ACE SOAS Consortium Anti-Corruption Evidence Making Anti-Corruption Real

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Corruption in the procurement of pharmaceuticals in Anglophone sub-Saharan Africa: a scoping literature review

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Acronyms and abbreviations

CSO	Civil society organisation
MeTA	Medicine Transparency Alliance
SSA	Sub-Saharan Africa
WHO	World Health Organization

Executive summary

The cost of procuring pharmaceutical products – especially medicines – represents a major share of public health spending. At the same time, the significant financial resources and the number of players involved in pharmaceutical procurement makes the process susceptible to corrupt practices. Such corruption in the public sector can potentially lead to cost escalations without a commensurate improvement in health outcomes.

There is a particular gap in understanding corrupt practices relevant to the procurement of medicines in Anglophone sub-Saharan Africa. Greater understanding is needed of the different types of corrupt practices that occur in the pharmaceuticals procurement chain, their drivers and effects, and steps that could be taken to reduce corruption and improve accountability and efficiency. This report synthesises the relevant evidence that has been published to date.

We retrieved and conducted a detailed review of 54 publications comprising grey and primary literature. The baseline year was 2008. Specific search terms were used to explore various databases and search engines such as Google, Google Scholar, Pub Med, Directory of Open Access Journals, Science Direct, Hinari and ResearchGate.

Most of the publications focus on Nigeria (38), while 16 of them explore other Anglophone sub-Saharan African countries. Many of the papers explore the challenges in procurement of pharmaceuticals without clearly distinguishing incidences of corruption from inefficiencies or irregularities. However, the implied motive is to secure private gain. Common corrupt behaviours include: influencing the bidding process to secure supply contracts, procuring unnecessary drugs and equipment, bribery and kickbacks to grow pharmaceutical orders, and drug theft and sales. The common effects of these practices include: frequent stock-outs, the supply of sub-standard drugs and associated loss of lives, reduced effectiveness of treatment, lost opportunity costs for legitimate companies and wasted funds. The substantial amount of money involved in pharmaceutical procurement is identified in the literature as the foremost driver of corruption. Other drivers include weak administrative systems, low pay among procurement staff and information asymmetry.

We found a dearth of evidence on interventions to tackle corruption, which implies that pharma corruption in the region has continued largely unchecked. However, many of the studies suggest multiple approaches that could be used to tackle corrupt practices alongside other irregularities. Some of the interventions are specific to some types of drugs and others suggest the use of innovative approaches. A few positive anti-corruption cases are described in countries where the Medicine Transparency Alliance (MeTA) is operational, and where open contracting and outsourcing are used when corruption is rife. Drawing on the evidence reviewed and the SOAS Anti-Corruption Evidence approach, we recommend that anti-corruption efforts are aligned through a coalition among governments, pharmaceutical companies, the media and civil society organisations (CSOs), with appropriate checks and balances to establish an anti-corruption agenda in the pharmaceutical procurement chain. We highlight useful mechanisms that actors within this coalition can adopt.

1. Introduction

The procurement of pharmaceuticals within public health systems involves substantial financial resources. The sums amount to almost 25–50% of global public health spending, just below the cost of employing and maintaining the health workforce (Amin, 2017; Heggstad and Froystad, 2011). Added to these vast financial resources, the complex coalitions and the numbers of players involved (with diverse interests) make the procurement process prone to corruption (Diack et al., 2010) and an area of major concern in the health sector (Amin, 2017; Heggstad and Froystad, 2011).

Procurement in this context is described as a process of acquiring medical consumables and equipment from pharmaceutical companies for the benefit of end-users (Mubangizi and Sewpersadh, 2017). The procurement chain involves manufacturers, importers, wholesalers, drug stores, dispensing doctors, and public and private pharmacies, etc. (Kanavos and Wouters, 2014); and the processes include bidding/tendering, evaluation/selection, award and purchasing, licensing, distribution, promotion and contract management (Cohen et al., 2007). Prescribing, dispensing and even clinical trials could also be considered part of procurement, because these processes influence what is bought and sold to end-users.

The procurement of medicines revolves around questions of what to buy, from whom, at what price and for which end-users (Amin, 2007). Taken together, this has made the pharmaceutical procurement chain overly complex, difficult to study and vulnerable to corruption that depends on political economy dynamics which remain undetected at times. 'Good' pharmaceutical procurement ensures the 'restriction of purchases to the essential medicines list (national formulary list), determination of order quantities based on reliable needs estimation, competitive tendering from qualified suppliers, separation of key functions, prompt payment, regular audits, and a formal system of supplier qualification and monitoring' (Management Sciences for Health, 2012: Ch.1).

The World Health Organisation (WHO) estimates that around only 20% of countries in the world have good procurement practices – countries in sub-Saharan Africa (SSA) underperform (Olugbenga, 2014), which Yadav (2015) suggests is a result of corruption in the pharmaceutical procurement chain. Consequently, SSA countries struggle to procure the right product, at the right quality and quantity, and at a cost-effective price (UNDP, 2011). And these failings occur despite the huge sums of money involved. In Nigeria, for instance, the pharmaceutical sector constitutes about 2% (N1.109 trillion) of the country's gross domestic product (GDP) and about N300 billion in investments; it employs over 600,000 people and is valued at over US$800 million with yearly growth of 12% (Siyanbola et al., 2012). The impact of rising medicine prices as a result of corruption is felt by end-users but it also inflates government spending (Kanavos and Wouters, 2014).

This study seeks to enhance understanding of the nature and types of corruption in pharmaceutical procurement in low- and middle-income countries – and SSA in particular – and the drivers, impacts and potential remedial measures. It builds on a previous systematic review of corruption in Anglophone health systems in which pharmaceutical procurement is

identified as susceptible to corruption (Onwujekwe et al., 2019). The literature indicates that such corruption largely occurs in the demand and supply chain for medicines (Heggstad and Froystad, 2011). Manufacturers, government agencies and selection committees in charge of tenders and bid protocols, wholesalers, representatives of pharmaceutical companies, pharmacists and medical staff are all implicated in the web of corruption (Chuku et al., 2016; Cohen et al., 2007). Furthermore, the numerous parties involved in the pharma procurement process make the system overly complex and difficult to monitor, such that most corrupt practices are hidden (Cartwright and Baric, 2018; Ekeigwe, 2019; Enyinda and Tolliver, 2009; Olugbenga, 2013).

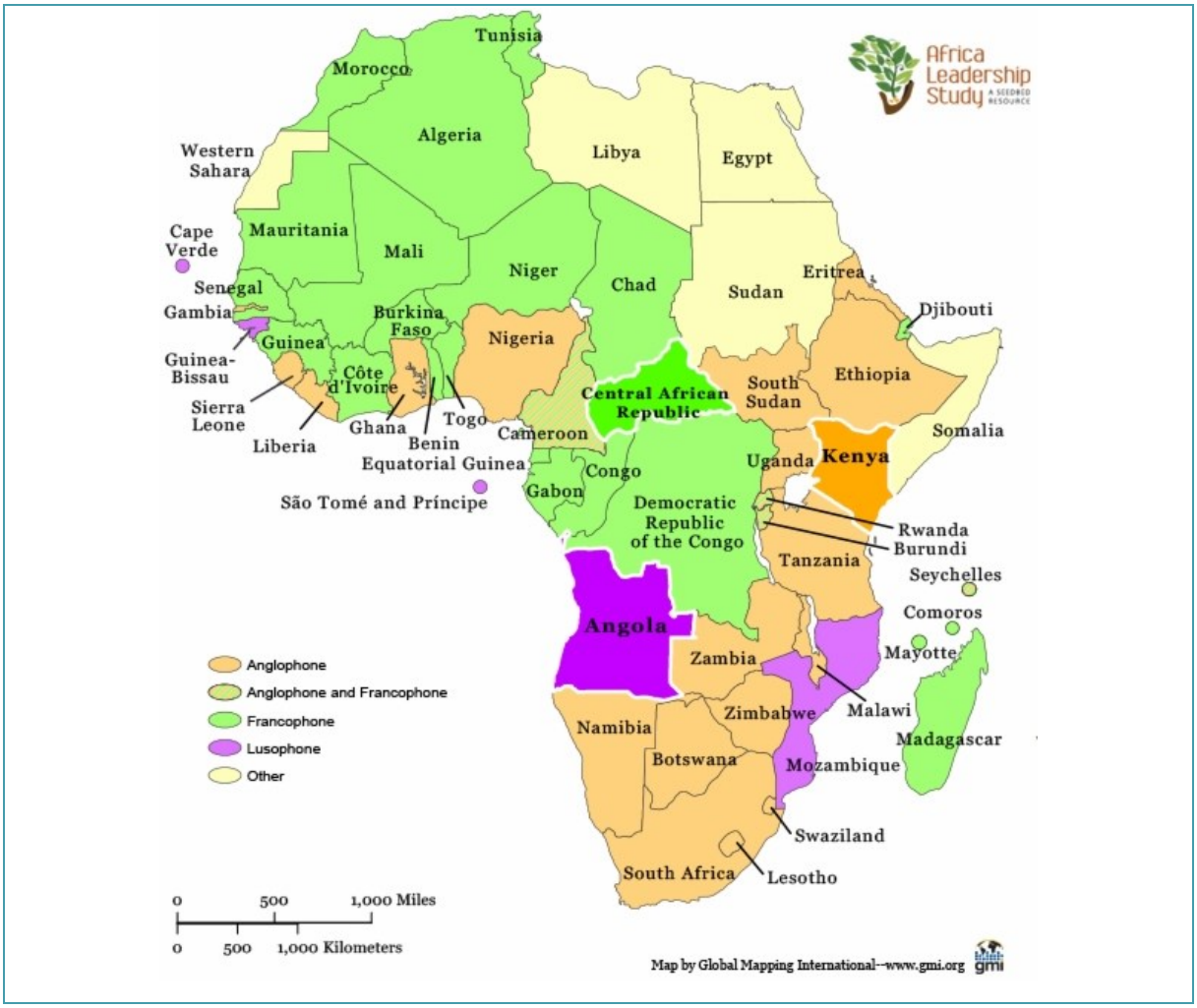
This report synthesises the evidence on potential corrupt practices and solutions in the procurement of pharmaceuticals in Anglophone SSA. The investigation seeks to identify new areas for research, policy debate and action, and pulls together recommended strategies to make pharma procurement systems more efficient and offer better value for money.

2. Methodology

We retrieved and conducted a critical review of 54 publications comprising grey and primary literature. We focused on Anglophone SSA (i.e. English-speaking countries) because this has not been covered by any previous review (see Figure 1 for countries covered). We included both qualitative and quantitative studies published in English (or with English translation) during the period 2008–2020. Search terms were used to explore various databases and search engines such as Google, Google Scholar, Pub Med, Directory of Open Access Journals, Science Direct, Hinari and ResearchGate. Apart from the literature generated by the Boolean operators, we also followed up on references of interest in the reviewed papers. Some of the papers have findings relevant to more than one country, hence the disparity in some of the figures. See Box 1 for the Boolean operators used for the literature search.

We categorised our findings into the nature and types, consequences and drivers of pharmaceutical procurement corruption, plus strategies that have been used to curb such corruption. Our findings discussed in Section 3 reflect these categories.

Figure 1: Language map for Africa



Source: Adapted from Africa Leadership Study (2019).

Box 1: Literature search terms

((“Nature” OR “Drivers” OR “Effects”) AND (“Corruption” OR “Bribery” OR “Dishonesty” OR “Inefficient practices” OR “Rent seeking” OR “Informal payment”) AND (“Health sector” OR “Hospital” OR “Healthcare center” OR “Health facilities” OR “Health service”) AND (“pharmaceuticals” OR “drugs” OR “medical supplies” OR “essential medicine”) AND (“Health worker” OR “Service provider”) AND ((“Sub-Saharan Africa”) OR OR (“Botswana”) OR (“Eritrea”) OR (“Ethiopia”) OR (“Ghana”) OR (“Kenya”) OR (“Lesotho”) OR (“Liberia”) OR (“Malawi”) OR (“Namibia”) OR (“Nigeria”) OR (“Rwanda”) OR (“Tanzania”) OR (“Sierra Leone”) OR (“South Sudan”) OR (“Uganda”) OR (“South Africa”) OR (“Zambia”) OR (“Zimbabwe”))

((“Open contracting” OR “Procurement” OR “tender” OR “bidding” OR “purchasing” OR “purchasing equipment”) AND (“pharmaceuticals” OR “drugs” OR “medical supplies” OR “essential medicine”) AND (“healthcare” OR “health sector” OR “hospital” OR “health service”) AND ((“Sub-Saharan Africa”) OR (“Botswana”) OR (“Eritrea”) OR (“Ethiopia”) OR (“Ghana”) OR (“Kenya”) OR (“Lesotho”) OR (“Liberia”) OR (“Malawi”) OR (“Namibia”) OR (“Nigeria”) OR (“Rwanda”) OR (“Tanzania”) OR (“Sierra Leone”) OR (“South Sudan”) OR (“Uganda”) OR (“South Africa”) OR (“Zambia”) OR (“Zimbabwe”))

((“Anti-corruption” OR “Combating corruption” OR “Tackle corruption” OR “Prevent corruption” OR “Anti-corruptive government” OR “Transparency” OR “Intervention” OR “Measures” OR “Strategies”) AND (“Health sector” OR “Hospital” OR “Healthcare center” OR “Health facilities” OR “Health service”) AND (“pharmaceutical” OR “pharmaceutical procurement” OR “medical supplies” OR “drugs” OR “essential medicine”) AND ((“Sub-Saharan Africa”) OR OR (“Botswana”) OR (“Eritrea”) OR (“Ethiopia”) OR (“Ghana”) OR (“Kenya”) OR (“Lesotho”) OR (“Liberia”) OR (“Malawi”) OR (“Namibia”) OR (“Nigeria”) OR (“Rwanda”) OR (“Tanzania”) OR (“Sierra Leone”) OR (“South Sudan”) OR (“Uganda”) OR (“South Africa”) OR (“Zambia”) OR (“Zimbabwe”)).

3. Findings

Studies on corruption in the pharmaceutical sector are well represented in the literature, demonstrating the nature and types, consequences, and drivers of pharmaceutical corruption in SSA. Countries from sub-regions of East, West and Southern Africa are highlighted in the documents reviewed. While some studies focus on one or more types of pharmaceutical procurement corruption, others identify pharmaceutical procurement corruption among other types of corruption happening in a country or in the health sector.

Annex Table A1 shows the types of corruption that have been reported in different SSA countries, while Annex Table A2 shows the percentage distribution of country-by-country literature and key findings. Remarkably, 38 of the documents reviewed highlight pharmaceutical procurement corruption in Nigeria. Other countries include Ghana (11), South Africa (7), Uganda (5), Tanzania (4), Kenya and Sierra Leone (2 each), Ethiopia, Botswana and Rwanda (1 each). One paper (Aminu and Gwarzo, 2017) discusses common types of corruption in pharmaceutical procurement across several SSA countries (explaining an interconnected range of practices that compromise the procurement process).

Table A1 also captures the underlying drivers of procurement corruption in the sector, with the key drivers being opportunities for rent-capture, health systems weakened by an absence of policy or poor enforcement of policies/regulations, infrastructural deficits and poor remuneration of staff. Interestingly, we also found studies that evaluate interventions aimed at combatting the various types of corruption in different countries: such evaluative studies on anti-corruption measures are usually rare to find in the literature. Finally, some of the studies proffer and/or investigate interventions to address certain procurement challenges.

3.1. The nature and types of corruption in pharmaceutical procurement

Corruption in pharma procurement varies across the different Anglophone SSA countries owing to differing anti-corruption protocols and measures (Baghdadi-Sabedi and Serhan, 2010). Corrupt behaviour occurs at different decision-points in the procurement chain in each country (pre-tendering, tendering/decision-making and award/post-award phases) (Heggstad and Froystad, 2011). However, in SSA, the types of corruption in pharmaceutical procurement are similar because countries in the region face similar governance problems (Bigdeli et al., 2013). For instance, kickbacks, procurement of expensive drugs, theft, and the resale of drugs and medical equipment are mentioned in studies in countries like Sierra Leone (Mostert et al., 2015), Nigeria (Chuku et al., 2016), Ghana (Heggstad and Froystad, 2011) and South Africa (Mantzaris & Pillay, 2018). USAID (2013) also highlights lack of transparency in budgeting processes and procurement, as well as in tender and procurement processes, as being common in pharmaceutical procurement in SSA.

Among the several types of corruption in pharma procurement, the major practices include: bribery and extortion between pharmaceutical companies, their agents and frontline practitioners in hospitals and members of selection committees in the procurement chain (Chattopadhyay, 2013; Heggstad and Froystad, 2011; Mackey and Liang, 2012; Open Briefing, 2013; UNDP, 2011); bid rigging (Amin, 2017; Cohen et al., 2007; Mackey and Liang, 2012; UNDP, 2011); market division (Heggstad and Froystad, 2011), which featured strongly in Nigeria and Ghana; falsification of bidding and supply documents (Cartwright and Baric, 2018; Heggstad and Froystad, 2011), which featured in Nigeria and Ghana; conflict of interests (members of the selection committees and procurement staff also bid for contracts, sometimes through proxies), which featured in Nigeria, Ghana and Uganda (Baghdadi and Serhan, 2010; Garuba et al., 2009; Ntayi et al., 2013); incorrect quantification, which featured in Nigeria (Management Sciences for Health, 2012: Ch.1); closed contracting and avoidance of e-procurement procedures, which featured in Nigeria (Amin, 2017; Arney et al., 2014); and state capture by powerful suppliers, which featured in Nigeria (Diack et al., 2010; Olugbenga, 2013). But these different types of corruption are driven by several conditions that overlap at times. For instance, a member of procurement staff who bids for contracts could offer bribes not to be exposed; a pharma company could offer bribes to the procurement staff in a hospital to inflate the quantity of drugs to be supplied; and a pharma company could lobby for the rejection of a competitor in a bid in order to capture the market.

In the next sub-sections, we elaborate on the various types of corruption and the conditions under which they occur.

3.1.1. Bribery and extortion

Local and foreign companies offer bribes to selection committees to include them in bids, to include their products in essential medicines lists or to increase their chances of winning contracts to supply medicines. This has been observed in Nigeria, Ghana and South Africa (Open Briefing, 2013; UNDP, 2011). Specifically, in countries like Nigeria and Ghana, it has been reported that companies offer bribes to have their products deceitfully passed through clinical trials meant to certify that products are fit for consumption (Egharevba and Atkinson, 2016; Open Briefing, 2013). Bribes are also offered to secure licenses, for promotion of specific products over others and to the media to make favourable reports of products, results of clinical trials and bidding outcomes (Bigdeli et al., 2013). In Ghana, companies reportedly experience extortion by officials who threaten that applications will not be considered or that their licences will be withdrawn/revoked (Heggstad and Froystad, 2011). According to Amin (2017), bribery and extortion is rampant because the processes of pharmaceutical procurement involve dealings between procurement officials and pharma reps.

3.1.2. Bid rigging

Public Procurement Acts in most SSA countries advocate for competitive bidding, which implies that all companies have an equal chance of selection (Mubangizi and Sewpersadh, 2017). However, the literature review shows evidence of some actors influencing bid assessments in countries like Ghana, where procurement officials are offered bribes to make bid assessments favourable to some bidders and not others (Cohen et al., 2007; Heggstad

and Froystad, 2011). The bidding process can also be rigged to favour bidders on the grounds of social networks of friendship, kinship or nepotism (Cohen et al., 2007; Mubangizi and Sewpersadh, 2017), which denies qualified bidders fair assessment. Officials deploy several means to ensure that the bidding process favours their preferred bidder, including cutting short the time for submission of paperwork, deliberately misplacing the applications of government bidders, modifying certain criteria to suit a preferred company, favouring some companies with information, manipulation of bid scores, and using extortion to scare off unfavourable bidders (Arney and Yadav, 2014; Heggstad and Froystad, 2011).

A different type of corruption, called *bid suppression* or *complementary bidding* has also been reported in Ghana (Heggstad and Froystad, 2011). This involves an understanding between bidders to allow for a single submission, behind which they all throw their weight. At the end of the bidding process, those who shielded their bids are sub-contracted or offered kickbacks (ibid.). More so, this practice creates the opportunity for bidders to form a cartel to regulate prices and production, which runs contrary to public interest.

3.1.3. Other types of corruption

Other, less common, types of corruption that have been reported within the pharma procurement system include: falsification of documents by bidders and their assessors (Heggstad and Froystad, 2011); incorrect quantification of drugs to be supplied so procurement officials and pharmaceutical companies benefit financially (Management Sciences for Health, 2012: Ch. 1); conflict of interests involving procurement officials who clandestinely bid for awards or protect a favoured bid (Baghdadi and Serhan, 2010; Garuba et al., 2009); and powerful suppliers who capture the state, thereby dictating who gets what, when and how (reported in the Nigerian literature by Diack et al., 2010; Olugbenga, 2014).

3.2. The consequences of corruption in pharmaceutical procurement

There are several key impacts of pharmaceutical procurement corruption. Bribes, extortion, kickbacks and conflicts of interest undermine transparency, equity and fair judgement in deciding who wins a contract to supply pharmaceuticals (Chuku et al., 2016; Peresson, 2019). They result in a loss of accountability and foster a permissive culture for other types of corruption like forgery, inflation of supplier figures and prices, and delisting of qualified bidders, to mention a few. The resultant effects include avoidable spending on the part of government, infiltration of sub-standard and low-quality medicines into the system, inflated prices for medicines, and lack of opportunities for patients to evaluate medicines in terms of quality, effectiveness and cost. And these consequences will continue so long as profiteering and pecuniary benefits persist (Diack et al., 2010; Olugbenga, 2014).

Other consequences of bribery include impeded access to quality medicines due to exorbitant prices, frequent stock-outs, hoarding, inappropriate prescribing and, generally speaking, a sub-optimal healthcare system (Bigdeli et al., 2013; Cartwright and Baric, 2018; Management Sciences for Health, 2012: Ch.1; Mostert et al., 2015). As officials collect bribes and kickbacks

to influence the procurement process, pharmaceutical companies are hardly held accountable when they influence contracting agreements (Tormusa and Idom, 2016). This results in high-cost and low-quality supply and biased distribution. Sadly, when prices of medicines soar and become relatively unaffordable for many, it is poor people who are affected most. They are less able to pay for medicines and may shun treatment completely or turn to alternative treatments that can be detrimental to their health and increase mortality (Kamorudeen and Bidemi, 2012). The implication of this is certainly grave, as the acquisition of rents is obviously elevated above protecting the health and wellbeing of the population.

As a result of information asymmetry, healthcare service users find it difficult to investigate the medicines they purchase, particularly in terms of quality or cost, because the healthcare provider assumes a monopoly of knowledge in prescribing (Amadi and Tsui, 2018; Kanavos and Wouters, 2014; Tormusa and Idom, 2016). Service users are also made to believe that a pharmacist is dispensing the right medicine and ask no questions, even when patients are faced with a financial burden and ineffective medicines. We found no system in place that monitors patients' rights to drug information, thus, individuals remain at the mercy of doctors and pharmacists. It is during this process that patients may become victims of inappropriate prescribing, and doctors and pharmacists may enjoy kickbacks from pharma companies whose interests they protect.

Another key consequence of corruption is that it erodes trust in systems (Onwujekwe et al., 2020). The pharma sector should benefit from research on the best drug therapies, as well as commitment to enforce rules and best practices in the procurement chain. However, researchers may be discouraged from applying their efforts to a corrupt system, since they may never be funded or recognised, or their efforts could become compromised along the way (Siyanbola et al., 2012). Also, enforcers of rules and best practices can be discouraged and become demotivated, and potential suppliers with good intents could be corruptly excluded from the procurement chain. The latter can lead to suppliers participating in corrupt behaviour for their business to survive or to them losing trust in the system (Open Briefing, 2013; Oyebamiji, 2018).

3.3. The drivers of corruption in pharmaceutical procurement

Procurement units within public health facilities are considered vulnerable to corruption because of the large sums of money involved and the complex relationships among those who control the procurement process (Huff-Rousselle, 2012). Rent-seeking is perhaps the most recognisable driver of procurement corruption. As public hospitals are likely to make large orders with large associated financial flows, businesses are attracted to the sector to seek contracts. The quest for rent capture attracts many players who use both legitimate and illegitimate means to secure procurement contracts. Bribes and kickbacks are offered to officials who are connected to the bidding process, and likewise officials demand bribes to offer information to bidders or to help influence the award of contracts. When an appropriate procurement process is not followed, opportunities are created for other types

of corruption, including erroneous quantification of drugs or orders and irregular receipt and storage processes at medical stores (Ekeigwe, 2019).

Mostert et al. (2015) identify the sole authority of government to regulate the procurement process as one of the drivers of corruption. In the absence of oversight from independent bodies, private citizens or CSOs, government officials determine which medicines are procured and the quantities needed, thus creating an opportunity for officials to benefit financially through kickbacks, overbilling and all manner of graft. With no counterchecks in place, public officials can abuse their positions without detection or fear of sanctions.

The literature also reports agents of pharmaceutical companies who take advantage of inexperienced government officers (Bah-Traore, 2012; Mostert et al., 2015). Such unqualified persons who work in the procurement and distribution of drugs are easily influenced or undermined because they are unfamiliar with the correct processes. This creates room for procurement irregularities (Vian, 2008). Low salaries are also often recognised as the reason why officials demand and collect bribes to supplement their monthly salary in countries like Nigeria (Garuba et al., 2009; Mackey and Liang, 2012; Tormusa and Idom, 2016).

Furthermore, Vian (2008) describes the administrative systems in poorer countries as often weak. These inadequacies make it difficult to measure corruption statistics such as the percentage of procurements that have not met certain standards and to track corruption incidences within the sector. Both of these measures are needed for 'red-flagging' and for the proposal of relevant interventions (Amnesty International, 2011). Vian (ibid.) goes on to argue that perpetrators of corruption are driven by individual motivations and values, hence the need to also address the sense of ethics and social values within a particular context. Corruption in the procurement of pharmaceuticals has also been linked to certain demographic attributes like marital status and gender (ibid.).

Finally, information asymmetry has been identified as a driver of corruption in the pharmaceutical procurement process (Chuku et al., 2016). This happens when certain players in the procurement chain have some form of informational advantage over end-users (Cohen et al., 2007; Olugbenga, 2013). For example, this information could relate to pricing, drug descriptions, prescriptions, legislation, regulations and constituents of the essential medicines list. Therefore, a transparent flow of information in non-technical language regarding the pharma system as a whole can help bridge the gap between the public and representatives of the pharmaceutical sector (Yadav, 2015). In this way, the public can identify incidences of corruption and act to protect their own interests, and procurement officials and bid winners will be kept accountable, given public awareness. It should be noted, however, that even in the presence of information flows, powerful political coalitions can still capture rents if enforcement capacity is low.

3.4. Existing strategies to curb pharmaceutical procurement corruption in Anglophone SSA

Anti-corruption interventions have been implemented or recommended in particular contexts, although the literature shows that the complex nature of the pharma procurement chain poses a challenge for the success of many interventions (Cartwright and Baric, 2018; Enyinda and Tolliver, 2009; Siyanbola et al., 2012).

Local ownership of the procurement process

Many countries in Anglophone SSA import large quantities of vital medicines, which makes them vulnerable to some compromising practices (Bah-Traore, 2012). Some authors opine that local manufacturing of medicines would make the chain less complex and easier to monitor, as well as reducing production costs that will ultimately affect mark-ups and the prices of medicines for end-users (Siyanbola et al., 2012; Conway et al., 2019). Some countries in Asia and North Africa that have improved their procurement system are referenced as examples of success as they are promoting the local manufacture of medicines (Conway et al., 2019).

The transition of countries from low- to middle-income status has caused donors to reduce or withdraw aid, including medicines (Arney and Yadav, 2014). The implication is that these countries have to take charge of purchasing medicines and that they are ignorant of or inexperienced in the business of pharma procurement (Vian, 2008). To avoid vulnerability to corruption and exploitation, it has been recommended that closer collaborations are needed with countries that have successfully secured their own pharma procurement system (Arney et al., 2014). In this way, countries that have succeeded in establishing and managing their own procurement systems can mentor and coach those that are new to the business. Similarly, outsourcing procurement of medicines to international organisations has proven to be an effective strategy: for instance, the United Nations Children's Fund (UNICEF) procured medicines for Ukraine in 2015, when the Ministry of Health in the country was found to have betrayed confidence and public trust (Amin, 2017).

Good governance and global benchmarks

Good governance and political will can also lead to reduced corruption within the pharmaceutical procurement system (Tormusa and Idom, 2016). The WHO's 2004 Good Governance for Medicines Programme could be helpful here (Baghdadi-Sabeti and Serhan, 2010), which outlines how appropriate and weighty sanctions could be implemented and promotes ethics as a strong value for procurement officials (Chattopadhyay, 2013). Such ethics and sanctions were applied by Dora Akunyili, a former Director-General of the National Agency for Food and Drug Administration and Control (NAFDAC), which led to a reduction of counterfeit medicines in Nigeria by 80% between 2002 and 2006 (Garuba et al., 2009).

Other measures have also been recommended to ensure there are no disparities between what is prescribed with what is in the essential medicines list and the WHO drug list (Yadav,

2015). A comparison of the prices of medicines against global benchmarks and between national essential medicines lists against WHO's list has been found helpful (UNDP, 2011; Yadav, 2015; Open Briefing, 2013). This is mentioned because it has been observed that essential medicines lists have been tampered with by selection committees who take bribes from pharmaceutical companies (Cohen et al., 2007; Management Sciences for Health, 2012: Ch.1). The UNDP (2011) notes that the essential drugs list alone cannot curb corruption, however, and that this must be complemented with other anti-corruption interventions.

Digitising procurement

Additional interventions could involve the use of e-procurement systems and open contracting. Amin (2017) considers that the enforcement of a digital culture in pharma procurement would mean that bidders and procurement committees have limited interactions, which would reduce the opportunities for the exchange of bribes and extortion. In other words, there would be less opportunities for corruption due to limited human interaction (Amadi and Tsui, 2018; Mubangizi and Sewpersadh, 2017). Important areas for electronic intervention include calls for the submission of bids, tendering, payments and monitoring (Gebremariam and Unade, 2019). However, the effectiveness of e-procurement is yet to be ascertained – there are scarce empirical studies on e-procurement of pharmaceuticals, and on a general level the use of e-procurement in SSA is hindered by inadequate IT infrastructure and a weak legal environment (Sarpong et al., 2017a).

Open contracting is also advocated by many (Amin, 2017; Hivos and Open Contracting Partnership, 2016; Peresson, 2019; Open Briefing, 2013), which ensures that no data related to the procurement process is hidden and that submissions from bidders, and information regarding the selection criteria and contracts are in the public domain (Baghdadi-Sabeti and Serhan, 2010).

The role of the media and CSOs

The involvement of certain stakeholders is important for eliminating corruption in procurement. The media and CSOs could help to increase transparency in the procurement process by ensuring that the general public have access to the right information and that interested bidders are not short-changed in the process. For example, it has been suggested that clear information campaigns could be communicated by the media regarding pharmaceutical procurement (Cohen et al., 2007; Enweremadu and Ifejika, 2017; Gebremariam and Unade, 2019). CSOs, on the other hand, could stand as watchdogs and work together with the media to advocate for better procurement systems and identify defaulters (Enweremadu and Ifejika, 2017). Amin (2017) sees CSOs as indispensable for a corruption-free pharmaceutical procurement system and advocates for a 'golden triangle' involving the government, businesses and CSOs. Given the important role it can play in stemming pharmaceutical corruption, we add the media as a fourth pillar to an effective anti-corruption strategy.

Other measures

Some studies advocate for context-specific anti-corruption measures across the procurement chain (Enyinda and Tolliver, 2019; Webb, 2014) and suggest that corruption flashpoints should be identified across the chain so that specific anti-corruption approaches can be designed (Enyinda et al, 2010). Heggstad and Froystad (2011) believe that corruption occurs at the phases of pre-tendering, tendering/decision-making, and post-award phases, and so recommend that mitigation efforts should take into consideration these three phases more than others.

Stiff penalties, including naming and shaming of defaulters, have also been recommended (Ekeigwe, 2019). This is the reason integrity pacts are signed by some companies (Amin, 2017). However, these are known not to work very well in contexts where enforcement is weak, such as in many developing countries. Integrity pacts may be more effective if CSOs and the media are better able to hold the government to account.

Other strategies listed by UNDP (2011) include ensuring that: a clear policy is set out on the methodology for quantification of supplies; the closing date of all procurement bids is adhered to; all bids are recorded; all awards and adjudication decisions are made by the procurement committee or tender board; all procurement tender bids and the results of contract awards are published online; electronic bidding is used where possible; suppliers are pre-qualified (e.g. through the WHO pre-qualification programme); prices of supplies are monitored; prices are checked against international benchmarks; international guidelines are used for health supply procurement practices; there is regular reporting of key procurement performance indicators; expert committees are commissioned to offer oversight to all procurement processes; and procurement officers are provided technical assistance and training. Finally, Ghana together with seven other non-Anglophone SSA countries attributed improvements in their pharmaceutical procurement processes to their membership of the Medicine Transparency Alliance (MeTA) (UNDP, 2011).

4. Discussion

Our review has identified different forms of pharmaceutical procurement corruption happening across SSA. Although reports of bribery/extortion/kickbacks and bid rigging dominate the literature (Open Briefing, 2013; Heggstaf and Froystad, 2011), we have also found reports of license/certificate forgery, theft of supplies, inaccurate supply reports and quantification, avoidance of e-procurement procedures, state capture by powerful suppliers, and conflicts of interests (Amin, 2017; Arney et al., 2014; Olugbenga, 2013).

Complex networks of players are involved in the different forms of corruption throughout the procurement process, but government officials and pharmaceutical companies and their agents are frequently identified as complicit. Procurement contracts are not awarded meritoriously; instead, officials award procurement contracts to their cronies or to bidders who pay bribes or offer kickbacks (Heggstaf and Froystad, 2011). Sometimes, the decision-making apparatus of the state are captured by powerful suppliers who dictate procurement regulations to suit their bidding (Olugbenga, 2014).

The quest for private benefits, mostly in pecuniary terms, is a major driver of corruption in pharma procurement. In Anglophone SSA, one of the poorest regions of the globe where financial resources are scarce and wages are comparatively low, the pressure to meet economic demands can force people to use both legitimate and illegitimate means. Similar drivers have also been reported by Behr (2017) in high-income European countries, and Blackstone et al. (2014) report significant proliferation of counterfeit medicine in the United States. However, we have previously suggested that the significant financial pressures in SSA may cause officials and other connected players to break the rules and that the consequences may be harsher for people in this region characterised by low quality of life (Onwujekwe et al., 2018).

Other macro- and micro-level drivers have also been revealed in the literature that tend to sustain corruption. At the macro level, issues include weak enforcement of procurement policies, poor welfare for procurement staff, unregulated bidding and awarding of contracts, complicit media involvement, lack of participation by CSOs or CSOs playing politics with their roles, employment of unqualified persons in the procurement chain, workplace policies around targets, and a dearth of infrastructure including information and communication technology to facilitate e-procurement practices (Amin, 2017; Arney et al., 2014; Ekeigwe, 2019; Garuba et al., 2009). At the micro level, the literature reports unethical attitudes among procurement staff, information asymmetry, and social ties including gender and marital status (Chuku et al., 2016; Vian, 2008; Yadav, 2015).

It is clear that macro- and micro-level drivers of pharmaceutical procurement corruption can overlap, however, leading to the perpetuation of corruption. For instance, a staff member who faces marital responsibilities and whose welfare is poorly attended to by the government could be motivated to take bribes. Pharma reps who are pressured to meet targets set by their employers could bribe pharmaceutical officials in hospitals, or exploit the social ties they share

with hospital officials to help them meet their targets. Such complex relationships make this kind of corruption quite difficult to tackle (Conway et al., 2019; Ekeigwe, 2019).

For a low-resource region that is grappling with several negative health outcomes (Kamorudeen and Bidemi, 2012; Onwujekwe et al., 2020), corruption in pharmaceuticals obviously has grave impacts. It limits the supplies of medicines to those in need through inflated costs, hoarding, inappropriate prescribing, counterfeit medicines, and frequent and/or artificial stock-outs. Invariably, these consequences can destabilise government efforts to strengthen health systems and can have a particular impact on health insurance. Expensive medication especially in low-income countries force health maintenance organisations (third party health insurance companies) to become less willing to pay for unduly expensive medication, or alternatively increase the cost of insurance, making it more difficult for poorer persons to get health coverage (Zweifel, Krey, & Tagli, 2007). Loss of public confidence in the health system can also emerge, which leads to increased government spend on disease prevention and responses in light of changes to health-seeking behaviours. The overall effect of poor pharmaceutical procurement practices is that it stalls the achievement of universal health coverage (UNDP, 2011), as the cost of medicines will soar and/or access to quality medicines declines.

4.1. Lessons learned from existing anti-corruption strategies

Our review found several suggestions of how to curb different aspects of corruption within the pharmaceutical sector in Anglophone SSA. Although evidence on effective interventions is scarce, lessons can be drawn from particular success stories. For instance, UNDP (2011) reports improvements in Ghana's pharmaceutical procurement system since the country joined MeTA and recommends MeTA membership for most countries, especially those in low-resource regions. Another intervention with evidence is the local production of medicines, and essential medicines in particular. Siyanbola et al. (2012) put forward that this has made the procurement chain less complex and easier to monitor in some countries in Asia and North Africa, while Conway et al. suggest that this can be effective for countries that largely import their medicines. Siyanbola et al. (2012) go on to suggest how countries can best commence local production of medicines by partnering with academia and funding research, which is lacking across countries such as Nigeria. Looking for ways to simplify the procurement chain is echoed in several studies (Enyinda et al., 2010; Enyinda and Tolliver, 2019; Heggstad and Froystad, 2011; Webb, 2014). These scholars believe that identifying corruption flashpoints and effectively monitoring the different components of the procurement chain will result in a less complex chain and that context-specific anti-corruption efforts are likely to be more effective.

Building capacity around modern procurement practices, such as e-procurement systems and advancing standard procurement guidelines (open contracting and comparing prices of medicines and the essential medicines list against international benchmarks) could also hold promise in the development of efficient anti-corruption strategies. The idea here is to limit human interaction, which is a key conduit for various corrupt practices such as bribery and

extortion, and also to build a culture of transparency across the procurement chain (Amin, 2017; Management Sciences for Health, 2012: Ch.1; Yadav, 2015).

The Media and CSOs have important roles to play around the issue of transparency and equity too. They can provide oversight and independent checks and balances for the actions of the government and suppliers or companies – the media and CSOs can report malpractices, speak in favour of the masses, translate technical language to non-technical and accessible content, supervise the signing of integrity pacts, and shame defaulters to deter corrupt actors. Although Abba-Aji et al. (2020) caution that the media in Nigeria and similar contexts can be seen as corrupt too, they advise the media to report corruption in health systems so as to raise awareness and visibility within the national agenda.

A further strategy that has already been found beneficial in the Ukraine (Amin, 2017) is to outsource the procurement of medicines to international organisations. Over time, this will enable the transfer of technical skills and knowledge to countries that are inexperienced in procurement, including in areas of leadership and good governance (Arney et al., 2014; Baghdadi-Sabeti and Serhan, 2010). Indeed, evidence already exists to show the effects of good governance in the procurement of pharmaceuticals in Nigeria, especially in curbing the production and supply of counterfeit medicines (Garuba et al., 2009).

In conclusion, it is important to realise that corruption can manifest in different forms within different contexts. However, our synthesised findings show that similar structural and governance challenges exist across many Anglophone SSA countries that make it difficult to operate a transparent pharmaceutical procurement process. This knowledge suggests that countries could work together and learn lessons to tackle pharmaceutical procurement corruption at both regional and national levels and that effective coalitions lie at the heart of anti-corruption efforts.

References

Abba-Aji, M., Balabanova, D., Hutchinson, E. and McKee, M. (2020) 'How do Nigerian newspapers report corruption in the health system?', *International Journal of Health Policy and Management* DOI: 10.34172/ijhpm.2020.37

Adusei, C. (2018) 'Public procurement in the health services: Application, compliance and challenges', *Humanities and Social Science Letters* 6(2): 41–50.

Agbenorku, P. (2012). Corruption in Ghanaian healthcare system: the consequences. *Journal of Medicine and Medical Sciences*, *3*(10), 622-630.

Akinyandenu, O. (2013) 'Counterfeit drugs in Nigeria: A threat to public health', *African Journal of Pharmacy and Pharmacology* 7(36): 2571–2576.

Alayande, A., Mamman-Daura, F., Adedeji, O., & Muhammad, A. (2016). Midwives as drivers of reproductive health commodity security in Kaduna State, Nigeria. *The European Journal of Contraception and Reproductive Health Care, 21*(3)*,* 207-212

Amadi, C. and Tsui, E. (2018) 'How the quality of essential medicines is perceived and maintained through the pharmaceutical supply chain: A perspective from stakeholders in Nigeria', *Research in Social and Administrative Pharmacy* 15(11): 1344–1357.

Amin, L. (2017) *Making the case for open contracting in healthcare procurement.* London: Transparency International.

Aminu, N.A. and Gwarzo, M.S. (2017) 'The eminent threats of counterfeit drugs to quality healthcare delivery in Africa: Updates on consequences and way forward', *Asian Journal of Pharmaceutical and Clinical Research* 10(7): 82–86.

Amnesty International (2011) *At a crossroads: Sierra Leone's free health care policy*. London: Amnesty International, International Secretariat.

Arney, L. and Yadav, P. (2014) *Improving procurement practices in developing country health programs.* Michigan, IL: William Davidson Institute.

Arney, L., Yadav, P., Miller, R. and Wilkerson, T. (2014) 'Strategic contracting practices to improve procurement of health commodities', *Global Health: Science and Practice* 2(3): 295–306.

Baghdadi-Sabeti, G. and Serhan, F. (2010) *WHO good governance for medicines programme: An innovative approach to prevent corruption in the pharmaceutical sector.* Geneva: World Health Organisation.

Bah-Traore, N. (2012) 'Quality assurance and safety issue of pharmaceutical products marketed in developing countries'. Dissertation, Rheinische Friedrich-Wilhelms-Universität Bonn.

Bateman, C. (2013). Drug stock-outs: Inept supply-chain management and corruption. *South African Medical Journal*, *103*(9), 600-602.

Behr, N. (2017) '2nd EU study on corruption in the healthcare sector released: What you should do to avoid falling into the corruption trap'. Baker & McKenzie, 14 November (https://globalcompliancenews.com/eu-study-corruption-healthcare-20171114/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn-integration).

Bigdeli, M., Jacobs, B., Tomson, G., Laing, R., Ghaffar, A., Dujardin, B. and Van Damme, W. (2013) 'Access to medicines from a health system perspective', *Health Policy and Planning* 28(7): 692–704.

Blackstone, E.A., Fuhr Jr, J.P. and Pociask, S. (2014) 'The health and economic effects of counterfeit drugs', *American Health & Drug Benefits* 7(4): 216–224.

Bouchard, M., Kohler, J. C., Orbinski, J., & Howard, A. (2012). Corruption in the health care sector: A barrier to access of orthopaedic care and medical devices in Uganda. *BMC international health and human rights*, *12*(1), 5.

Buowari, Y.O. (2017) 'Corruption in the Nigerian healthcare system', *Nigerian Journal of Medicine* 26(1): 94–97.

Cartwright, R. and Baric, A. (2018) *The Rise of Counterfeit Pharmaceuticals in Africa*. London: ENACT.

Chattopadhyay, S. (2013) 'Corruption in healthcare and medicine: Why should physicians and bioethicists care and what should they do?', *Indian Journal of Medical Ethics* 10(3): 153–159.

Chuku, I., Eyong, A., Onyema, O., Eyo, O. and Peter, O. (2016) 'Improving on the accessibility and availability of essential drugs in Calabar Metropolis, Cross River State', *Journal of Health, Medicine and Nursing* 27(2016): 45–55.

Cohen, J., Mrazek, M. and Hawkins, L. (2007) 'Tackling corruption in the pharmaceutical systems worldwide with courage and conviction', *Clinical Pharmacology & Therapeutics* 81(3): 445–449.

Conway, M., Holt, T., Sabow, A. and Sun, Y. (2019) 'Should sub-Saharan Africa make its own drugs?', *McKinsey & Company,* 10 January (https://www.mckinsey.com/industries/public-sector/our-insights/should-sub-saharan-africa-make-its-own-drugs#).

Diack, A. Seiter, A., Hawkins, L. and Dweik, I. (2010) *Assessment of governance and corruption in the pharmaceutical sector*. Washington, DC: World Bank.

Egharevba, E. and Atkinson, J. (2016) 'The role of corruption and unethical behaviour in precluding the placement of industry sponsored clinical trials in sub-Saharan Africa: Stakeholder views', *Contemporary Clinical Trials Communication* 3(2016): 102–110.

Ekeigwe, A. (2019) 'Drug manufacturing and access to medicines: The West African story. A literature review of challenges and proposed remediation', *AAPS Open* 5(3): 1–15.

Enweremadu, D. and Ifejika, S. (2017) 'Institutionalizing transparency and accountability in Nigerian public procurement process: Challenges for civil society organizations', *Ibadan Journal of Sociology* 5: 73–107.

Enyinda, C. and Tolliver, D. (2009) 'Taking counterfeits out of the pharmaceutical supply chain in Nigeria: Leveraging multilayer mitigation approach', *Journal of African Business* 10: 218–234.

Enyinda, C., Mbah, C. and Ogbuehi, A. (2010) 'An empirical analysis of risk mitigation in the pharmaceutical industry supply chain: A developing-country perspective', *Thunderbird International Business Review* 52(1): 45–54.

Gaitonde, R., Oxman, A. D., Okebukola, P. O., & Rada, G. (2016). Interventions to reduce corruption in the health sector. *Cochrane Database of Systematic Reviews*, (8).

Garuba, A.H., Kohler, C.J. and Huisman, M.A. (2009) 'Transparency in Nigeria's public pharmaceutical sector: Perceptions from policy makers', *Globalisation and Health* 5(14): 1–13.

Gebremariam, E.T. and Unade, T.T. (2019) 'Assessment of medicine supply management and its quality assurance practice in health centers in South West Shoa Zone, Oromia Regional State, Ethiopia', *Journal of Pharmaceutical Care & Health Systems* 6(1): 1–6.

Heggstad, K. and Froystad, M. (2011) *The basics of integrity in procurement.* U4 issue 2011:10. Bergen: Chr. Michelsen Institute.

Hivos and Open Contracting Partnership (2016) *Open contracting lessons from 15 countries.* BH Den Haag, The Netherlands: Hivos and Washington, DC: Open Contracting Partnership.

Huff-Rousselle, M. (2012) 'The logical underpinnings and benefits of pooled pharmaceutical procurement: A pragmatic role for our institutions?', *Social Science & Medicine* 75(9): 1572–1580.

Intergovernmental Action Group Against Money Laundering in West Africa [GIABA] (2017). Annual Report 2017. GIABA. https://www.giaba.org/media/f/1076_ENG%20-%20GIABA%20-%20ANNUAL%20REPORT%202017-BAT.pdf

Jairo, D. S. (2013). Procurement of pharmaceuticals from private suppliers by public hospitals in Der-Es-Salaam. (MSc. Dissertation, Muhimbili University). Retrieved from https://pdfs.semanticscholar.org/3391/bfca8ca5bfaf136be64cadf472f6ae14c3de.pdf

Kabote, S. J. (2017). Perceived corruption and quality of health services in Mbeya urban district, Mbeya region Tanzania. *International Journal of Social Science Research*, *5*, 150 – 164.

Kamorudeen, A. and Bidemi, S.A. (2012) 'Corruption in the Nigerian public health care delivery system', *Sokoto Journal of the Social Sciences* 2(2): 98.

Kanavos, P. and Wouters, O. (2014) *Competition issues in the distribution of pharmaceuticals.* Paris: Organisation for Economic Co-operation and Development.

Kishore, S., Kolappa, K., Jarvis, J., Park, P., Belt, R., Balasubramaniam, T. and Kiddell-Monroe, R. (2015) 'Overcoming obstacles to enable access to medicines for noncommunicable diseases in poor countries', *Health Affairs* 34(9): 1569–1577.

Mackey, T. and Liang, B. (2012) 'Combatting healthcare corruption and fraud with improved global health governance', *BMC International Health and Human Rights* 12(23): 1–7.

Management Sciences for Health (2012) *MDS-3: Managing access to medicines and health technologies* (Ch.1: 'Toward sustainable access to medicines'). Medford, MA: MSH.

Mikkelsen-Lopez, I., Cowley, P., Kasale, H., Mbuya, C., Reid, G., & de Savigny, D. (2014). Essential medicines in Tanzania: does the new delivery system improve supply and accountability?. *Health systems*, *3*(1), 74-81.

Mostert, S., Njuguna, F., Olbara, G., Sindano, S., Sitaresmi, N. M…, Supriyadi, E. and Kaspers, G. (2015) 'Corruption in health-care systems and its effect on cancer care in Africa', *The Lancet* 16: e394–404.

Mubangizi, J. and Sewpersadh, P. (2017) 'A human rights-based approach to combatting public procurement corruption in Africa', *African Journal of Legal Studies* 10(1): 66–90.

Muhia J., Waithera L. and Songole, R. (2017) 'Factors affecting the procurement of pharmaceutical drugs: A case study of Narok County Referral Hospital, Kenya', *Med Clin Rev.* 3(4): 20).

Namisango, E., Ntege, C., Luyirika, E. B., Kiyange, F., & Allsop, M. J. (2016). Strengthening pharmaceutical systems for palliative care services in resource limited settings: piloting a mHealth application across a rural and urban setting in Uganda. *BMC palliative care*, *15*(1), 1-11.

Ntayi, M.J., Ngoboka, P. and Kakooza, S.C. (2013) 'Moral schemas and corruption in Ugandan public procurement', *Journal of Business Ethics* 112(3): 417–436.

Ogbonna, B. and Nwako, C. (2016) 'Essential drugs revolving fund scheme in Nigeria: From the Edge of a precipice towards sustainability', *Journal of Advances in Medical and Pharmaceutical Sciences* 8(2): 1–8.

Ogbonna, B.O., Ilika, A.L. and Nwabueze, S.A. (2015) 'National drug policy in Nigeria (1985–2015)', *World Journal of Pharmaceutical Research* 4(6): 248–264.

Olugbenga, E.O. (2013) 'The politics of pharmaceutical regulation in Nigeria: Policy options for third world countries', *Public Policy and Administration Research* 3(8): 89–100.

Olugbenga, O.E. (2014) 'The politics and pathology of drug service administration in third world countries: Lessons of two drug distribution experiments in Nigeria', *International Journal of Development and Sustainability* 3(3): 505–519.

Onwujekwe, O., Agwu, P., Orjiakor, C., Mbachu, C., Hutchinson, E., Odii, A., Obi, U., Ogbozor, A., Ichoku, H., Mckee, M. and Balabanova, D. (2018) *Corruption in the health sector in Anglophone West Africa: Common forms of corruption and mitigation strategies.* SOAS ACE working paper no. 005. London: SOAS University of London.

Onwujekwe, O., Agwu, P., Orjiakor, C., McKee, M., Hutchinson, E., Mbachu, C., Odii, A., Ogbozor, A., Obi, U., Ichoku, H. and Balabanova, D. (2019) 'Corruption in Anglophone West African health systems: A systematic review of its different variants and the factors that sustain them', *Health Policy and Planning* 34(7): 529–543.

Onwujekwe, O., Orjiakor, T., Hutchinson, E., McKee, M., Agwu, P., Mbachu, C., Ogbozor, P., Obi, U., Odii, A., Ichoku, H. and Balabanova, D. (2020) 'Where do we start? Building consensus on drivers of health sector corruption in Nigeria and ways to address it', *International Journal of Health Policy and Management* 9(7): 286–296.

Open Briefing (2013) *Corruption within the pharmaceutical supply chain to the developing world.* London: Open Briefing.

Oyebamiji, F. (2018) 'Implementation of public procurement act and government performance: Evidence from Nigeria', *South Asian Journal of Social Studies and Economics* 1(4): 1–9.

Mantzaris, E., & Pillay, P. (2018). Morality, Corruption and Trust. *The Governance of Transitions-The Transitions of Governance: Cases from Southern Africa*, 157.

Peresson, S. (2019) 'Understanding pharmaceuticals and healthcare corruption risks and improving integrity in healthcare procurement'. Presented at 'Tackling corruption together' conference, 11 May, Commonwealth Secretariat, London (https://thecommonwealth.org/sites/default/files/inline/2Sophie%20Peresson%20-%20Pharmaceuticals%20and%20Healthcare.pdf).

Rispel, L. C., de Jager, P., & Fonn, S. (2016). Exploring corruption in the South African health sector. *Health policy and planning*, *31*(2), 239-249.

Sabot, O. J., Mwita, A., Cohen, J. M., Ipuge, Y., Gordon, M., Bishop, D., ... & Goodman, C. (2009). Piloting the global subsidy: the impact of subsidized artemisinin-based combination therapies distributed through private drug shops in rural Tanzania. *PLoS One*, *4*(9), e6857.

Sarpong, B.P., Janguo, D., Antwi, A.H., Boamah, B.K. and Oladepo, B.A. (2017a) 'Reframing public procurement challenges in Ghanaian hospitals through systems thinking', *International Journal of Scientific Research in Science, Engineering and Technology* 2(2): 712–720.

Sarpong, B.P., Jianguo, D., Antwi, A.H., Udimal, B.T., Musah, A.I. and Khan, S.H. (2017b) 'E-procurement adoption barriers in retrospect: a structural equation analysis of Ghanaian hospitals', *Canadian Journal of Applied Science and Technology* 5(2): 201–209.

Seidman, G., & Atun, R. (2017). Do changes to supply chains and procurement processes yield cost savings and improve availability of pharmaceuticals, vaccines or health products? A systematic review of evidence from low-income and middle-income countries. *BMJ Global Health*, *2*(2), e000243.

Serneels, P., & Lievens, T. (2018). Microeconomic institutions and personnel economics for health care delivery: a formal exploration of what matters to health workers in Rwanda. *Hum Resour Health* 16, 7. doi.org/10.1186/s12960-017-0261-9

Siyanbola, W.O., Oladipo, O.G., Oyewale, A.A., Famurewa, A.J. and Ogundari, I. O. (2012) 'Academia-industry interactions in Nigeria pharmaceutical innovation system', *Procedia – Social and Behavioural Sciences* 52(2012): 279–289.

Steyn, F., Schneider, H., Engellbrecht, M., van Rensburg-Bonthuyzen, E., Jacobs, N., van Rensburg, D. (2009). Scaling up access to antiretroviral drugs in a middle-income country: public sector drug delivery in the Free State, South Africa. *AIDS Care, 21*(1), 1-6

Tormusa, D. and Idom, M.A. (2016) 'The impediments of corruption on the efficiency of healthcare service delivery in Nigeria', *Online Journal of Health Ethics* 12(1): 1–11.

Tougher, S., Ye, Y., Amuasi, J. H., Kourgueni, I. A., Thomson, R., Goodman, C., ... & Amin, A. (2012). Effect of the Affordable Medicines Facility—malaria (AMFm) on the availability, price, and market share of quality-assured artemisinin-based combination therapies in seven countries: a before-and-after analysis of outlet survey data. *The Lancet*, *380*(9857), 1916-1926.

Tren, R., Hess, K., & Bate, R. (2009). Drug procurement, the Global Fund and misguided competition policies. *Malaria Journal*, *8*(1), 305.

Tumwine, Y., Kutyabami, P., Odoi, R. A., & Kalyango, J. N. (2010). Availability and expiry of essential medicines and supplies during the 'pull' and 'push' drug acquisition systems in a rural Ugandan hospital. *Tropical Journal of Pharmaceutical Research*, *9*(6).

UNDP (United Nations Development Programme) (2011) *Fighting corruption in the health sector: methods, tools and good practices*. New York, NY: UNDP.

USAID (United States Agency for International Development) (2013) *Corruption in health sectors of low- and middle-income countries*. Washington, DC: USAID.

Vian, T. (2008) 'Review of corruption in the health sector: theory, methods and interventions', *Health Policy and Planning* 23(2): 83–94.

Webb, S. (2014) 'A bitter pill to swallow: The problem of, and solutions to, sub-Saharan Africa's counterfeit pharmaceutical trade', *The Journal of Global Health* 4(2): 19–25 (https://doi.org/10.7916/thejgh.v4i2.5269).

Yadav, P. (2015) 'Health product supply chains in developing countries: Diagnosis of the root causes of underperformance and an agenda for reform', *Health Systems & Reform* 1(2): 142–154.

Zweifel, P., Krey, B., Tagli, M. (2007). Supply of private voluntary health insurance in low-income countries. In A. S. Preker, R. M. Scheffler, & M. C. Bassett (Eds). Private voluntary health insurance in development: Friend or foe (pp. 55 - 113). The World Bank. http://documents1.worldbank.org/curated/ar/300961468314724823/pdf/382810Private0101OFFICIAL0USE0ONLY1.pdf

Annexes

Table A1: Summary of corruption in pharmaceutical procurement in sub-Saharan Africa

S/N	Country	No. of papers	Types of corruption in procurement of pharmaceuticals	Explored in which studies?	Main drivers of corruption in pharmaceutical procurement	Explored in which studies?	Main interventions to eliminate corruption in pharmaceutical procurement	Explored in which studies?
1	Nigeria	38	Inflation of figures; bribes, kickbacks or gifts given to physicians or pharmacists to promote certain brands; conflict between generic and trade names; favouritism, extortion, cronyism, nepotism, counterfeiting and embezzlement; falsification of clinical trial results and manipulation of essential drugs list; bid rigging and irregular contracting process	Peresson (2019); Chattopadhyay (2013); Chuku et al. (2016); Open Briefing (2013); Mackey & Liang (2012); Garuba et al. (2009); Amin (2017); Management Sciences for Health (2012); Buowari (2017); Vian (2008); Tomusa & Idom (2016)	Importation of essential medicines; information asymmetry; insufficient policies and procedures for drug registration and selection committees; absence of conflict-of-interest policy; huge finances within the pharmaceutical sector; state capture; poor recording and regulatory oversights; large informal markets; targets given to pharm reps; poorly designed procurement procedures; poorly funded and staffed National Drug Agency; profiteering; an excessively complex supply chain; newly transitioned countries from receivers of donations to purchasing; weak/poorly enforced sanctions; lack of insurance	Siyanbola et al. (2012); Baghdadi & Serhan (2010); Chuku et al. (2016); Diack et al. (2010); Amadi & Tsui (2018); UNDP (2011); Garuba et al. (2009); Cartwright & Baric (2018); Enyinda & Tolliver (2009); Olugbenga (2014); Tormusa & Idom (2016); Olugbenga (2013); Arney et al. (2014); Onwujekwe et al. (2018); Ekeigwe (2019); Yadav (2015); Arney & Yadav (2014); Kamorudeen & Bidemi (2012); Huff-Rousselle (2012); Intergovernmental Action Group Against Money Laundering in West Africa (2017)	Improving tendering procedures and enforcing competitive bidding; include procurement principles in the constitution; prevent conflict of interests; electronic payment modes and electronic bidding; local production of essential medicines; open contracting; synergy with other anti-corruption bodies; adequate training of law enforcement and regulatory officials; whistleblowing policy; publish data in public domain; use CSOs and media effectively; common identification for drugs; regulate and address targets for pharm reps; partnership with MeTA; improve welfare of workers and employ more hands; adopt WHO pre-qualification programme and other international benchmarks; stiffer sanctions; feedback mechanisms from end-users; check informal markets through their unions; integrity pacts; outsourcing; adopting a register of beneficial ownership; technical coaching for newly transitioned countries	Mubangizi & Sewpersad (2017); Siyanbola et al. (2012); Peresson (2019); Baghdadi & Serhan (2010); Enwerema & Ifejika (2017); Chattopadhyay (2013); Chuku et al. (2016); Diack et al. (2010); Amadi & Tsui (2018); UNDP (2011); Akinyande (2013); Open Briefing (2013); Garuba et al. (2009); Cartwright & Baric (2018); Enyinda & Tolliver (2009); Enyinda et al. (2010); Ogbonna & Nwako (2016); Oyebamiji (2018); Olugbenga (2014); Tormusa & Idom (2016); Olugbenga (2013); Amin (2017); Huff-Rouselle (2012); Management Sciences for Health (2012); Ogbonna et al. (2015); Arney et al. (2014); Webb (2014); Onwujekwe et al. (2018); Ekeigwe (2019); Yadav (2015); Arney & Yadav (2014); Conway et al. (2019); USAID (2013); Bah-Traore (2012); Intergovernmental Action Group Against Money Laundering in West Africa (2017); Vian (2008); Tougher et al. (2012); Alayande et al. (2016)

S/N	Country	No. of papers	Types of corruption in procurement of pharmaceuticals	Explored in which studies?	Main drivers of corruption in pharmaceutical procurement	Explored in which studies?	Main interventions to eliminate corruption in pharmaceutical procurement	Explored in which studies?
2	Ghana	11	Alteration of figures; bribery, bidding irregularities, extortion, patronage, embezzlement, facilitation payments, rigged specifications, document falsification, market division, nepotism, and use of informal networks; conflict of interest; manipulating results of clinical trials	Heggstad & Froystad (2011); Egharevba & Atkinson (2016)	Poorly regulated distribution chain; weak monitoring of non-reimbursable medicines; poor logistics; insufficient IT infrastructure; huge finances in the pharmaceutical sector; state capture; inappropriate quantification; information asymmetry; social ties; low pay/wages	Kanavos & Wouters (2014); Diack et al. (2010); Cohen et al. (2007); Heggstad & Froystad (2011); Sarpong et al. (2017a); Abgenorku (2012)	Control non-reimbursable medicines; regulate mark-ups; improve logistics; improve IT infrastructure; improve health insurance services; partner with MeTA; report compliance and non-compliance in the public domain; make procurement details easily accessible; partner with the media and CSOs; red-flagging; stiff sanctions; adopt international benchmarks; provide technical assistance and training to procurement officers	Kanavos & Wouters (2014); Diack et al. (2010); Bigdeli et al. (2013); Kishore et al. (2015); Egharevba & Atkinson (2016); Sarpong et al. (2017a); Sarpong et al. (2017b); UNDP (2011); Adusei (2018); Tougher et al. (2012)
3	Ethiopia	1	Bidding irregularities	Gebremariam & Unade (2019)	Non-employment of pharmacists at several decision points of the chain; Weak usage of electronic processes	Gebremariam & Unade (2019)	The right technical mix at decision points and digitalization of the procurement chain	Gebremari & Unade (2019)
4	Sierra Leone	2	Kickbacks; overbilling; fraud in the selection process; theft; bribes	Mostert et al. (2015)	Informal black market; weak monitoring throughout the procurement processes; poor logistics	Mostert et al. (2015)	Effective monitoring and accountability mechanisms; feedbacks from end-users	Amnesty International (2011)
5	South Africa	7	Inflating figures; kickbacks and bribery; theft; embezzlement; falsification of information or mis-information; supplying counterfeit or sub-standard medicines; irregular biddings	Gaitonde et al. (2016); Bateman (2013); Rispel et al. (2016); Pillay & Mantzaris (2018)	Poor accountability/responsibility ; poor enforcement of rules and regulations; state capture	Rispel et al. (2016); Madgadzire et al. (2017)	Fair and transparent tendering procedures; competitive bidding; addressing conflict of interests; enforce electronic payments; partner with CSOs and the media; improve the welfare of procurement staff; employ competent staff; reduce discretion by dividing tasks; monitor the procurement processes	Mubangizi & Sewpersadh (2017); Pillay & Mantzaris (2018); Gaitonde et al. (2016); Steyn et al. (2009); Rispel et al. (2016)

S/N	Country	No. of papers	Types of corruption in procurement of pharmaceuticals	Explored in which studies?	Main drivers of corruption in pharmaceutical procurement	Explored in which studies?	Main interventions to eliminate corruption in pharmaceutical procurement	Explored in which studies?
7	Uganda	5	Theft and re-sale of drugs	Ntayi et al. (2013); UNDP (2011)	Incompetent staff mix; weak application of rules and nepotism; the lack of inventory systems, clear policies, price list and oversight mechanisms; lucrative nature of supply; conflict of interest	Ntayi et al. (2013); Bouchard et al. (2012)	Fair and transparent tendering procedures; using IT infrastructure; addressing conflict of interests; improving health insurance; addressing inappropriate quantification	Mubangizi & Sewpersadh (2017); Namisango et al. (2016); Bouchard et al. (2012); Seidman & Atun (2017); Tougher et al. (2012); Tumwine et al. (2010)
8	Kenya	2	Assigning contracts to companies with known history of deficiency and delay in supply	Tren et al. (2009)	Bureaucracy and transportation challenges	Muhia et al. (2017)	Enforce electronic payments; outsourcing; transparent and fair tendering and contracting procedures; stiff sanctions	Mubangizi & Sewpersadh (2017); Tren et al. (2009)
9	Botswana	1	Bidding and tendering irregularities	Mubangizi & Sewpersadh (2017)	Conflict of interest	Mubangizi & Sewpersadh (2017)	Address conflict of interests; Enforce digitalisation of the procurement process	Mubangizi & Sewpersadh (2017)
10	Rwanda	1	Theft and embezzlement	Serneels & Lieven (2018)	Insufficient reward; poor monitoring and weak accountability systems	Serneels & Lieven (2018)	Training procurement officials on ethics; putting out procurement information in public domain for accountability reasons	Serneels & Lieven (2018)
11	Tanzania	4	Bribery/extortion; bidding and tendering irregularities	Sabot et al. (2009)	Poor logistics	Kabote (2017)	Scale up health insurance; improve the welfare of procurement staff; employ competent workforce; improve infrastructure around procurement	Sabot et al. (2009); Jairo (2013); Mikkelsen-Lopez et al. (2014)
12	Sub-Saharan Africa	1					Globally coordinated surveillance system; extensive public enlightenment; Review of existing legislations; strong political will and enforcement of legislation; Determination and commitment to implement agreed health treaties; partnerships	Aminu and Gwarzo (2017)

Table A2: Percentage distribution of country-by-country literature and key findings

S/N	Country	Percentage (n = 72)	Types of corruption	Drivers of corruption	Anti-corruption strategies
1	Nigeria	38 (53%)	Bidding and tendering irregularities; bribery/extortion; nepotism; media corruption	Policy and infrastructural gaps and lack of enforcement of rules and sanctions; information asymmetry; complex procurement chain; poor staff welfare; employment irregularities; pharm reps' targets; lucrative pharmaceutical sector; newly transitioned countries from donor receivers to purchasers; state capture	Less complex procurement chain; digitalisation of procurement process; enforcement of regulations and standards; advancing staff welfare; open contracting; effective partnerships with media, CSOs, etc.; adopting international benchmarks; technical coaching for newly transitioned countries; infrastructural development
2	Ghana	11 (15%)	Bidding and tendering irregularities; bribery/extortion; nepotism; media corruption	Policy and infrastructural gaps and lack of enforcement of rules and sanctions; information asymmetry; poor staff welfare; lucrative pharmaceutical sector; state capture; poorly trained procurement officials	Digitalisation of procurement process; enforcement of regulations and standards; advancing staff welfare; open contracting; effective partnerships with media, CSOs, MeTA etc.; adopting international benchmarks; infrastructural development; training of procurement officers
3	South Africa	7 (10%)	Bidding and tendering irregularities; bribery/extortion; nepotism; supply of bad medicines	Policy gaps and lack of enforcement of rules and sanctions; state capture; poor staff welfare	Digitalisation of procurement process; enforcement of regulations and standards; advancing staff welfare; effective partnerships with media, CSOs, etc.; training of procurement officers; reduce discretion by dividing tasks
4	Uganda	5 (7%)	Theft and re-sale of drugs	Policy gaps and lack of enforcement of rules and sanctions; lucrative supplies; conflict of interest; incompetent procurement staff	Digitalisation of procurement process; enforcement of regulations and standards; training of procurement officers and appropriate employment
5	Tanzania	4 (6%)	Bribery/extortion; bidding and tendering irregularities	Poor infrastructure; incompetent procurement staff; poor staff welfare	Digitalisation of procurement process; enforcement of regulations and standards; advancing staff welfare; training of procurement officers
6	Kenya	2 (3%)	Sharp practices in contracting; bidding and tendering irregularities	Poor infrastructure; complex procurement chain	Digitalisation of procurement process; enforcement of regulations and standards
7	S Leone	2 (3%)	Bribery; theft; bidding and tendering irregularities	Poor infrastructure; complex procurement chain	Digitalisation of procurement process; enforcement of regulations and standards; effective partnerships with media, CSOs, etc.; reduce discretion by dividing tasks
8	Ethiopia	1 (1%)	Bidding and tendering irregularities	Incompetent staff; policy gaps and lack of enforcement of rules and sanctions	Digitalisation of procurement process; enforcement of regulations and standards
9	Botswana	1 (1%)	Bidding and tendering irregularities	Policy gaps and lack of enforcement of rules and sanctions	Digitalisation of procurement process; enforcement of regulations and standards
10	Rwanda	1 (1%)	Theft and embezzlement	Policy gaps and lack of enforcement of rules and sanctions; poor rule-compliant attitude of procurement officials	Digitalisation of procurement process; enforcement of regulations and standards; training procurement officials on ethics

ACE SOAS Consortium **Anti-Corruption Evidence**
Making Anti-Corruption Real

About the Anti-Corruption Evidence (ACE) Research Consortium:

ACE takes an innovative approach to anti-corruption policy and practice. Funded by UK aid, ACE is responding to the serious challenges facing people and economies affected by corruption by generating evidence that makes anti-corruption real, and using those findings to help policymakers, business and civil society adopt new, feasible, high-impact strategies to tackle corruption.

ACE is a partnership of highly experienced research and policy institutes based in Bangladesh, Nigeria, Tanzania, the United Kingdom and the USA. The lead institution is SOAS University of London. Other consortium partners are:

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- Health Policy Research Group (HPRG), University of Nigeria Nsukka (UNN)
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