chemotherapy once patients respond to initial treatment. As with any country, provision of clear information about cancer treatment is crucial to ensure long-term commitment. Yet, cancer education is not given by appropriately qualified doctors as they are too busy in private practice. Subsequently, poor families receive either no information or confusing messages by different residents, interns, and auxiliary nurses.[33,56,57] Therefore, insight into why it is important to complete prescribed protocols is absent in patients and medical teams.

Corruption from medical staff at times when patients are most vulnerable and desperately need medical attention creates profound distrust of health-care providers within the continent. Additionally, patients have no control over the amount and timing of bribes, which makes them feel powerless. In Africa, strong social hierarchical structures exist, which create a large

gap between doctors and families on low incomes. This status and power gap makes poor families unable to defend their rights and thus they are forced to silently accept corrupt health-care services, despite being detrimental to their health. For health-care providers, families on low incomes are therefore easy targets for personal financial enrichment. Lack of respect for medical professionals reduces adherence to cancer treatment, as does patients' feeling of lack of control over their disease progression and treatment.[8,11,22,58] Thus, corruption in the health-care system stimulates abandonment of treatment, the most frequent reason for cancer treatment failure in Africa, which can lead to progressive or relapsed disease and, ultimately, death.[11,33,59–61]

Some patients who have unpaid medical bills are detained by the hospital. Detention of patients because of unpaid medical bills is highly distressing to families, who desperately try to find money to redeem their loved ones. Every extra day in detention increases the cost of medical bills, therefore families trying to buy patients out of hospital detention find it increasingly difficult to meet increasing payment demands. Some patients are completely abandoned inside hospital because of a lack of money to pay for bills.[32,33] Cancer treatment involves high costs and bribes during prolonged periods. Families often need to sell vital assets, such as land, harvest, or livestock, to pay for medical bills and bribes. However, these assets are needed for their livelihood and without them families are drawn deeper into poverty and cannot afford future medical care and bribes.[1,13,30] A vicious downward spiral evolves, resulting with unfinished cancer treatments, unnecessary cancer deaths, and poor socioeconomic outcomes.[1,30,50]

Many collaborative programmes between oncology departments in high-income and low-income countries are established to share knowledge and improve cancer survival in low-income countries.[62,63] Both partners share their interest in oncology expertise, but do not share the same sociocultural backgrounds. Frequently, high-income partners are driven to help patients in low-income countries but might not be aware of the pervasive corruption issue and how it affects cancer care in low-income countries. However, low-income partners work in corrupt health-care systems in which taking care of the poor is not prioritised. If preventive measures are not taken, donations might be corrupted.[37]

Few African countries have enacted legislation to ensure cancer prevention and treatment. However, in those countries that have, corruption can lead to allocated funds being diverted for personal gains, meaning that execution of cancer legislation does not work.[64] Corruption can lead to both undertreatment, when patients receive no or little cancer care, or overtreatment, when doctors inappropriately order more tests, procedures, and drugs than necessary so as to enhance personal profit; or to mistreatment with malfunctioning medical devices or counterfeit drugs.[6,29] All these strategies can eventually cause premature death.[65–68]

Moral autonomy and responsibility

The cultures of western countries have an individualistic orientation, whereas cultures in Africa are based on collectivism. In many collectivist societies, preservation of social harmony and culture of respect to those who hold higher positions are given priority. This set-up restricts the validity of other moral principles, such as helping those patients on low incomes. An individual therefore has restricted moral autonomy and responsibility. Of note, this collectivist society is not about creating social harmony or ideal situations, but about accepting, preserving, and not disturbing existing situations and social hierarchies. Subordinates should not criticise their superiors or demand them to uphold responsibilities. In fact, the reverse applies, as conduct of superiors becomes the role model. In Africa, behaviour is correct when it advances social harmony and hierarchy, but is wrong when behaviour disrupts this state.[69–73] Corruption thus starts at the top of the social hierarchy.[10] Corrupt misconduct of health ministers and government officials is imitated by the administrators of public hospitals. Likewise, doctors are corrupt, which allows nurses and other health-care personnel to misuse their power for private gain, allowing a culture of corruption to become widespread and accepted.

Role of high-income countries

What is the role of high-income countries in facilitating the issue of corruption across the continent? What do high-income countries have to gain from an impoverished, illiterate Africa with corrupt regimes? Unfortunately, high-income countries have often sought to gain from Africa's rich natural resources, corrupt local leaders, and poorer subordinates.[16–18,74]

Governmental institutions, laws, and values were installed during the colonial period to favour the small group of elite individuals from western countries and suppress the African majority. Education and better employment positions in public and commercial sectors were reserved for individuals from western countries. Monitoring systems to hold these individuals accountable for their corruption were absent. After independence was gained from colonial rule, those who struggled for independence were inexperienced in setting up and managing efficient governmental institutions. The previous corrupt centralised structures remain: now the African elite are favoured and the poor majority is disregarded.[10,74]

The colonial rulers exploited Africa's natural resources for economic gain, favoured some local leaders, and repressed native inhabitants. At present, the political and business elite from high-income countries of technology, oil, mining, defence, engineering, property development,

Panel 3: **Recommendations to address corruption in African health-care systems**

International financial institutions, health organisations, and donors

- Pressurise governments to use development assistance to address key components of health-care systems: monitoring systems, rewards, punishments, decent salaries, physician dual practices, absenteeism, and informal payments
- Press governments and use development assistance to end hospital detention practices
- Engage communities in programmes and provide information on what will be given and to whom
- Evaluate programmes on the basis of health outcomes and not on disbursement level or speed
- Engage in civic education to inform communities on structure and organisation of health-care systems and what an individual's rights are

UN treaty monitoring bodies and the UN special rapporteur*

- Acknowledge that hospital detention practices violate the UN Human Rights Declaration signed by African governments
- Investigate hospital detention practices and advise governments on how to stop these processes

Governments in high-income countries

- Stop businesses from high-income countries bribing African politicians and civil servants
- Stop banks in high-income countries from being safe havens for looted African funds
- Urge these banks to return monies stolen by African politicians and civil servants

African governments

- Strong leaders with high morality and integrity must set a good example for their subordinates
- Stop misappropriation of funds
- Address key components of health-care systems
  - Install monitoring systems for health budgets, personnel, and supplies
  - Make information on health budgets, performance indicators, tender processes, conditions, and decisions freely available
  - Install and execute rewards for good performance and punishments for misconduct
  - Pay appropriate salaries to health-care providers in public hospitals
  - Install and execute legislation to make physician dual practices, absenteeism, and informal payments unlawful and punishable
  - Install independent monitoring bodies to ascertain that physician dual practices, absenteeism, and informal payments do not continue
- Install and execute legislation to make hospital detention practices unlawful and punishable
- Install independent monitoring bodies to ascertain that the detention practices do not continue
- Install whistle-blower protection and independent anti-corruption institutions

Public hospitals

- Strong leaders with high morality and integrity must set a good example for their subordinates
- Stop misappropriation of funds
- Address key components of health-care systems
  - Install monitoring systems for health budgets, personnel, and supplies
  - Introduce codes of conduct through continuous training
  - Install and execute rewards for good performance and punishments for misconduct
  - Obligate health-care providers to work full-time in public hospitals
  - Install and execute punishment for physician dual practices, absenteeism, and informal payments
- Liberate all detained patients in public hospitals and stop hospital detention practices

*UN special rapporteur is an independent expert with mandates to investigate, report, and advise on human rights from a thematic or country-specific perspective.

and estate corporations still bribe leaders to safeguard contracts and influence government decisions. These business deals first profit the high-income countries, favour African leaders and civil servants financially, pollute the environment, and impoverish Africa's population. Without corruption, some businesses could lose their position in the world economic market and adversely affect the economies of high-income countries and their citizens.[10,16,17,74]

The misappropriated money that denies Africans proper health and cancer care sits in the banks of high-income countries with comfortable Corruption Perceptions Index scores. High-income countries do not choose to stop their banks from accepting plundered funds from African politicians and civil servants; they do not do due diligence and do not question the origin of their corrupt fortune.[16–19]

Although high-income countries like to perceive themselves as the watchdog of world order, their political leaders are remarkably silent about the part their businesses play in stimulating corruption in Africa. Also, little effort has been made to either stop banks situated in these high-income countries from being safe havens for looted African budgets or to return stolen monies. Why? Most likely because this situation is not in their economic interest.[16–18,74]

Additionally, the media in these high-income countries, including television, radio, newspapers, and medical scientific journals, seem reluctant to publish the true magnitude of corruption in Africa and the extent of

Search strategy and selection criteria

We searched PubMed and Google for relevant publications (January, 1990, to February, 2015) with the search terms: "corruption" and "low-income countries" or "Africa". Separate searches with these terms were complemented by those with terms related to the themes in the manuscript, such as "cancer" or "ethics". Searches were supplemented by authors' personal bibliographies. Only books, reports, and articles published in English were included.

implication these high-income countries have in facilitating the issue of corruption, perhaps in fear of reprisal of multinationals, losing advertising revenue or readership, and discouraging outreach projects.[16,75] Without realistic reports, crucial awareness cannot be raised and improvements for Africa's population are made impossible.

Recommendations

Corruption is a deeply-rooted, multifaceted, and complex issue affecting whole societies in Africa, not just the health-care sector.[29,73] Unfortunately, no easy solutions exist to stop the issue of corruption and its effects from spreading.[6,13,23]

Frequently, efforts to improve access and quality of medical care for patients focus on funding direct needs such as medical supplies. The structure in which health-care systems function is usually ignored;[13,25–27] yet, the structure perpetuates corruption and hinders access to, and quality of, medical care for poor people. Well intended funding might have little or no effect, and could even aggravate corruption.[13,25,27,75] For example, extra funding for chemotherapy or medical equipment has negligible effect on outcomes for patients with cancer when no experienced doctors in public hospitals are motivated to help treat patients on low incomes. Hence, the focus should be on health-care systems affected by corruption at the government, hospital, and health-care provider levels.

African leaders of high morality and integrity, serving as role models for subordinates, are the main prerequisite to fight corruption. Corrupt leaders and governments cannot be expected to take the initiative to wipe out corruption; however, international financial institutions, health organisations, and donors can influence African health policies with funding, advice, and by applying their power within the health-care sector. Panel 3 shows recommendations for combined preventative measures to address corruption in health-care systems.[1,6] Monitoring systems, severe punishment for corruptors, rewards for good performance, and decent salaries must be installed in these corrupt health-care systems. Because access and quality of medical and cancer care for patients on low incomes and in public hospitals is impossible without experienced health-care providers, an essential step is needed to deal with this issue. Physician dual practices, absenteeism, and informal payments lead to medical neglect of patients on low incomes in public hospitals and needs to cease. Corrupt structure of health-care systems must be addressed to improve health and cancer care for patients in Africa.[13]

Declaration of interests

We declare no competing interests.

Contributors

SM searched the databases and wrote the first draft. FN, GO, and SS included local perspectives. MNS, ES, and GK redrafted the Personal View. All authors approved the final submitted version.

References

1 Human Rights Watch and the Association for the Promotion of Human Rights and Detained Persons. A high price to pay: detention of poor patients in Burundian hospitals. 2006. http://hrw.org/reports/2006/burundi0906 (accessed Feb 18, 2015).

2 World Health Statistics 2014. World Health Organization. http://www.who.int/gho/publications/world_health_statistics/2014/en (accessed Feb 18, 2015).

3 Kahn LH. What Africa really needs to fight Ebola and other emerging diseases: anti-corruption efforts. Bulletin of the Atyomic Scientists. 2015. http://thebulletin.org/what-africa-really-needs-fight-ebola-and-other-emerging-diseases-anti-corruption-efforts7928 (accessed Feb 19, 2015).

4 Transparency International Corruption Perceptions Index 2013. http://cpi.transparency.org/cpi2013/results (accessed Feb 17, 2015).

5 Kohler JC. Fighting corruption in the health sector: methods, tools and good practices. UN development programmes 2011. http://www.u4.no/recommended-reading/fighting-corruption-in-the-health-sector-methods-tools-and-good-practices (accessed Feb 14, 2015).

6 Transparency International Global Corruption Report 2006. http://www.transparency.org/whatwedo/publication/global_corruption_report_2006_corruption_and_health (accessed Feb 17, 2015).

7 Dyer O. New report on corruption in health. *Bull World Health Organ* 2006; **84:** 84–85.

8 Ewins P, Harvey P, Savage K, Jacobs A. Mapping the risks of corruption in humanitarian action. Overseas Development Institute and Management Accounting for NGOs (MANGO). A report for Transparency International and the U4 Anti-Corruption Resource Center. July, 2006. http://www.transparency.org/content/download/8400/53941/file/ODI_corruption_risk_map.pdf (accessed Feb 19, 2015).

9 The World Bank. Working for a world free of poverty. Country and Lending Groups. http://data.worldbank.org/about/country-and-lending-groups#Low_income (accessed Feb 16, 2015).

10 Alatas SH. The problem of corruption. Singapore: Fong & Sons Printers; 1986.

11 Mostert S, Sitaresmi MN, Njuguna F, van Beers EJ, Kaspers GJ. Effect of corruption on medical care in low-income countries. *Pediatr Blood Cancer* 2012; **58:** 325–26.

12 Einterz EM. International aid and medical practice in the less-developed world: doing it right. *Lancet* 2001; **357:** 1524–25.

13 Lewis M. Governance and corruption in public health care systems. Center for global development. Working paper number 78. 2006. http://www.cgdev.org/publication/governance-and-corruption-public-health-care-systems-working-paper-78 (accessed Feb 19, 2015).

14 Chêne M. The impact of corruption on growth and inequality. Transparency International. March, 2014. http://www.transparency.org/files/content/corruptionqas/Impact_of_corruption_on_growth_and_inequality_2014.pdf (accessed Feb 16, 2015).

15 Witvliet MI, Kunst AE, Arah OA, Stronks K. Sick regimes and sick people: a multilevel investigation of the population health consequences of perceived national corruption. *Trop Med Int Health* 2013; **18:** 1240–47.

16 Adusei LA. Hiding Africa's looted funds: the silence of western media. http://wikileaks.org/wiki/Hiding_Africa's_Looted_Funds:_The_Silence_of_Western_Media (accessed Feb 17, 2015).

17 Condé A. At Davos, the West must help us root out corruption in Africa. *The Guardian* (London). Jan 22, 2014.

18 Al Jazeera. How to rob Africa. Why does the Western world feed Africa with one hand while taking from it with the other? Aljazeera. People & Power. Nov, 8, 2012. http://www.aljazeera.com/programmes/peopleandpower/2012/11/201211714649852604.html (accessed Feb 17, 2015).

19 Fitzgibbon W. Swiss leaks a microcosm of billions lost annually in Africa. The International Consortium of Investigative Journalists. Feb 13, 2015. http://www.icij.org/blog/2015/02/swiss-leaks-microcosm-billions-lost-annually-africa (accessed Feb 16, 2015).

20 Marouf FE. Holding the World Bank accountable for leakage of funds from Africa's health sector. *Health Hum Rights* 2010; **12:** 95–108.

21 Asante AD, Zwi AB, Ho MT. Getting by on credit: how district health managers in Ghana cope with the untimely release of funds. *BMC Health Serv Res* 2006; **6:** 1–9.

22 Center for Reproductive Rights and Federation of Women Lawyers. Failure to deliver. Violations of women's human rights in Kenyan health facilities. 2007. http://www.reproductiverights.org/sites/default/files/documents/pub_bo_failuretodeliver.pdf (accessed Feb 18, 2015).

23 Bouchard M, Kohler JC, Orbinski J, Howard A. Corruption in the health care sector: a barrier to access of orthopaedic care and medical devices in Uganda. *BMC Int Health Hum Rights* 2012; **12:** 1–9.

24 Azfar O, Kahkonen S, Meagher P. Conditions for effective decentralized governance: a synthesis of research findings. World Bank 2001. http://www.worldbank.org/publicsector/decentralization/Feb2004Course/Backgroundmaterials/Azfar.pdf (accessed Feb 19, 2015).

25 Lindelow M, Serneels P, Lemma T. The performance of health workers in Ethiopia. Results from qualitative research. The World Bank 2005–2006. http://economics.ouls.ox.ac.uk/14134/1/2005-06text.pdf (accessed Feb 14, 2015).

26 McPake B, Asiimwe D, Mwesigye F, et al. Informal economic activities of public health workers in Uganda: implications for quality and accessibility of care. *Soc Sci Med* 1999; **49:** 849–65.

27 García-Prado A, Chawla M. The impact of hospital management reforms on absenteeism in Costa Rica. *Health Policy Plan* 2006; **21:** 91–100.

28 Narayan D, Chambers R, Shah MK, Petesch P. Voices of the poor. Crying out for change. The World Bank 2000. http://openknowledge.worldbank.org/handle/10986/13848 (accessed Feb 15, 2015).

29 Vian T. Review of corruption in the health sector: theory, methods and interventions. *Health Policy Plan* 2008; **23:** 83–94.

30 Save the Children. The costs of coping with illness. East and Central Africa. 2005. http://www.savethechildren.org.uk/sites/default/files/docs/The_ costs_of_coping_with_illness1.pdf (accessed Feb 19, 2015).

31 Kippenberg J, Sahokwasama JB, Amon JJ. Detention of insolvent patients in Burundian hospitals. *Health Policy Plan* 2008; **23:** 14–23.

32 Mostert S, Njuguna F, Langat SC, et al. Two overlooked contributors to abandonment of childhood cancer treatment in Kenya: parents' social network and experiences with hospital retention policies. *Psychooncology* 2014; **23:** 700–07.

33 Mostert S, Njuguna F, van de Ven PM, et al. Influence of health-insurance access and hospital retention policies on childhood cancer treatment in Kenya. *Pediatr Blood Cancer* 2014; **61:** 913–18.

34 Sanders E. In Kenya, patients held hostage to medical bills. *Los Angeles Times* (Los Angeles). June 27, 2009.

35 WHO. The Abuja Declaration: Ten Years On. http://www.who.int/healthsystems/publications/Abuja_declaration/en (accessed Feb 16, 2015).

36 Audibert M, Motel PC, Drabo A. Global burden of disease and economic growth. 2012. http://halshs.archives-ouvertes.fr/halshs-00678713 (accessed Feb 16, 2015).

37 Mostert S, Sitaresmi MN, Gundy CM, et al. Influence of socioeconomic status on childhood acute lymphoblastic leukemia treatment in Indonesia. *Pediatrics* 2006; **118:** e1600–06.

38 Penfold S, Shamba D, Hanson C, et al. Staff experiences of providing maternity services in rural southern Tanzania – a focus on equipment, drug and supply issues. *BMC Health Serv Res* 2013; **13:** 61.

39 Malkin R, Keane A. Evidence-based approach to the maintenance of laboratory and medical equipment in resource-poor settings. *Med Biol Eng Comput* 2010; **48:** 721–26.

40 Chaudhury N, Hammer JS. Ghost doctors: absenteeism in rural Bangladeshi health facilities. *World Bank Econ Rev* 2004; **18:** 423–41.

41 Muralidharan K, Chaudbury N, Hammer J, et al. Is there a doctor in the house? Medical worker absence in India. http://scholar.harvard.edu/files/kremer/files/is_there_a_doctor_in_the_house_12_april_2011.pdf (accessed Feb 14, 2015).

42 Vian T, Miller C, Themba Z, Bukuluki P. Perceptions of per diems in the health sector: evidence and implications. *Health Policy Plan* 2013; **28:** 237–46.

43 Yarney J, Donkor A, Opoku SY, et al. Characteristics of users and implications for the use of complementary and alternative medicine in Ghanaian cancer patients undergoing radiotherapy and chemotherapy: a cross-sectional study. *BMC Complement Altern Med* 2013; **13:** 1–9.

44 Birhanu Z, Abdissa A, Belachew T, et al. Health seeking behavior for cervical cancer in Ethiopia: a qualitative study. *Int J Equity Health* 2012; **11:** 83.

45 Njuguna F, Mostert S, Slot A, et al. Abandonment of childhood cancer treatment in Western Kenya. *Arch Dis Child* 2014; **99:** 609–14.

46 Brahmi SA, El M'rabet FZ, Benbrahim Z, et al. Complementary medicine use among Moroccan patients with cancer: a descriptive study. *Pan Afr Med J* 2011; **10:** 36.

47 Howard SC, Metzger ML, Wilimas JA, et al. Childhood cancer epidemiology in low-income countries. *Cancer* 2008; **112:** 461–72.

48 Mostert S, Njuguna F, Kemps L, et al. Epidemiology of diagnosed childhood cancer in Western Kenya. *Arch Dis Child* 2012; **97:** 508–12.

49 Brown BJ, Ajayi SO, Ogun OA, Oladokun RE. Factors influencing time to diagnosis of childhood cancer in Ibadan, Nigeria. *Afr Health Sci* 2009; **9:** 247–53.

50 Masika GM, Wettergren L, Kohi TW, von Essen L. Health-related quality of life and needs of care and support of adult Tanzanians with cancer: a mixed-methods study. *Health Qual Life Outcomes* 2012; **10:** 133.

51 Magrath I, Shad A, Epelman S, et al. Pediatric oncology in countries with limited resources. In: Pizzo PA, Poplack DG, eds. Principles and practice pf pediatric oncology. Philadelphia: Lippincott-Raven Publishers, 1997: 1395–1419.

52 Sitaresmi MN, Mostert S, Gundy CM, Sutaryo, Veerman AJ. Health-care providers' compliance with childhood acute lymphoblastic leukemia protocol in Indonesia. *Pediatr Blood Cancer* 2008; **51:** 732–36.

53 Yohana E, Kamuhabwa A, Mujinja P. Availability and affordability of anticancer medicines at the Ocean Road Cancer Institute in Dar es Salaam, Tanzania. *East Afr J Public Health* 2011; **8:** 52–57.

54 Adebamowo CA, Akarolo-Anthony S. Cancer in Africa: opportunities for collaborative research and training. *Afr J Med Med Sci* 2009; **38** (suppl 2)**:** 5–13.

55 Renner L, Nkansah FA, Dodoo AN. The role of generic medicines and biosimilars in oncology in low-income countries. *Ann Oncol* 2013; **24** (suppl 5)**:** v29–32.

56 Central Intelligence Agency. The World Factbook 2014. http://www.cia.gov/library/publications/the-world-factbook (accessed Feb 18, 2015).

57 Arora RS, Pizer B, Eden T. Understanding refusal and abandonment in the treatment of childhood cancer. *Indian Pediatr* 2010; **47:** 1005–10.

58 Berger D. Corruption ruins the doctor–patient relationship in India. *BMJ* 2014; **348:** 3169.

59 Mostert S, Arora RS, Arreola M, et al. Abandonment of treatment for childhood cancer: position statement of a SIOP PODC Working Group. *Lancet Oncol* 2011; **12:** 719–20.

60 Arora RS, Eden T, Pizer B. The problem of treatment abandonment in children from developing countries with cancer. *Pediatr Blood Cancer* 2007; **49:** 941–46.

61 Egwuonwu OA, Anyanwu SN, Nwofor AM. Default from neoadjuvant chemotherapy in premenopausal female breast cancer patients: what is to blame? *Niger J Clin Pract* 2012; **15:** 265–69.

62 Howard SC, Pedrosa M, Lins M, et al. Establishment of a pediatric oncology program and outcomes of childhood acute lymphoblastic leukemia in a resource-poor area. *JAMA* 2004; **291:** 2471–75.

63 Nicoll A, Carter E, Golden B, Robson J, Southall D, Williams T. Developing sustainable international partnerships in child health and paediatric care. *Arch Dis Child* 2001; **84:** 315–19.

64 National Council for Law Reporting with the Authority of the Attorney-General. Cancer prevention and control act. Kenya law reports. http://www.kenyalaw.org:8181/exist/rest/db/Kenyalex/Kenya/Legislation/English/ActsandRegulation/CancerPreventionandControlAct (accessed Feb 19, 2015).

65 Slone JS, Chunda-Liyoka C, Perez M, et al. Pediatric malignancies, treatment outcomes and abandonment of pediatric cancer treatment in Zambia. *PLoS One* 2014; **9:** e89102.

66 Asombang AW, Rahman R, Ibdah JA. Gastric cancer in Africa: current management and outcomes. *World J Gastroenterol* 2014; **20:** 3875–79.

67 Parkin DM, Bray F, Ferlay J, Jemal A. Cancer in Africa 2012. *Cancer Epidemiol Biomarkers Prev* 2014; **23:** 953–66.

68 Togo B, Traoré F, Togo AP, et al. Epidemiology and prognosis of childhood cancers at Gabriel-Touré Teaching Hospital (Bamako, Mali). *Med Sante Trop* 2014; **24:** 68–72 (in French).

69 Kwame G. African ethics. The Stanford encyclopedia of philosophy 2011. http://Plato.stanford.edu/archives/fall2011/entries/African-ethics (accessed Feb 15, 2015).

70 Etta C, Asukwo OO. The nature of African ethics. *Int Online Multidiscipl J* 2012; **1:** 55–60.

71 Basabe N, Ros M. Cultural dimensions and social behavior correlates: individualism-collectivism and power distance. *Rev Int Psychol Soc* 2005; **18:** 189–225.

72 Magnis-Suseno F. Two basic principles of Javanese social life. Morality as knowledge of life. In: Javanese ethics and world-view: the Javanese idea of the good life. *Jakarta: PT Gramedia* 1997; 42–83, 193–219.

73 Mazar N, Aggarwal P. Greasing the palm: can collectivism promote bribery? *Psychol Sci* 2011; **22:** 843–48.

74 Gumede W. The foreign policy centre briefing: corruption fighting efforts in Africa fail because root causes are poorly understood. http://fpc.org.uk/fsblob/1500.pdf (accessed Feb 15, 2015).

75 Chattopadhyay S. Corruption in healthcare and medicine: why should physicians and bioethicists care and what should they do? *Indian J Med Ethics* 2013; **10:** 153–59.