



RISKS OF CORRUPTION IN THE HEALTHCARE AND PHARMACEUTICAL SECTOR AND THE IMPACT OF A PANDEMIC

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ABSTRACT

Numerous efforts have been made in recent decades to reduce corruption in the healthcare and pharmaceutical sectors around the world, and despite the resources invested in the fight against corruption, humanity cannot be satisfied with what has been achieved thus far. The ability to prevent dishonesty is tested by various incentives or changes in society that can lead to corrupt behavior. In this article, the COVID-19 pandemic, the risks of corruption in the healthcare and pharmaceutical sectors, and the opportunities for selfish and criminal behavior triggered by the viral disease are selected as research phenomena. The article seeks answers to the following questions on the global level: will the incentives for dishonesty in the healthcare sector increase during the pandemic period; if so, what kind of consequences will it have; and what measures could mitigate the extent and opportunities of dishonesty? The article seeks to demonstrate, through the nature and extent of corruption, the ability of a pandemic as a value space tester to outperform anti-corruption capabilities. It is concluded that the pandemic will exacerbate the emergence of unfair practices in the healthcare and pharmaceutical sectors and pose major challenges for countries in ensuring the legitimate use of public funds. The proposals made will help societies to be more responsive and effective in combating unfair practices. The article suggests further research, where the focus would be on more suitable use of public funds with the effectiveness of national vaccination plans, the relaxation of control measures for procurement and its consequences on an international level and the targeted use of resources to combat a pandemic.

INTRODUCTION

The article provides an overview of the nature of corruption, addresses the drivers of corruption, risks in the healthcare and pharmaceutical sector, the changes and impacts associated with a pandemic, and outlines proposals for more effective mitigation of risks. For an overview of the article, the author has researched the scientific literature on the risks of fraud and corruption in the healthcare and pharmaceutical sectors. Regarding case descriptions and risk mapping, the author has used web searches and information published on the websites of various international organisations. Over the years, various organisations all over the world have made numerous proposals to mitigate the risks of fraud and corruption, but they have often been treated with excessive superficiality or only limited momentary attention, resulting in a problem that requires constant monitoring before reverting to a supranational headache. Therefore, incentives for corruption should be thoroughly analysed and assess what occurs during a pandemic, finding new ways to reduce fraud and corruption on both a domestic and international level. The treatment of data to be analysed, mapped and formulated as proposals is necessary to make changes in the healthcare and pharmaceutical sector and for empowering state activities in future similar cases. The article seeks answers to the following questions on a global scale: will the incentives for dishonesty increase during the pandemic period; if so, what kind of consequences will it have; what measures could alleviate the extent and opportunities for dishonesty? As corruption is essentially being wilfully unaware of the borders, this article seeks to answer questions from a global perspective that relate to dishonesty and furthermore describe the extent of the problem with case examples from across the globe, where there is sometimes a need to tackle corruption with international cooperation from Europol and Interpol.

Corruption has been a problem for humanity for millennia (Barrett, 1990, p. 228; Holmes, 2015, p. 1) and over time, there are those who reap the benefits and enrich themselves at the expense of others (Mungiu-Pippidi, 2017, p. 1). Corruption cannot be entirely eradicated (Hough, 2013, p. 1; Holmes, 2015, p. 89), but it can be controlled to some extent and in order

to better understand corruption, its extent, causes, various forms and consequences should be studied (Majila, et al., 2014, p. 221).

Despite the concept of corruption changing fluidly over the centuries, dishonesty in this context is predominantly associated with inappropriate conduct by an official (Rose-Ackerman & Palifka, 2016, pp. 7-9). Nye (1967, p. 419) defined the nature of corruption as a conduct that deviates from traditional responsibilities in the performance of a public function that favours oneself or members of family and close associations in search of financial or status benefits obtained through bribery, nepotism, or foreign property as a private interest. The European Commission (2014, p. 37) and the World Bank (1997, p. 8) define corrupt practices as “abuse of public office for personal gain”, broadened further by Transparency International (2009, p. 14), which also focuses on developments in the private sector, and considers corruption “abuse of entrusted power for personal gain”.

Corruption has been described by James Wolfensohn (2005a, p. 50; 2005b, p. 140) as the “greatest eroding factor in the earth and a cancer”, Jim Yong Kim as “public enemy No. 1” (Reuters, 2013), David Cameron (WSJ, 2014) as “the main enemy of democracy and development” and Kersti Kaljulaid (Vabariigi President, 2021) emphasised in her speech on the country’s Independence Day that “corruption paralyses development.”

One of the reasons why corruption needs to be curbed is its scale. While in 2014 it was found that corruption costs the European economy around €120 billion a year (European Commission, 2014, p. 3), 2 years later the damage was estimated to have increased to €179-999 billion (European Parliament, 2016, p. 9). Analyses show that EU countries would collect €323 billion per year more in tax collection in Europe if they were able to control corruption at the Danish level (Mungiu-Pippidi & Kukutschka, 2013, p. 19). In 2018, corruption is estimated to have cost the world \$3.6 trillion a year, of which \$1 trillion (Kaufmann, 2005, p. 96; IMF, 2016, p. 5) is paid in bribes and a further \$2.6 trillion is stolen (UN News, 2018). In many countries, 15-30% of GDP is spent on public procurement every year, but the rise in the price of services and goods due to corruption can increase the cost of procurement by 10-25% (UNODC, 2013, p. 1), costing Europe €5 billion (European Parliament, 2016, p. 9).

In 2017, more than 80% of the world's population lived in a country where there are serious problems with corruption (Sartor & Beamish, 2019, p. 1). Corruption exists in all forms and at all levels of government (Caiden, 1988, p. 6) and cripples the income of the poor (Gupta, et al., 1998, p. 29), increases the value of transactions (Lambsdorff, 2000, p. 238), reduces productivity (Lambsdorff, 2003a, p. 459), discourages investment (Mauro, 1997, p. 93; Lambsdorff, 2003b, p. 240) and accelerates environmental pollution (Cole, 2007, p. 637).

The UN Convention against Corruption, ratified by 187 countries (UNODC, 2020a), includes a list of prohibited corrupt practices: bribery of domestic and foreign officials; misappropriation, embezzlement; trading of influence; abuse of office; illicit enrichment; money laundering; bribery and embezzlement of property in the private sector (UN General Assembly, 2003), all of which are criminalised in most countries (Kerusauskaitė, 2018, pp. 19-21).

In countries where corruption is most prevalent, people are reluctant to act honestly because they have no incentive to fight against corruption (Mauro, 2004, p. 1), believing that a change in an individual's behavior will not facilitate a major or lasting change (Persson, et al., 2012, p. 263). With the increase in the spread of dishonesty, a cyclical process is created where corruption promotes inequality, which then promotes corruption ultimately leading to inequality (Kerusauskaitė, 2018, p. 68).

The exact nature, extent and impact of corruption largely depends on the surrounding environment (Sindzingre & Milelli, 2010, p. 11; Li, 2019, p. 5).

As no country or institution is fully protected from unfair practices and the level of protection is related to the measures in place and the capacity to mitigate risks, the problem of corruption can be modeled globally on all countries, organisations and institutions. These subjects only need to analyse the situation in their environment and field of activity and act accordingly. Corruption has not been effectively brought under control and therefore incentives for dishonesty will be further analysed.

1. INCENTIVES FOR CORRUPTION

This chapter discusses the drivers of corruption. Understanding and taking them into account when making changes would lead to better results in reducing corruption.

There are various reasons for corruption. According to Kregar (1994, pp. 47-60), corruption is a set of causes that complement each other and occur simultaneously. Meon & Sekkat (2003, p. 70) characterise corruption using the “grease the wheel” theory, in which bribery can prevent problems and provide service (Persson, et al., 2012, p. 260; Li, 2019, p. 29), the usual receipt of which would have dragged on into ignorance due to poor quality or bureaucracy. Corruption as a trigger can offer a solution to a desired one-time goal by bribing an official (Nye, 1967, pp. 424-427; Leff, 1964, p. 10; Lui, 1985, p. 778), while leaving the general situation of dishonesty unchanged and generating new corruption (Aidt, 2009, p. 4). According to the alternative theory of “sand the wheels”, an official may obstruct or suspend processes in order to obtain a bribe (Meon & Sekkat, 2003, p. 73). Corruption is distinguished by Bauhr (2017, pp. 562-564) from two perspectives, where: (a) greed-driven corruption aims to achieve special advantages or conditions; (b) need-driven corruption stems from the need to obtain fair treatment and access to the public service.

A person can calculate cost-benefit when deciding whether or not to engage in corrupt practices (Groenendijk, 1997, p. 213), whereas it is not only the risk of getting punished, material gain, power and prestige, but also the question of reputation that may be the decisive factor (Laffont & Martimort, 2002, p. 306) and, in addition, decision-making is influenced by culture and traditions (Kubbe, 2014, pp. 16-17). Corruption creates a desire to self-relocate resources and reduce public subsidies for health and primary education (Chetwynd, et al., 2004, pp. 3-4; Li, 2019, p. 9). Higher levels of inequality (Jong-Sung & Khagram, 2005, p. 154) lower people’s trust in the public sector, which in turn encourages corruption (Marquette & Peiffer, 2015, p. 7; Habibov, et al., 2019, p. 1).

Corruption prevails, where: transparency is poor, public sector and financial management capacity is low, public decision-making is guided by

the political interests of those in power (Hussmann, 2011, p. 7), there is a weak organisational culture and frequent use of influence (Klitgaard, 1988, p. 79; European Economic and Social Committee, 2015, p. 8) and fragile rule of law (Mackey, et al., 2017, p. 1; Transparency International, 2021a). Inadequate assessment of bribery risk, lack of responsible management, low awareness of employees, lack of support for whistleblowers and insufficient internal audit capabilities contribute to the occurrence of corrupt manifestations in the organisation (CRI Group, 2018, p. 35). According to Klitgaard's (1988, pp. 74-75) theory, illegal activities occur more often in an organisation when an official has a monopoly decision-making power over people and, due to a lack of accountability, can enjoy unlimited decisive freedom.

Huther & Shah (2000, p. 8) note that officials may engage in corrupt behaviour because they believe that: (a) their careers benefit from corrupt practices; (b) corrupt behaviour functions as a form of insurance in an uncertain and unstable political environment; (c) their corrupt practices and benefits are inconsequential in comparison to the fraud of heads of state. Vian (2008, p. 86) adds that officials are under pressure due to lack of finances or the client and they either rationalise or justify their actions. Officials may also be forced to act dishonestly in certain situations when such a situation is caused by political or social pressure (Hussmann, 2011, p. 9), which is why dishonest officials increase the number of controlled processes to ask for money at every step and stage (Li, 2019, p. 7-8).

In short, the reasons for dishonesty may be due to necessity, greed, securing one's position, selfishness, general practice or ignorance among many other reasons. By better understanding the nature and causes of corruption in a particular environment, it is possible to come up with effective solutions to combat incentives that create dishonesty (Ombler, 2020, p. 19). Incentives for corrupt behavior are summarised in Table 1.

Table 1. Potential incentive of corrupt practices (Bauhr, 2017; CRI Group, 2018; European Economic and Social Committee, 2015; Gupta, et al., 1998; Hough, 2013; Hussmann, 2011; Huther & Shah, 2000; Kerasauskaite, 2018; Klitgaard, 1988; Kubbe, 2014; Lambsdorff, 2000; Li, 2019; Mackey, et al., 2017; Marquette & Peiffer, 2015; Mauro, 1995; Nye, 1967; Vian, 2008; Transparency International, 2021a; compiled by the author)

Incentives for corrupt behavior		
Workplace based	People based	Society based
<ul style="list-style-type: none"> • customer pressure • disagreements among staff • dishonesty or indifference of leadership • frequent use of influence • great discretion • immunity from office • lack of codes of conduct, ethical guidelines • lack of control • lack of supervision • lack of responsibility • low accountability • low salary • monopolised power • opacity in decision-making • persecution of whistle blowers • unjustified inequalities • wage inequality • weak culture of the institution • work culture 	<ul style="list-style-type: none"> • debts • economic situation • education • gaining an advantage • habits • helping a loved one • hobbies • home education • low awareness • position or status • practices • prestige • reputation • the need to receive services or goods • values • wealth and power • working culture 	<ul style="list-style-type: none"> • access to a limited public service • culture • distrust of the public sector • dysfunctional law enforcement • extent of corruption • habits • lack of legislation • lack of public condemnation • legal structure • lenient penalties • limitation of the crime • opacity of public decision-making processes • political order • poor governance • practices • traditions • the influence of hidden networks

Despite decades of anti-corruption movements, the world continues to recognise that corruption exists around us and that it is not easy to identify a universal measure to use for all countries, as what worked in one country may not work in another (Johnston & Fritzen, 2021, pp. 6-8). Various mitigation measures lead corrupt people to find new ways to pursue selfish intentions (Dávid-Barrett & Fazekas, 2020, pp. 3-4).

In a situation where there are many motivators to start an act of misconduct, countries need to be aware of it and face it. By weakening incentives, countries and organisations would send a clear signal of intolerance of unfair practices and prevent their spread. However, proliferation will face a new challenge if extraordinary events occur at the national or international level, creating a new situation, causing chaos and alleviating the concentration of new resources to deal with it. However, new resources at the global level are so large that they again create additional incentives for dishonest people who want to become unjustly rich.

2. RISKS IN THE HEALTHCARE SECTOR

In order to better understand what actions would be needed to reduce corruption in global healthcare, patterns and risks of corrupt behavior should be identified in advance. Despite the disparity between the healthcare of individual countries around the world, there are common obstacles that require attention while, of course, respecting each country's unique resources and healthcare capabilities. The risks that are specific and widely represented to the health sector are discussed below with several case examples from different countries over the world.

The health sector is particularly vulnerable to corruption. Various studies show that between \$260 billion and \$1 trillion is lost each year in healthcare due to corruption or waste (Thomson Reuters, 2009, p. 3; MacIntyre Hudson, 2010, p. 12; Jenkins, et al., 2020, p. 1; Teremetskyi, et al., 2020, p. 25). If such funds were retained, approximately 1,500 new hospitals could be built (MacIntyre Hudson, 2010, p. 12).

While \$3 trillion was spent on global health in 2010 (Hussmann, 2011, p. 5), it was already \$7.5 trillion in 2016 and rose to \$8.3 trillion in 2018, which is about 10% of global GDP (World Health Organization, 2018, p.6; World Health Organization, 2020c, p. 2). At least half of the world's population lacks high-quality primary healthcare, and 800 million people spend 10% of their household budgets on health (World Health Organization, 2017c, p. v). More than 10 million children die each year in situations that could have been avoided if they had access to better healthcare (Black, et al., 2003, p. 2226). 45% of people in the world consider the health sector to be incompetent, corrupt or very corrupt (OECD, 2017).

The World Health Organization (WHO), the United Nations Development Program, the World Bank Group and the Global Fund to Fight Aids, Tuberculosis and Malaria have over the years been working on transparency, accountability and anti-corruption in the health sector (Kohler & Bowra, 2020). Healthcare is vulnerable to corruption due to the multiplicity of actors, where patients, providers, insurers, administrators, distributors, and policy makers may have different desires and interests (Mackey, et al., 2018, p. 635).

In the healthcare sector, several value chains are sensitive to corruption: healthcare governance and regulation, financial and personnel management, procurement, research and development, marketing, distribution and service delivery (Hussmann, 2011, pp. 11-13; Mackey, et al., 2018, p. 635). This part of the article focuses on four of them, the rest are discussed in the next section due to the overlap of topics.

In healthcare **governance**, dishonesty can occur through influencing political decisions (Petkov & Cohen, 2016, p. 6; Mackey, et al., 2018, p. 636). There is a risk of unfair design and financing of health policies and the quality of services, products, facilities and staff. Potential corruption may manifest itself in the political setting of priorities, the regulation of first aid and hospital care, the establishment of pharmaceutical policies and the choice of supplies, and the accreditation of doctors (Vian, 2008, p. 85; Hussmann, 2011, p. 11; Petkov & Cohen, 2016, p. 8; Mackey, et al., 2018, p. 636). Gaining an advantage in this way can usually be linked to gaining profitability and greed. If the society-based incentives for corrupt behaviour are dominant, then people-based incentives may get additional volumes of reality.

In financial **management**, political influence, reallocation of resources for bribery, budget thefts, fraud in transfers, payment of salaries to non-existent employees, and theft of equipment are considered a threat (Vian, 2008, p. 85; Hussmann, 2011, p. 11; Petkov & Cohen, 2016, p. 18; Mackey, et al., 2018, p. 636). In staff management, nepotism, the purchase and sale of positions and promotions, bribery in accrediting employees and issuing licences can occur (Vian, 2008, p. 85; Hussmann, 2011, p. 12).

Procurement is considered to be the threat of overestimating the construction or reconstruction of healthcare facilities, handling of equipment and supplies, where dishonesty may be expressed in bribery to obtain a privileged position in procurement conditions, qualification and supervision, or in an unauthorised agreement between bidders (Vian, 2008, p. 85; Hussmann, 2011, p. 11). For several years, the head of the department of a large Estonian hospital preferred specific companies for repeated bribes when conducting construction procurements, ensuring procurement victories for companies procuring a total of €12 million (Police and Border Guard Board, 2020). In Lithuania, corrupt links between hospitals and medical staff are suspected, with more than 10 hospitals

preferring certain companies to procure medical devices and supplies, for which bribes were repeatedly paid to medical staff (STT, 2021). Dialysis equipment and service provider Fresenius Medical Care & Co. KGaA in 2019, entered into a settlement agreeing to pay \$231 million for violations involving the bribery of doctors and officials in 17 countries (including Angola, Bosnia, China, Mexico, Serbia, Spain, Turkey) for a total of \$30 million to favour the company's equipment when purchasing and using it (Cassin, 2019). Procurement violations related to fraud and corruption may have all three categories of incentives illustrated in chapter 1. Corruption may occur when a workplace cultivates an environment that supports dishonesty or does not pay attention to the problem, or people are greedy, or society-based drivers are supporting actors to behave with dishonesty.

In terms of **service delivery**, there is a considered threat from informal payments from patients, theft of medicines and equipment (Hussmann, 2011, p. 13), the provision of poor quality and non-essential services (Vian, 2008, p. 85), preferable service to acquaintances, service overestimation, data manipulation in research (Petkov & Cohen, 2016, p. 21; Mackey, et al., 2018, p. 636), submission of false invoices and misdiagnoses (Li, et al., 2008, p. 276).

In Latvia, there were suspicions that: (a) a doctor took a bribe from a judge who wanted to declare incapacity for work with false data (KNAB, 2015a) and (b) medical staff took bribes from patients for a specific service (KNAB, 2015b). The head of the Estonian nursing clinic and the head of nursing repeatedly took bribes from patients' relatives so that patients could stay in nursing care as a matter of priority and to stay in care for longer than was allowed. Four Estonian doctors falsified patients' medical certificates for bribery and provided the Commission with materials for the application of incapacity for work (Police and Border Guard Board, 2020). In Germany, many doctors falsified the health status of patients in order to move them up the organ transplant list queue. In India and Nepal, patients have donated their organs for money, which doctors sold on the black market. In the United States, a dermatologist performed more than 3,000 unnecessary procedures, and 91 physicians in seven cities falsified invoices and committed fraud scheme involved \$432 million (CRI Group, 2020b, pp. 9-11).

The key players, who may possess the potential to abuse their position and access to information, as well as system and patient vulnerabilities, are listed in the healthcare value chain (Table 2).

Table 2. Main actors in the healthcare sector value chain who may corruptly exploit a fair environment (Mackey, et al., 2018; Petkov & Cohen, 2016; compiled by the author)

Value chain in the Healthcare sector	Main actors
HC governance & regulations	Political leaders, policy makers, interest groups, manufacturers, lobbyists
Financial & personnel management	Health administrators, bookkeepers, medical professionals
Procurement	Policy makers, procurement managers, medical professionals, service & product providers, interest groups, manufacturers,
Research & development	Representatives of a pharmaceutical company, manufacturers, clinical research organisations, academic institutions; scientists, medical professionals
Marketing	Representatives of a pharmaceutical company, manufacturers, scientists, hospital administrators & healthcare providers; medical professionals, service & product providers, interest groups
Distribution & service delivery	Hospital administrators, service & product providers, medical professionals, policy makers, manufacturers, pharmacies, patients, insurers

No country's healthcare system is immune to exploitation or fraud - uncertainty about health and illness, a multiplicity of actors with different interests, extensive trust in doctors, and public money invested in the sector create opportunities for dishonesty in healthcare (Savedoff & Hussmann, 2006, pp. 5- 6).

3. RISKS IN THE PHARMACEUTICAL SECTOR

The following is a discussion of the risks of fraud and corruption in the pharmaceutical sector worldwide. Having an overview of them strengthens the understanding of the importance of mitigation measures and the need for continuous development. Risks that have arisen in one country may also occur in another, and for this reason it is possible to look at risks in general without distinguishing between countries and to try to find common denominators that can be identified and addressed.

Countries organise the highly-susceptible pharmaceutical sector (European Commission, 2014, p. 17) by regulating the production, procurement, sale and operation of medicines, and where there is remuneration from public funds, the public sector must be responsible for selection, procurement and logistics (Cohen, et al., 2007, p. 31). Pharmaceutical manufacturers, distributors and suppliers operate on the basis of profitability, which is not necessarily negative if it is able to comply with laws and general requirements (Cohen, et al., 2007, p. 33; MDG, 2015, p. 3, 23, 53). While in 2001 the turnover of pharmaceutical sales was \$390 billion, in 2019 the turnover reached \$1.25 trillion (Statista, 2021). In 2009 alone, the pharmaceutical industry made a profit of \$60 billion (Gagnon, 2013, p. 574).

Between 1991 and 2012, U.S. pharmaceutical manufacturers were fined more than \$30 billion for illegal activities related to fraud, bribery, monopolies and research forgery (Gagnon, 2013, p. 574). By 2014, 18 of the world's 20 largest pharmaceutical companies had entered into agreements or been sanctioned for unethical trade, bribery, corrupt practices or unfair competition (Access to Medicine Index, 2014), including large companies: GlaxoSmithKline, Merck & Co., Novartis, Sanofi and AstraZeneca (Transparency International, 2016b). From the world's 20 largest pharmaceutical companies: 17 have disclosed their pharmaceutical strategies, 12 companies do not link salesman bonuses to sales growth, and 8 companies had monitoring capabilities, fraud risk assessment and a country-specific risk assessment system (Access to Medicine Index, 2021).

In order to better understand the risks of corruption in the pharmaceutical sector, the structure and policies of the sector need to be analysed.

The pharmaceutical market is characterised by a value chain that illustrates the movement of a medicine from its development in the laboratory to the prescription of the patient in a healthcare institution. 8 important stages of the value chain are: research & development, manufacturing, registration, selection, marketing, procurement, distribution, service delivery (Cohen, et al., 2007, p. 37; Transparency International, 2016a, p. 7). They will be examined in more detail below with several case examples worldwide.

Research & development includes the early research phase, the preclinical testing phase, clinical trials and patent applications (Transparency International, 2016a, p. 8). Risks can include falsifying medical descriptions, exaggerating positive results or removing negative findings (Lexchin, 2012, pp. 247-248), conflicts of interest for researchers and entrepreneurs, publication of false-proof studies, misuse of research money (Petkov & Cohen, 2016, p. 10; Mackey, et al., 2018, p. 636) and in advertising that exaggerates the efficacy of a medicine (CRI Group, 2020a).

The results of clinical trials are checked, but it is not always possible to exclude a conflict of interest between examiner and verifiable and the temptation to direct the results of the study in favor of the pharmaceutical company. In March 2021, a physician and study coordinator in the United States were convicted of falsifying the results of a clinical trial to obtain a license showing better test results for a new asthma medicine (Department of Justice, 2021b). Reputation is important to medical researchers, but it is exploited as better working conditions and career opportunities are often associated with the recognition of positive research (Brown, 2013, p. 615).

The falsification of the research involves Astra-Zeneca, which entered into an agreement for \$520 million (Gagnon, 2013, p. 575) and Ranbaxy USA Inc. and its subsidiary in India, who agreed to pay a penalty and compensation of \$500 million (Department of Justice, 2013a). Merck & Co. paid \$4.85 billion by agreement for failing to disclose its side effects when advertising the medicine (CRI Group, 2018, p. 18), which is indirectly

similar to the case of Johnson & Johnson, where the company entered into a \$1.2 billion agreement with the state for advertising the medicine unlabelled and hiding the side effects from the public (Gagnon, 2013, p. 575).

Manufacturing of medicinal products is based on the principle and recommendations of good manufacturing practice, which include quality management, appropriate packaging, ensuring the proportion of relevant medicinal components, batch testing, laboratory control and analysis certificates (European Commission, 2003; Kohler & Ovtcharenko, 2013, p. 4).

Unsuitable medicines are substandard, spurious, falsely labelled, falsified and counterfeit medicines that are similar in appearance to the original but are either poorly manufactured, packaged, imbalanced or out of date. However, counterfeit medicines, due to their composition, can be harmful to health, causing aggravation of the disease (World Health Organization, 2017b, p. 5). In 2003, when testing malaria medicines in five Asian countries, the WHO found that a large proportion of the medicines in use were counterfeit or noncompliant (Cohen, et al., 2007, p. 39). The entry of falsified medicines into circulation is made possible by inefficient medicine policies in countries, poor international cooperation and high demand for medicines (Transparency International, 2016a, pp. 13-14).

In 2007, more than 170,000 medicine compliance inspections were conducted in China, as the head of the State Food and Drug Administration took a bribe \$850,000 from eight companies over eight years, allowing more than 150,000 new medicines to enter the market, resulting in the deaths of dozens of people from medicines of poor quality (Jiao, 2007; Wikipedia, 2020). In recent years, pharmaceutical companies have had to pay more than \$11 billion in penalties for concealing safety data and bribing healthcare professionals to increase sales of unlicensed medicines (CRI Group, 2020a).

Registration of medicinal products is generally under the control of a national authority and establishes a standard for compliance with the requirements for licensing, marketing and use in order to ensure the quality, efficacy and safety of the medicinal product when placed on the market (Kohler & Ovtcharenko, 2013, p. 4; Transparency International, 2016a, p. 15).

Weaknesses in the value chain: (i) the legal basis for the registration of medicinal products is weak or incorrect; (ii) the supplier may pay a public official for the registration of the medicinal product, even though information on the performance of the medicinal product is incomplete; (iii) a public official may knowingly postpone the registration of a medicinal product in favour of another supplier; (iv) an official may slow down registration procedures to ask a supplier for a bribe (Kohler & Ovtcharenko, 2013, p. 3). In the event of inadequate supervision, both pharmaceutical companies and regulators may seek unfair practices (Transparency International, 2016a, p. 15) to obtain accelerated approval for use of medicinal product (Vian, 2008, p. 85; Hussmann, 2011, p. 12).

Medicine manufacturers Serono were fined \$704 million (Cohen, et al., 2007, p. 30) and Johnson & Johnson \$2.2 billion (Department of Justice, 2013b) for increasing sales of unlicensed medicine and paying bribes to healthcare professionals.

Medicine selection is a process that requires critical attention in the value chain that includes decisions about which medicines are imported, sold, purchased by the public sector and when the patient can be reimbursed. Countries decide which medicines end up on the state-subsidised list of medicines, and getting on it means a significant increase in the turnover and interest of the pharmaceutical company to achieve it, and therefore can put a lot of pressure on decision-makers (Cohen, et al., 2007, p. 34). The weaker the institution and the public sector, the greater the chances of pharmaceutical companies to persuade dishonest officials to make the desired decisions to ensure that the publicly procured list of medicines is supplemented with certain medicines (Cohen, 2006, p. 80; Kohler & Ovtcharenko, 2013, p. 5).

When **marketing** a medicine, there is a risk of disseminating false information about the medicine's performance, advertising an unlicensed medicine, motivating healthcare professionals with gifts and funds, and conducting trainings within conflicts of interest (Petkov & Cohen, 2016, p. 13; Mackey, et al., 2018, p. 636). The pharmaceutical industry spends twice as much on medicine promotion as on research and development (Gagnon & Lexchin, 2008, p. 32; Olson, 2015). For example, \$1.1 billion was spent on medicine promotion in Italy in 1998 and \$ 15 billion in the United States in 2000 (World Health Organization, 2004, pp. 118, 120).

Eli Lilly & Company paid a fine of \$1.4 billion for advertising the medicine without labeling (Gagnon, 2013, p. 575). GlaxoSmithKline (GSK) signed an agreement to pay \$3 billion to the state for promoting false depressant medicines to people under 18 and disseminating false information about two more medicines over 5 years. To increase the reliability of the dysfunctional medicine, doctors were paid for advertising with lunches and spa services (Department of Justice, 2012). Generic pharmaceutical company Teva Pharmaceuticals USA Inc. entered into an agreement to pay a fine of \$205.7 million (Department of Justice, 2021c) for price-fixing, procurement distortions, and inadmissably finding customers unsuitable for marketing generic medicine (Department of Justice, 2020d).

Procurement is presumably an opportunity for a state or institution to obtain the best price and quantity of medicines (Cohen, 2006, p. 81). Procurement preparation, organisation, tender analysis, resource allocation, payments, quality control of purchased medicines need effective monitoring and transparency (Cohen, et al., 2002, p. 16; Cohen, 2006, p. 81). Corrupt activities can take place at different stages of the procurement: in the preparatory stage of the procurement, it is possible to design the procurement conditions in such a way that, due to technical indications and preconditions, only a specific tenderer qualifies; whereas, at the stage of the tendering procedure announced, it is possible for the contracting authority to give preference to one tenderer among the tenderers submitted; during the period of performance and supervision of work related to the procurement, where it is possible to change the terms of the contract for bribes, submit false invoices and minimise the supervision (European Commission, 2013, p. 68).

Two former UN consultants took bribes of \$1 million from the Danish pharmaceutical company Missionpharma in return for helping the company win a \$66 million tender and mediate life-saving medicine to Africa (The Guardian, 2015). In 2020, the head of the hospital department working in the Antiretroviral Treatment Commission in Estonia was accused of taking bribes and violating the procedural restriction because he gave preferential treatment to pharmaceutical companies he was related with when preparing the procurement of medicines (Allik, 2020).

Distribution of a medicine involves the transportation of a medicine from the manufacturer to the payer, which may include various stages:

receipt and inspection, storage, inventory, management, requisitioning, pickup, transportation and disposal (World Health Organization, 2009, p. 97). Vulnerability to corruption occurs at all stages of medicine delivery, especially where, due to lack of oversight, medicines can be stolen, sold on the black market or replaced with counterfeit product. Between 2005 and 2019, global medicine counterfeiting and theft increased rapidly by 69% (Mackey, et al., 2015, pp. 59-60; PSI, 2021).

While in the 1980s more than half of the medicines sold in Nigeria were counterfeit or noncompliant (Cohen, et al., 2007, p. 44), later the share of low-quality and counterfeit medicines in low- and middle-income countries was 10.5% (World Health Organization, 2017a, p. 7), which is approximately \$30.5 billion (World Health Organization, 2017b, pp. 3, 17). HIV medicines produced by GSK in 2002 and destined for Africa went on sale in Europe due to criminal activities (Cohen, et al., 2007, p. 33). In 2015, a fire broke out in Ghana's Central Medical Stores, burning more than \$80 million worth of stored state medicine stocks, and the ensuing investigation suggested arson as a cover up of fraud involving purchased and stored medicines (Graphic, 2016, Citifmonline, 2017). In 2019, Europol reported an operation in 16 European countries to find and seize counterfeit medicines and supplies worth €168 million and to detain more than 400 suspects (Europol, 2019).

The delivery of a medicine takes place through a doctor after the corresponding diagnosis and the decision to prescribe the appropriate treatment. At this stage, the healthcare professional, with the help of a representative from a pharmaceutical company, is able to order a larger amount of medicines to the hospital than necessary and direct people to use a specific medicine (Cohen, 2006, pp. 82-83). In some countries, it is possible to decide in favour of a specific manufacturer's medicine instead of the active substance when prescribing treatment (Kohler & Ovtcharenko, 2013, pp. 27-28).

The pharmaceutical industry in the United States alone spends approximately \$42 billion a year on physician promotion, which averages out to \$61,000 per physician (Gagnon, 2013, p. 572). Inadequate regulation and supervision can lead to corrupt market manipulations between a pharmaceutical company and physicians, as it may appear difficult to

distinguish between what constitutes unauthorised and authorised cooperation (Transparency International, 2016a, p. 17).

The following companies have been involved in illegal payments or bribes to physicians, healthcare professionals, or officials to increase sales of medicines, followed by sanctions or agreements requiring to pay for violations: TAP Pharmaceutical Products \$875 million (Department of Justice, 2001), Schering-Plow \$0.5 million for illegal activities in Poland (Cohen, 2006, p. 78), Johnson & Johnson \$70 million for illegal activities in Greece, Romania, Poland and Iraq (Securities and Exchange Commission, 2011), Bristol Myers Squibb \$515 million (Gagnon, 2013, p. 575), Pfizer \$45 million for illegal activities in Bulgaria, China, Croatia, the Czech Republic, Italy, Kazakhstan, Russia and Serbia (CRI Group, 2018, pp. 17-18), GSK \$20 million (CRI Group, 2018, p. 16), Alexion Pharmaceuticals for \$21 million for illegal activities in Turkey and Russia (Securities and Exchange Commission, 2020b), SciClone Pharmaceuticals (The FCPA Blog, 2016) \$12.8 million, Novartis AG \$25 million and AstraZeneca \$5.5 million for illegal activities in China (The FCPA Blog, 2017).

Teva Pharmaceutical Industries Ltd. and its subsidiaries in Russia entered into an agreement to pay more than \$283 million in punishment, with company representatives paying bribes to senior officials in Russia, Ukraine and doctors in Mexico over several years to inflate medicine sales (Department of Justice, 2016). Novartis Pharmaceutical Corp. had to pay more than \$1 billion in penalties for the company's involvement in bribes to hospitals and healthcare professionals in Greece, South Korea, Vietnam and the United States (CRI Group, 2018, p. 20; Securities and Exchange Commission, 2020a; Vigdor, 2020). In 2020, two owners of a New York-based pharmaceutical company were charged with \$30 million in fraud and money laundering, fraudulent compensation from the state healthcare system on the basis of counterfeit invoices proving the use of medicines (Department of Justice, 2020b). In 2020, pharmaceutical company Purdue Pharma LP entered into an agreement committing to pay the pharmaceutical industry the largest financial obligation to date, \$8 billion, for providing false information to the state over years about medicine sales and marketing (Department of Justice, 2020c).

These cases highlight the need for and importance of knowing the incentives for corrupt behavior. By mapping the incentives for unfair behavior,

including the international dimension, if the parties' activities cross national borders, it would enable the unjust prevention of employees from causing potential harm more effectively through the mitigation of these risks. The previous overview of cases in the pharmaceutical sector covered the period 2001-2021 and was selective due to their large number. Nevertheless, they show the scale, comprehensiveness, intensity and cross-border nature of the issues. In many cases, companies have entered into negotiations with the state at the time of the infringement and entered into an out-of-court settlement with a very high obligation to pay damages. The aforementioned cases are summarised in Table 2 (Annex 1).

Despite harsh financial penalties and payment obligations amounting to millions and billions of dollars, practice shows that the same companies will once again find themselves conducting unfair practice, and that the measures taken thus far have been unable to completely eradicate dishonesty. Human weaknesses and personal incentives can override implemented measures, and yet they are taken for personal gain in the hope that the course of action will not be detected. It can therefore be said that tackling the risks of fraud and corruption needs to be both consistent and comprehensive, which could provide a better chance of mitigating risks, disincentivising corruption and preventing crime.

4. CORRUPTIVE APPEARANCES DURING THE COVID-19 PANDEMIC

This section addresses the difficulties of dealing with a pandemic and the new challenges posed by COVID-19 in the form of activated fraud and corruption.

Over the last century, the world has repeatedly bore witness to the fatal impact of a pandemic. At the beginning of the 20th century, the world was hit by a major flu wave, which killed 50 million of the 500 million people infected. Between 1957 and 1958, more than 1.1 million people died of the H2N2 virus, which was initially identified in Asia before later spreading around the world. More than 1 million people died as a result of the H3N2 virus, which began to spread in 1968. The H1N1 virus, which spread in 2009, killed more than 0.5 million people and infected more than 60 million the following year (CDC, 2021). From the start of the HIV/AIDS epidemic to the end of 2019, approximately 76 million people have been infected with HIV, 32.7 million of them have died, and in 2019 alone, there was \$18.6 billion spent on AIDS treatment in low- and middle-income countries (UNAIDS, 2021).

A pandemic affects the ability of countries to cope with difficult circumstances, and complex situations create new opportunities for fraud and corruption that evolves and transforms according to conditions (Jenkins, et al., 2020, pp. 2-4). The healthcare system weakened by the pandemic serves as easy prey for the dishonest as a result of insecurity, high demand and supply (Teremetskyi, et al., 2020, p. 26). During a global crisis, the best and worst characteristics of human beings come to the fore, with people denying and sacrificing themselves, as well as those who are dishonestly corrupted at the expense of others (Tassé, 2021). During a pandemic, even small amounts of bribery to obtain a service or resource can be catastrophically harmful and create a cumulative problem (Mrčela, 2020).

While on 30 January 2020 the WHO assessed the SARS-CoV2 (COVID-19) virus as a public health emergency of international concern, then on 11th March the organisation declared it a pandemic and assessed the COVID-19 outbreak as the most urgent challenge to countries' ability to respond to health emergencies over the previous century (World Health Organization, 2020b).

On 13th February 2021, more than 107 million COVID-19 infections had been identified, including 2.37 million deaths (World Health Organization, 2021a). As of May 2, 2021, there were 151.8 million infected worldwide and 3.18 million dead (The New Humanitarian, 2021).

Serious diseases and disasters open up new opportunities for fraud and corruption, as countries spend large sums of money in a short period of time (CIDRAP, 2015; Jenkins, et al., 2020, p. 2) and make regulatory changes that are poorly supervised but should be more than usual (Rose-Ackerman, 2021, pp. 17-18), because without effective control, there will be reoccurrences of what happened in 2014-2016, when \$6 million was lost due to fraud and corruption to prevent the spread of Ebola virus (IFRC, 2017).

In February 2021, there were 1,063 COVID-19 treatment vaccines worldwide in development and 152 billion doses of vaccine had been produced (Statista, 2021). In the most preferable context, this will cost up to \$231 billion, or in the most severe scenarios \$15 trillion will be spent worldwide on alleviating the problems caused by the virus (Dudine, et al., 2020, p. 27). COVID-19 vaccination has an unprecedented scale in terms of production, distribution, transport and use of medicines, which poses a significantly higher risk of corrupt behavior and fraud (UNODC, 2020b). Several organisations have linked the rising activities of organised crime to the spread of the virus, highlighting the potential risks of fraud and corruption: the supply of counterfeit medicines, tests (Europol, 2021), protection supplies, identity theft, e-mail fraud, fraud of national support measures (Ecofel, 2021), corruption in procurement (UNODC, 2020b), bribery of doctors (Transparency International, 2020b), provision of unnecessary and expensive services, collection of apparent costs related to COVID-19 testing, falsifying invoices for services and goods not actually provided or received (FINCEN, 2021) .

The spread of COVID-19 has been so comprehensive that the world's most successful countries (Marquette, 2020), which have been desperate to procure medical supplies, including ventilators and personal protective equipment (Transparency International, 2020c), are also facing various immediate challenges. The following is an inexhaustive list of cases that have occurred during the spread of the virus, grouped in the topic view.

Theft. In countries like Honduras, Chile, Cuba, Peru, Venezuela, the United States, Japan, France, Indonesia, the Netherlands, Ireland, Brazil and Germany, there has been stolen tests and other health devices during the pandemic (Transparency International, 2020b, p. 4).

Fraud. Fraudsters have been activated. For example: €6.64 million was cheated out of France by promising to procure masks for the state (Europol, 2020b), €15 million was cheated out of Germany for the supply of masks that did not take place (Europol, 2020c). In China, 80 people were detained and 3,000 falsified doses of vaccine were seized (Global Times, 2021), and somewhat later, Interpol reported detection of 2,400 falsified doses of COVID-19 vaccine, 3 million falsified masks and the detention of involved persons (Interpol, 2021).

By March 2021, 474 individuals in the United States had been suspected of committing \$569 million in fraud linked to the COVID-19 pandemic (Department of Justice, 2021d). OLAF detected 1,000 operators selling unsuitable medical devices (OLAF, 2021). The president of a California-based medical technology company is accused of bribing market participants and doctors to perform larger allergen and fake COVID-19 tests that cost more than \$69 million (Department of Justice, 2020a). The U.S. company is accused of making false claims under the National Compensation Mechanism for more than \$2.3 million in tax exemptions (Department of Justice, 2021a).

Procurement. Countries reduced oversight of procuring products, paving the way for the unintended consequences of hasty and non-transparent decisions, whereby some of the tests and protective equipment procured were either unusable or noncompliant (Transparency International, 2020c). For example, there was supplied: in Indonesia (Mietzner, 2020, p. 239), for \$5 billion, and in Zambia (Transparency International, 2021d) for \$17 million, in masks, tests and other protective equipment that did not meet expectations when deliveries arrived. The UK procured health-care products for £12bn with 6,900 procurements, of which 1% of the products delivered, or about 196 million items, do not meet the requirements (House of Commons, 2021, pp. 5-9).

The great need to purchase various protective equipment has led to cases around the world where: (a) In Brazil, the United States, Slovenia, Bosnia,

Romania (Transparency International, 2020c and UK (Daily Mail, 2021), companies that have not previously been involved in healthcare have won tenders: \$55 million in the U.S., €56 million in Slovenia (Delic & Zwitter, 2020) and \$53 million in Poland (Koper, 2020); (b) in Ireland and Canada, acquaintances were used for procurement, which brought a profit to decision-makers (Transparency International, 2020c); (c) a former UK minister advised a healthcare company on a fee of more than €5,000 (OpenDemocracy, 2021); (d) a Member of the German Parliament received €660,000 for directing the procurement of medical masks to a specific company (Deutsche Welle, 2021); (e) in favour of specific companies, contracts for protective equipment were awarded worth \$71 million in Kenya (Malalo, 2020) and \$70 million in Brazil (Slattery & Brito, 2020); (f) Zimbabwe's health minister was fired on suspicion of violating procurement rules for \$60 million in the purchase of healthcare equipment (Chingono, 2020); (g) in the United States, \$11 billion of protective equipment and fans was purchased, of which \$500 million was obtained from companies previously sanctioned for violations (Salman & Penzenstadler, 2020); (h) in Romania, a pharmaceutical distributor demanded a bribe of €760,000 for brokering the procurement of 3 million masks (Balkan Insight, 2020); (i) in the UK, 17 contracts were awarded with a total value of £971 million to companies with political ties (Transparency International, 2020a, p. 3).

Joint operations. In 2020, Europol and Interpol conducted three police operations with the participation of different countries, through which the impact of organised crime was reduced on the benefits of the pandemic. Thus, police forces: (a) from 90 countries around the world (Operation Pangea XII) were able to seize counterfeit medical devices, masks, cleaning products worth €12.7 million, and 18 bank accounts in the amount of €660,000 have been seized (Euronews, 2020); (b) from 21 countries in Europe (Operation Aphrodite) were able to capture counterfeit anti-virus tools, including 27 million masks, sold through 123 social media accounts and 36 websites (Europol, 2020d); (c) from 27 countries (Operation Shield) were able to detain more than 667 people, seize 73 million worth of property, 33 million masks and tests (Europol, 2020a).

Unethical practices. Activities that overshadow the sense of justice inherent in opaque and poor governance. In January 2021, the Estonian hospital manager invited acquaintances to register for vaccination outside

of the vaccination plan that was in place (Ulst, 2021). The following vaccinations outside the vaccination plan became public: the Secretary General of the Ministry (Anvelt, 2021), a Russian diplomat (Roonemaa, 2021), people close to the heads of several Swedish healthcare institutions (Teller Report, 2021) and the Lebanese President alongside senior officials (AlarabiyaNews). While the Argentine minister resigned to help friends queue up for vaccination (Delfi, 2021), the Slovak prime minister had to resign because he had coordinated the purchase of 2 million doses of vaccine by a vaccine manufacturer not yet approved by the EU (Kressa, 2021). A WHO scientist who checked the circumstances surrounding the spread of the virus in Wuhan, China in 2020, has been working on Chinese-funded research projects for many years and is affiliated to the Wuhan Virology Center through a related company (The Nationale Pulse, 2021).

At the beginning of 2021, there were greater-than-expected difficulties in the production of vaccines, which ultimately prevent the virus from being blocked (BBC, 2021) and create unrest and confusion in countries following the vaccination plan, allowing fraudsters to carry out their plans.

While Chapters 2 and 3 highlighted the existence of incentives under normal circumstances, the cases described in this chapter concern an extraordinary environment caused by the global impact of the pandemic, its consequent urgency to respond and the large resources involved. The large financial resources used to deal with the situation open the way and the temptation to dishonesty and greedy fraud and corruption. In this context of strong impetus from people-based incentives, particular care must be taken to comply with the necessary regulatory measures and procedures at an international and national level to help maintain control and prevail over fair practices. Thus, many events have taken place during the pandemic, almost all caused or triggered by confusion, tension, competition over time, as well as inadequate controls and poor implementation of risk mitigation measures.

5. RISK REDUCTION PROPOSALS

The article highlighted the nature of corruption and incentives therefor in the healthcare and pharmaceutical sectors. The next part of the article provides an overview of possible solutions and recommendations for reducing corruption, which would provide opportunities to improve the value space and reduce corrupt practices in the healthcare and pharmaceutical sectors. The main need for improvements exist in governance, the pharmaceutical market and dealing with vulnerabilities inherent to a pandemic and procurement.

Despite various conventions, strategy documents, mechanisms for their implementation and monitoring, there is not a systematic downward trend in the level of corruption (Hough, 2013, p. 29). Corruption is a complex phenomenon that must be approached holistically, monitoring large and small scale corruption in all strata of society (Kerusauskaite, 2018, pp. 102-103).

Good governance

Corruption is a problem of governance, therefore states should review the role of governance (Rahman, et al., 2000, pp. 2-17; Trapnell & Recanatini, 2017, pp. 478-479), reduce the potential cost-effectiveness and benefits of corrupt behaviour by increasing its detection and punishment (Rose-Ackerman, 1997, pp. 46-50; Kerusauskaite, 2018, pp. 57-61), ensure that anti-corruption agencies have sufficient resources and independence to carry out their tasks (Transparency International, 2021e), ensure consistent asset tracing and seizure capacity (Kregar, 1994, pp. 113-133) and emphasise transparency and accountability in public procurement (Ugur & Dasgupta, 2011, pp. 30-31; Transparency International, 2021b). Such an international movement would bring about a new era of strategy against corruption, collecting the best practices and helping less developed countries to attain better conditions with more concrete and lasting steps to mitigating the risks of crime. Should the global approach also consist of public and private sector contributions to achieving this common goal, the future will be better for it.

A global plan of action for public and private sectors is needed to tackle corruption in the health system (Koller, et al., 2020). Good governance in the health sector requires uniform standards, the implicit sharing of information regarding activities, and the existence of motivators to incentivise performance (Lewis & Pettersson, 2009, p. 3). The risks of corruption need to be assessed, which would increase awareness of vulnerabilities and provide an opportunity to build a system with health professionals where trust, honesty and responsibility are important (Vian, 2020, pp. 505-506). Qualified staff must be supported through internal regulation of good practice, avoidance of conflicts of interest and consistent awareness-raising (World Health Organization, 2009, pp. 28-30; UNDP, 2011, p. 30). Complex national security action plans, including the use of public budgets, redeployment or the procurement of large quantities of goods and services, should involve an early anti-corruption body or a third sector representative in government decisions to mitigate risks and power of dishonest behaviour incentives. The living environment should be changed in countries so that their daily activities are based on transparency, honesty and respect, after which most people will gradually begin to adjust to behaving in this way independently. As behavioural choices may have different incentives for people, depending on needs, interests, environment, opportunities, anti-corruption measures should also attempt to cover at least the vast majority of the incentives that can lead people to dishonesty.

Political leaders have so far been a major stumbling block, but in the future, heads of agencies and organisations in the public and private sector should be required to take anti-corruption measures. The world, moving towards a thirst for new knowledge, needs to increase its resources for research funding, as understanding the nature, extent and incentives of corruption will enhance the anti-corruption response.

Pharmaceutical market

In tackling the COVID-19 pandemic, donor countries and companies need to pay close attention to messages that clearly express zero tolerance for corruption (Jenkins, et al., 2020, p. 10). In December 2020, the Belgian Secretary of State published the prices at which the state purchased the COVID-19 vaccine, but so far the prices associated with obtaining the vaccine have remained hidden from the public (Transparency International,

2021c). It would be effective for international organisations to take the initiative in disclosing national vaccine purchase prices in crisis situations, which would ensure equal opportunities for all in difficult times.

For years, efforts have been made to make the pharmaceutical sector more transparent and fair, which has been facilitated by the consistent entry and publication of information on trials in WHO-accepted clinical trial registries (World Health Organization, 2021b). An unregulated pharmaceutical market, requirements and oversight, dishonesty on the part of officials, and opportunities to circumvent requirements allow pharmaceutical manufacturers to test profitability temptations, and countries need to step up their efforts to make medicine handling regulation work and the market secure (Cohen, et al., 2007, p. 36; Transparency International, 2016a, p. 13). The pharmaceutical sector needs to contribute to the prevention of corrupt marketing practices so that doctors are not exploited to favour the use of specific medicines (Transparency International, 2016b).

For medicines receiving and procuring state support, the procedures for granting support, pricing policy, purchasing processes and what is happening in medicine commissions need to be made more public. In doing so, the work of the such commissions should be organised in accordance with the applicable guidelines for avoiding conflict of interests and the risks of affiliation of commission members with pharmaceutical companies should be mitigated. The dark, elusive times should end and pharmaceutical manufacturers subsidies or fees for healthcare physicians must be published on websites for the foreseeable future.

Vulnerability in pandemic period and procurement

To better deal with the COVID-19 virus and reduce vulnerability in the healthcare sector, the vaccine should be distributed evenly across countries and according to agreement (Cushing, 2020). One smooth solution to a pandemic (during periods when the vaccine is still in deficit) is a vaccination action plan for every country, coordinated by a steering group of four teams (medicine, logistics, IT and communication), ensuring that the necessary resources are available and that the population is informed (Ross & Veskimeister, 2021). In order to avoid embarrassing cases in the early vaccination period, the so-called “elite vaccinated cases”, countries

should make it clear which posts should be included in the list of vaccinated persons as a matter of priority due to the importance of their functioning. This is needed to prevent the exploitation of positions, to prevent news disturbing society in turbulent times or emergencies, and for countries to be able to deal with vaccinated people in key positions, even in hypothetical situations where a pandemic would involve unrest or national security issues.

To cope more efficiently with the global crisis in the future, public sector and international organisations should start developing a common action plan to deal with global events, through scenarios, vulnerabilities and risk mitigation. This would improve preparedness and response to new threats.

Large projects should immediately involve the anti-corruption body as a monitoring and advisory party, adhere to ethical requirements throughout the project and strengthen transparency throughout the project and the parties' activities (Mackey, et al., 2016, p. 8).

In order to reduce the vulnerability of the pandemic and to ensure transparent healthcare and vaccine distribution, a special committee should be set up in the country to assess the legality of existing procurement, distribution and use of vaccines and healthcare products and the intended use of public funds (UNODC, 2020b).

The use of the integrity agreement between the contracting authority and the companies wishing to participate in the procurement should be much more substantial in order to affirm the prevention of bribery, fraud and other corrupt practices, the taking and enforcement of necessary measures, which is an important part of the winning contract (Transparency International, 2013, p. 8).

Countries should, as soon as possible after returning from the COVID-19 exceptional situation, start using equal and competitive public procurement procedures (Transparency International, 2020a, p. 1). It cannot be overlooked that, throughout the epidemic period, the National Audit Office should constantly examine the lawful use of public funds, the transparency of procurement and the competence of the reasons for quick decisions, making recommendations for more efficient and correct

operation. Preventing corruption and raising awareness, which needs more resources and more attention in both the public and private sectors, could be at the heart of a forward-thinking policy-maker. Publicity of such materials help to raise awareness and avoid at least some part of illegal activity initiatives.

Addressing pandemics is providing new opportunities for a better healthcare and pharmaceutical sector and therefore lessons should be learned and new approaches to problem solving should be developed between countries and organisations (Paschke, et al., 2018, pp. 783-787). There is a growing need for measures to prevent counterfeit medicines from entering the market and trading with them (Council Of Europe, 2020), and monitoring transactions to identify corrupt links in public procurement and pharmaceutical-related activities (Ecofel, 2021). Law enforcement agencies in cooperation with international partners should pay additional attention to this and to prohibit dishonest people from getting rich at the expense of others by using access to falsified medicines.

If the abovementioned proposals could be at least partially implemented at a global level, and the level improved, a major step forward would have already been taken. Unusual and extreme events create opportunities for unfair exploitation, as confirmed by the previous overview of new cases and crimes. States must tackle this crime cooperatively and proactively.

6. CONCLUSIONS

The aim of this article was to examine the nature of corruption, the specifics of incentives and the phenomena associated with a pandemic, which paralyse existing honesty-based beliefs and trigger selfish desires and actions. The aim was to realise that, in the event of large-scale change, the values and beliefs exhibited by the vast majority of people will face extreme challenges. The article noted that during the pandemic period, the incentives for dishonesty in the health sector will intensify, leading to unprecedented attempts to unjustly enrich themselves and at the expense of others, and serious measures must be taken globally and at the state level to prevent this. It emerged that anti-corruption activities should be carried out even more attentively during the pandemic, coordinated and monitored more effectively.

According to vulnerable topics discussed in the article, then the effectiveness of national vaccination plans, the relaxation of control measures for procurement and its consequences on the international level, and the targeted use of resources to combat a pandemic should be investigated further and in more detail.

ANNEX 1. A SELECTION OF CASES OF FRAUD AND CORRUPTION IN THE PHARMACEUTICAL SECTOR

Table 3. Selection of cases of fraud and corruption in the pharmaceutical sector (compiled by the author)

No	Year	Company	Complaint	Amount due (USD)	Source
1	2001	TAP Pharmaceutical Products	Bribing doctors to increase the use and sale of medicines and claiming incorrect compensation	875 million	Department of Justice, 2001
2	2004	Schering-Plough	A representative of a subsidiary in Poland paid a bribe to the head of a hospital to increase sales of medicines	0.5 million	Cohen, 2006, p. 78
3	2004	Merck & Co	Failure to disclose side effects when advertising a medicine	4.85 billion	CRI Group, 2018, p. 18
4	2005	Serono	Bribing doctors and healthcare professionals to increase the marketing of unlicensed medicines	704 million	Cohen, et al., 2007, p. 30
5	2007	Bristol Myers Squibb	Illegal medicine promotion, bribery and fraud	515 million	Gagnon, 2013, p. 575
6	2009	Eli Lilly & Company	Non-labeling advertising of a medicinal product	1.4 billion	Gagnon, 2013, p. 575
7	2009	Astra-Zeneca	Forgery of research, non-labeling of a medicine and payment of a bribe to increase the use of a medicine	520 million	Gagnon, 2013, p. 575
8	2011	Johnson & Johnson	Bribery of doctors in Greece, Romania and Poland, and in Iraq to obtain 19 contracts from a major international program. Doctors in European countries were paid bribes in cash and travelled abroad for prescribed medicines.	70 million	Securities and Exchange Commission, 2011

9	2012	Johnson & Johnson	Non-labeling advertising of a medicinal product and concealment of adverse medicine reactions from the public	1.2 billion	Gagnon, 2013, p. 575
10	2012	Pfizer	Bribery of doctors and healthcare workers in different countries (Bulgaria, China, Croatia, the Czech Republic, Italy, Kazakhstan, Russia and Serbia)	45 million	CRI Group, 2018, pp. 17-18
11	2012	Glaxo-SmithKline	Promoting a false depression medicine to those under 18 years of age for 5 years and disseminating false information about two more medicines. Paying doctors for lunches and spa services to increase the reliability of a non-functioning medicine.	3 billion	Department of Justice, 2012
12	2013	Johnson & Johnson	Marketing of three medicines to a target group for which there was no license and bribery of healthcare professionals and resellers	2.2 billion	Department of Justice, 2013b
13	2013	Ranbaxy USA Inc.	Submission of falsified studies over the years to confirm the suitability of medicinal products	500 million	Department of Justice, 2013a; Transparency International, 2016a, p. 14
14	2016	Glaxo-SmithKline	Bribing doctors in the form of various goods to increase sales of a medicine	20 million	CRI Group, 2018
15	2016	SciClone Pharmaceuticals	Bribery of healthcare workers in China to increase medicine sales in cash, gifts, travel, golf games and luxury hospitality	12.8 million	The FCPA Blog, 2016
16	2016	Novartis AG	In China, giving healthcare workers money and gifts to hospitals to supply specific medicines	285 million	The FCPA Blog, 2017

17	2016	Astra-Zeneca	Making inappropriate payments from a subsidiary representative to employees of a Chinese government to purchase and dispense medicines for a specific company	5.5 million	The FCPA Blog, 2017
18	2016	Teva Pharmaceutical Industries Ltd	Paying bribes to senior officials in Russia, Ukraine, and doctors in Mexico to increase sales of medicines for several years	283 million	Department of Justice, 2016
19	2017	Novartis Pharmaceutical Corp	Bribing more than £1.8 million to South Korean healthcare workers	49 million	CRI Group, 2018, p. 20
20	2020	Novartis Pharmaceutical Corp	Bribes to Greek, South Korean and Vietnamese hospitals for prescribing or using medicines	347 million	Securities and Exchange Commission, 2020a
21	2020	Novartis Pharmaceutical Corp	Paying bribes to US doctors to increase the prescribing of specific medicines	678 million	Vigdor, 2020
22	2020	Alexion Pharmaceuticals	Paying bribes to Turkish and Russian officials to increase sales of the company's medicines	21 million	Securities and Exchange Commission, 2020b
23	2020	Purdue Pharma LP	Submission of false data to the state on the sale and distribution of medicines over the years	8.3 billion	Department of Justice, 2020c
24	2020	Teva Pharmaceuticals USA Inc	Unauthorised price fixing of medicines in the US, distortion of supply and finding unsuitable customers for the marketing of generic medicines	205.7 million	Department of Justice, 2020d; 2021c

ANNEX 2. A SELECTION OF CASES THAT BECAME PUBLIC DURING THE COVID-19 PANDEMIC PERIOD

Table 4. Selection of cases that became public during the COVID-19 pandemic period (compiled by the author)

No.	Year	Complaint	Source
1	2020	In Norway, Zimbabwe, Mexico and Taiwan, customers have paid bribes for healthcare products and virus tests, and in Brazil, Chile, Cuba, Peru, the United States, Japan, France and Germany, tests and other healthcare products were stolen	Transparency International, 2020b
2	2020	In Brazil, the USA, Slovenia, Bosnia and Romania, companies that have never been before active in medical sector have won tenders	Transparency International, 2020c
3	2020	In Indonesia, masks, tests and other protective equipment were procured for \$5 billion, the quality of which did not meet expectations when deliveries arrived	Mietzner, 2020, p. 239
4	2020	In Ireland and Canada, acquaintances were used for procurement, which was benefited decision-makers	Transparency International, 2020c
5	2020	In France, €6.64 million was fraudulent, promising to procure COVID-19 masks for the country	Europol, 2020b
6	2020	In Germany, the government was deceived into procuring masks worth €15 million by seeking a repeat advance payment and promising a fast delivery that has not taken place	Europol, 2020c
7	2020	In Romania, criminal proceedings were initiated for a bribe of €760,000 for brokering the acquisition of 3 million masks	Balkan Insight, 2020
8	2020	In China, 80 people were detained and 3,000 doses of counterfeit vaccine were seized	Global Times, 2021
9	2020	Preference was given to protective equipment contracts worth \$71 million in Kenya and \$70 million in Brazil, favouring specific companies	Malalo, 2020; Slattery & Brito, 2020
10	2020	In the US, \$11 billion was spent on various protective equipment and fans, of which \$500 million was acquired from companies previously sanctioned for violations	Salman & Penzenstadler, 2020

11	2020	In South Africa, \$300 million worth of anti-virus equipment was purchased, including food, which has led to a growing trend of corruption in the procurement of goods and the distribution of food	Sishi & Winning, 2020
12	2020	Zimbabwean Minister of Health was fired on suspicion of \$60 million in procurement (protective equipment) breaches	Chingono, 2020
13	2020	The president of a California-based medical technology company is accused of bribing market participants and doctors to carry out more all-ergen and fake COVID-19 tests, causing more than \$69 million in damages	Department of Justice, 2020a
14	2020	In Zambia, there is a suspicion that healthcare products purchased for \$17 million do not meet the required standard	Transparency International, 2021d
15	2020	In 2020, a former UK minister advised a healthcare company for compensation of more than €5,000	OpenDemocracy, 2021
16	2020	The Slovak Prime Minister resigned after coordinating the purchase of 2 million doses of vaccine by a vaccine manufacturer not yet approved by the Agency in the EU and in the country	Kressa, 2021
17	2020	By spring 2020, police forces from 90 countries around the world had seized counterfeit medical supplies, face masks, hand sanitisers worth €12.7 million and 18 bank accounts frozen for €660,000 during Operation Pangea XII	Euronews, 2020
18	2020	In September 2020, Europol announced a successful pan-European operation, Aphrodite, which brought together 21 countries and captured 123 antiviral tools sold through 123 social media accounts and 36 websites, including 27 million masks	Europol, 2020d
19	2020	In December 2020, Europol announced a successful police operation, Shield, in which more than 667 people were arrested by law enforcement agencies in 27 countries, seizing 73 million assets, including 33 million medical supplies in the form of masks, forged tests	Europol, 2020a
20	2020	The UK used £12bn for procuring in healthcare products in 6,900 procurements, of which 1% of products delivered, or around 196 million items, are noncompliant	House of Commons, 2021, pp. 5-9
21	2020	A German Member of Parliament was suspected of receiving €660,000 for directing the procurement of medical masks to a specific company	Deutsche Welle, 2021

22	2021	2,400 counterfeit doses of COVID-19 and 3 million counterfeit masks were detected and 3 Chinese and Zambian nationals detained	Interpol, 2021
23	2021	US company accused of making false claims for more than \$2.3 million in tax compensation under state compensation mechanism	Department of Justice, 2021a
24	2021	1,000 operators were discovered, who were dealing with selling inappropriate healthcare products during the COVID-19 pandemic	OLAF, 2021
25	2021	In the United States, 474 individuals were suspected of committing fraud involving the COVID-19 pandemic, with estimated damages in excess of \$569 million	Department of Justice, 2021d

REMARK

The list of references ends before the submission of the first version of the manuscript, in May 2021.

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REFERENCES AND SOURCES

- Access to Medicine Index, 2014. *Pharmaceutical industry doing more to improve access to medicine in developing countries; performance on some aspects lags*. Available at: <https://accesstomedicinefoundation.org/newsroom/pharmaceutical-industry-doing-more-to-improve-access-to-medicine-in-developing-countries-performance-on-some-aspects-lags> (Accessed: 14.02.2021).
- Access to Medicine Index, 2021. *How do companies prioritise access to medicine?* Available at: <https://accesstomedicinefoundation.org/access-to-medicine-index/results/how-do-companies-prioritise-access-to-medicine> (Accessed: 14.02.2021).
- Aidt, T.S., 2009. *Corruption, Institutions and Economic Development*. Paper prepared for a special issue of the Oxford Review of Economic Policy in collaboration with iiG, pp. 1-28.
- Alarabiya News, 2021. *Lebanon COVID-19 vaccine scandal exposes risk of working with a corrupt government*. 28.02.2021. Available at: <https://english.alarabiya.net/views/news/middle-east/2021/02/28/Lebanon-COVID-19-vaccine-scandal-exposes-risk-of-working-with-a-corrupt-government> (Accessed: 21.03.2021).
- Allik, H.-L., 2020. Prokuratuur esitas TÜ kliinikumi nakkushaiguste osakonna juhile süüdistuse. ERR, 28.02.2020. Available at: <https://www.err.ee/1058167/prokuratuur-esitas-tu-kliinikumi-nakkushaiguste-osakonna-juhile-suudistuse> (Accessed: 16.04.2021).
- Anvelt, K., 2021. Järjekordne eliitvaktsineeritu: sotsiaalministeeriumi kantsler. Eesti Päevaleht, 27.01.2021. Available at: <https://epl.delfi.ee/artikkel/92388867/jarjekordne-eliitvaktsineeritu-sotsiaalministeeriumi-kantsler> (Accessed: 08.04.2021).
- Balkan Insight, 2020. *Romania Investigates Allegations of Bribery in Covid-19 Masks Contract*. 24.06.2020. Available at: <https://balkaninsight.com/2020/06/24/romania-investigates-allegations-of-bribery-in-covid-19-masks-contract/> (Accessed: 21.03.2021).
- Barret, A. A., 1990. *Caligula: The Corruption of Power*. New Haven: Yale University Press.
- Bauhr, M., 2017. Need or Greed? Conditions for Collective Action against Corruption. *Governance*, 30(4), pp. 561-581.
- BBC, 2021. *Coronavirus: Vaccine supply fears grow amid EU export threat*. 26.01.2021. Available at: <https://www.bbc.com/news/world-europe-55805903> (Accessed: 18.03.2021).

- Black, E. R., Morris, S. S. & Bryce, J., 2003. Where and why are 10 million children dying every year? *The Lancet*, Vol 361, pp. 2226-2234.
- Brown, A., 2013. Understanding pharmaceutical research manipulation in the context of accounting manipulation. *The Journal of Law, Medicine & Ethics*, 41(3), pp. 611-619.
- Caiden, G.E., 1988. Toward a general theory of official corruption. *The Asian Journal of Public Administration*, 10(1), pp. 3-36.
- Cassin, L.R., 2019. Fresenius Medical pays \$231 million to settle widespread FCPA offenses. 29.03.2019. The FCPA Blog. Available at: <https://fcpublog.com/2019/03/29/fresenius-medical-pays-231-million-to-settle-widespread-fcpa/> (Accessed: 18.03.2021).
- CDC, 2021. *Influenza*. Available at: <https://www.cdc.gov/flu/index.htm> (Accessed: 21.02.2021).
- Chetwynd, E., Chetwynd, F. & Spector, B.I., 2004. Corruption and Poverty: A Review of Recent Literature. *Management System International*, pp. 1-22. Available at: https://pdfs.semanticscholar.org/1614/ebee8a2931dec5c956bf083683239c98f9f4.pdf?_ga=2.71224468.506658698.1562875482-340633941.1562668794 (Accessed: 18.03.2021).
- Chingono, N., 2021. Zimbabwe health minister facing coronavirus corruption sacked. *The Guardian*. July 9, 2020. Available at: <https://www.theguardian.com/global-development/2020/jul/09/zimbabwehealth-minister-facing-coronavirus-corruption-charge-sacked> (Accessed: 14.03.2021).
- CIDRAP, 2015. Saudi Arabia reports 2 MERS cases, strategy changes. Available at: <https://www.cidrap.umn.edu/news-perspective/2015/01/saudi-arabia-reports-2-mers-cases-strategy-changes> (Accessed: 20.02.2021).
- Citifmonline, 2017. *UK Parliament worried over Central Medical Stores fire – Jon Benjamin*. Available at: <https://citifmonline.com/2017/06/uk-parliament-worried-over-central-medical-stores-fire-jon-benjamin> (Accessed: 20.02.2021).
- Cohen, J.C., Cercone, J.A. & Macaya, R., 2002. *Improving Transparency in Pharmaceutical Systems: Strengthening Critical Decision Points Against Corruption*. World Bank, Washington, DC.
- Cohen, J.C., 2006. Pharmaceuticals and corruption: a risk assessment. *Global Corruption Report 2006*, pp. 77-84.
- Cohen, J.C., Mrazek, M.F. & Hawkins, L., 2007. *Corruption and pharmaceuticals: Strengthening good governance to improve access. The many faces of corruption: tracking vulnerabilities at the sector level*. Washington, DC: The World Bank, pp. 29-62.
- Cole, M., 2007. Corruption, Income and the Environment: An Empirical Analysis. *Ecological Economics*, 62, pp. 637-647.

- Council Of Europe, 2020. *Advice on the application of the medicrime convention in the context of covid-19*. 08.04.2020. Available at: <https://rm.coe.int/cop-medicrime-covid-19-e/16809e1e25> (Accessed: 10.03.2021).
- CRI Group, 2018. *How can life sciences companies prevent bribery & corruption? Is ISO 37001:2016 the answer?* Available at: <https://crigroup.com/insights-media/page/5/> (Accessed: 10.03.2021).
- CRI Group, 2020a. *Common Fraud in the Pharmaceutical Industry reported by whistleblower*. Available at: <https://crigroup.com/pharmaceutical-industry-fraud/> (Accessed: 10.03.2021).
- CRI Group, 2020b. *The catalysts of health care fraud: research study An investigative study into the motivations that contribute to defrauding health systems worldwide*. Available at: <https://crigroup.com/case-study/the-catalysts-of-health-care-fraud/> (Accessed: 10.03.2021).
- Cushing, J., 2020. *The unspoken Covid-19 vaccine challenges: Distribution and corruption*. Transparency International Health Initiative. 16 November 2020. Available at: <https://www.devex.com/news/opinion-the-unspoken-covid-19-vaccine-challenges-distribution-and-corruption-98437> (Accessed: 10.03.2021).
- Dávid-Barrett, E. & Fazekas, M., 2020. Anti-corruption in aid-funded procurement: Is corruption reduced or merely displaced? *World Development*, Available at: http://redflags.govtransparency.eu/wp-content/uploads/2020/09/Displacement-effects-Accepted-full-version_200420.pdf (Accessed: 16.04.2021).
- Daylimail, 2021. *Matt Hancock broke the law by failing to reveal coronavirus PPE contracts worth billions of pounds', High Court rules*. Available at: <https://www-dailymail-co-uk.cdn.ampproject.org/c/s/www.dailymail.co.uk/news/article-9279557/amp/Coronavirus-UK-Matt-Hancock-unlawfully-failed-publish-contract-details.html> (Accessed: 20.03.2021).
- Delfi, 2021. *Argentiina minister astub sõprade eelisevaksineerimise tõttu ametist tagasi*. Available at: <https://www.delfi.ee/news/paevauudised/valismaa/argentiina-minister-astub-soprade-eelisevaksineerimise-tottu-ametist-tagasi?id=92620661> (Accessed: 12.02.2021).
- Delic, A. & Zwitter, M., 2020. *Opaque Coronavirus Procurement Deal Hands Millions to Slovenian Gambling Mogul*. OCCRP. 03.04.2020. Available at: <https://www.occrp.org/en/coronavirus/opaque-coronavirus-procurement-deal-hands-millions-to-slovenian-gambling-mogul> (Accessed: 29.03.2021).
- Department of Justice, 2001. *Tap pharmaceutical products inc. and seven others charged with health care crimes; company agrees to pay \$875 million to settle charges*. Available at: <https://www.justice.gov/archive/opa/pr/2001/October/513civ.htm> (Accessed: 12.02.2021).

- Department of Justice, 2012. *GlaxoSmithKline to Plead Guilty and Pay \$3 Billion to Resolve Fraud Allegations and Failure to Report Safety Data*. Available at: <https://www.justice.gov/opa/pr/glaxosmithkline-plead-guilty-and-pay-3-billion-resolve-fraud-allegations-and-failure-report> (Accessed: 12.02.2021).
- Department of Justice, 2013a. *Generic Drug Manufacturer Ranbaxy Pleads Guilty and Agrees to Pay \$500 Million to Resolve False Claims Allegations, cGMP Violations and False Statements to the FDA*. Available at: <https://www.justice.gov/opa/pr/generic-drug-manufacturer-ranbaxy-pleads-guilty-and-agrees-pay-500-million-resolve-false> (Accessed: 12.02.2021).
- Department of Justice, 2013b. *Johnson & Johnson to Pay More Than \$2.2 Billion to Resolve Criminal and Civil Investigations*. Available at: <https://www.justice.gov/opa/pr/johnson-johnson-pay-more-22-billion-resolve-criminal-and-civil-investigations> (Accessed: 18.02.2021).
- Department of Justice, 2016. *Teva Pharmaceutical Industries Ltd. Agrees to Pay More Than \$283 Million to Resolve Foreign Corrupt Practices Act Charges*. Available at: <https://www.justice.gov/opa/pr/teva-pharmaceutical-industries-ltd-agrees-pay-more-283-million-resolve-foreign-corrupt> (Accessed: 18.03.2021).
- Department of Justice, 2020a. *Medical Technology Company President Charged in Scheme to Defraud Investors and Health Care Benefit Programs in Connection with COVID-19 Testing*. June 9, 2020. Available at: <https://www.justice.gov/opa/pr/medical-technology-company-president-charged-scheme-defraud-investors-and-health-care-benefit#:~:text=The%20president%20of%20a%20California,health%20care%20fraud%20in%20connection> (Accessed: 09.03.2021).
- Department of Justice, 2020b. *Two Owners of New York Pharmacies Charged in a \$30 Million COVID-19 Health Care Fraud and Money Laundering Case*. December 21, 2020. Available at: <https://www.justice.gov/opa/pr/two-owners-new-york-pharmacies-charged-30-million-covid-19-health-care-fraud-and-money> (Accessed: 09.03.2021).
- Department of Justice, 2020c. *Justice Department Announces Global Resolution of Criminal and Civil Investigations with Opioid Manufacturer Purdue Pharma and Civil Settlement with Members of the Sackler Family*. October 21, 2020. Available at: <https://www.justice.gov/opa/pr/justice-department-announces-global-resolution-criminal-and-civil-investigations-opioid> (Accessed: 20.03.2021).
- Department of Justice, 2020d. *Seventh Generic Drug Manufacturer Is Charged In Ongoing Criminal Antitrust Investigation*. August 25, 2020. Available at: <https://www.justice.gov/opa/pr/seventh-generic-drug-manufacturer-charged-ongoing-criminal-antitrust-investigation> (Accessed: 20.03.2021).

- Department of Justice, 2021a. *Tax Preparer Charged with COVID-19 Loan Fraud*. 17.03.2021. Available at: <https://www.justice.gov/opa/pr/tax-preparer-charged-covid-19-loan-fraud> (Accessed: 21.03.2021).
- Department of Justice, 2021b. *Medical Doctor and Study Coordinator Sentenced to Prison in Scheme to Falsify Clinical Trial Data*. 22.03.2021. Available at <https://www.justice.gov/opa/pr/medical-doctor-and-study-coordinator-sentenced-prison-scheme-falsify-clinical-trial-data> (Accessed: 23.03.2021).
- Department of Justice, 2021c. *Division Update: Spring 2021*. Antitrust Division. Available at <https://www.justice.gov/file/1379221/download> (Accessed: 24.03.2021).
- Department of Justice, 2021d. *Justice Department Takes Action Against COVID-19 Fraud*. Antitrust Division. Available at <https://www.justice.gov/opa/pr/justice-department-takes-action-against-covid-19-fraud> (Accessed: 07.04.2021).
- Deutsche Welle, 2021. *German MP faces bribery allegations over COVID masks deal*. February 25, 2021. Available at: <https://amp-dw-com.cdn.ampproject.org/c/s/amp.dw.com/en/german-mp-faces-bribery-allegations-over-covid-masks-deal/a-56708300> (Accessed: 20.03.2021).
- Dudine, P., Hellwig, K.-P. & Jahan, S., 2020. A Framework for Estimating Health Spending in Response to Covid-19. *IMF Working Paper*, WP/20/145, pp. 1-43.
- Ecofel, 2021. Covid-19: Emerging risks. Available at: <https://learn.ecofel.org/learn/course/433/play/1330:127/covid-19-emerging-risks> (Accessed: 22.03.2021).
- Euronews, 2020. *COVID-19: Organised crime group 'adapting' with 'new crime trends', Interpol warns*. Available at: <https://www.euronews.com/2020/03/30/covid-19-organised-crime-group-adapting-with-new-crime-trends-interpol-warns> (Accessed: 22.02.2021).
- European Economic and Social Committee, 2015. *Opinion of the European Economic and Social Committee on Fighting corruption in the EU: meeting business and civil society concerns*“. CCMI/132- EESC-2014-06520-00-00-AC-TRA(EN). Brussel.
- European Commission, 2003. *Commission Directive 2003/94/EC of 8 October 2003 laying down the principles and guidelines of good manufacturing practice in respect of medicinal products for human use and investigational medicinal products for human use*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0094> (Accessed: 17.02.2021).
- European Commission, 2014. *Report From the Commission to the Council and the European Parliament: EU Anti-Corruption Report*. COM(2014) 38 final. Brussels: EC.

- European Parliament, 2016. *The Cost on Non-Europe in the area of Organised Crime and Corruption. Annex II-Corruption*. European Parliamentary Research Service, PE 579.319, March 2016. Brussels: European Union.
- Europol, 2019. *More than €165 million of trafficked medicines seized in Operation MISMED 2*. 08.03.2019. Available at: <https://www.europol.europa.eu/newsroom/news/more-%E2%82%AC165-million-of-trafficked-medicines-seized-in-operation-mismed-2> (Accessed: 21.03.2021).
- Europol, 2020a. *Medicines and doping substances worth €73 million seized in Europe-wide operation*. Press Release. 10.12.2021. Available at: <https://www.europol.europa.eu/newsroom/news/medicines-and-doping-substances-worth-%E2%82%AC73-million-seized-in-europe-wide-operation> (Accessed: 21.03.2021).
- Europol, 2020b. *Corona crimes: Suspect behind €6 million face masks and hand sanitisers scam arrested thanks to international police cooperation*. 06.04.2020. Available at: <https://www.europol.europa.eu/newsroom/news/corona-crimes-suspect-behind-%E2%82%AC6-million-face-masks-and-hand-sanitisers-scam-arrested-thanks-to-international-police-cooperation> (Accessed: 21.03.2021).
- Europol, 2020c. *Corona crimes: multi-million face mask scam foiled by police across Europe*. 14.04.2020. Available at: <https://www.europol.europa.eu/newsroom/news/corona-crimes-multi-million-face-mask-scam-foiled-police-across-europe> (Accessed: 21.03.2021).
- Europol, 2020d. *No safe market for fakes: 21 countries target illegal goods in europe-wide sting*. 25.09.2020. Available at: <https://www.europol.europa.eu/newsroom/news/no-safe-market-for-fakes-21-countries-target-illegal-goods-in-europe-wide-sting> (Accessed: 21.03.2021).
- Europol, 2021. *European Union serious and organised crime threat assessment, A corrupting influence: the infiltration and undermining of Europe's economy and society by organised crime*. Publications Office of the European Union, Luxembourg.
- FINCEN, 2021. *Advisory on COVID-19 Health Insurance and Health Care-Related Fraud*. FinCEN Advisory, February 2, 2021. Available at: <https://www.fincen.gov/sites/default/files/advisory/2021-02-02/COVID-19%20Health%20Care%20508%20Final.pdf> (Accessed: 09.03.2021).
- Gagnon, M.A., 2013. Corruption of pharmaceutical markets: addressing the misalignment of financial incentives and public health. *The Journal of Law, Medicine & Ethics*, 41(3), pp. 571-580.
- Gagnon, M.-A. & Lexchin, J., 2008. The Cost of Pushing Pills: A New Estimate of Pharmaceutical Promotion Expenditures in the United States (Policy Forum). *PLoS Medicine*, 5(1).

- Global Times, 2021. *3,000 doses of fake COVID-19 vaccines confiscated, illegal sales began in September*. 01.02.2021. Available at: <https://www.globaltimes.cn/page/202102/1214637.shtml> (Accessed: 21.03.2021).
- Graphic, 2016. *12 Busted for role in Central Medical Stores fire as Arsonist is on the run*. Available at: <https://www.graphic.com.gh/news/general-news/12-busted-for-role-in-central-medical-stores-fire-as-arsonist-is-on-the-run.html>. (Accessed: 20.02.2021).
- Groenendijk, N., 1997. A principal-agent model of corruption. *Crime, Law and Social Change*, 27(3-4), pp. 203-227.
- Gupta, S., Davoodi, H. & Alonso-Terme, R., 1998. Does Corruption Affect Income Inequality and Poverty? *IMF Working Paper*, 98(76), pp. 1-41.
- Habibov, N., Fan, L. & Auchynnika, A., 2019. The Effects of Corruption on Satisfaction with Local and National Governments. Does Corruption 'Grease the Wheels'? *Europe-Asia Studies*, DOI: 10.1080/09668136.2018.1562044.
- Holmes, L., 2015. *Corruption: A Very Short Introduction*. Oxford: Oxford University Press.
- Hough, D., 2013. *Corruption, Anti-Corruption and Governance*. Hampshire: Macmillan Palgrave.
- House of Commons, 2021. *COVID-19: Government procurement and supply of Personal Protective Equipment*. Forty-Second Report of Session 2019–21. Public Accounts Committee, HC 928, 10.02.2021. Available at: <https://committees.parliament.uk/publications/4607/documents/46709/default/> (Accessed: 03.03.2021).
- Hussmann, K., 2011. Addressing corruption in the health sector: Securing equitable access to health care for everyone. *U4 Issue*, 2011 January, no 1, pp. 1-38.
- Huther, J. & Shah, A., 2000. *Anti-Corruption Policies and Programmes: A Framework for Evaluation*. Policy Research Working Paper 2501, World Bank.
- Husted, B.W., 1999. Wealth, culture and corruption. *Journal of International Business Studies*, 30, pp. 339-360.
- IFRC, 2017. *IFRC statement on fraud in Ebola operations*. 20.10.2017. Available at: <https://media.ifrc.org/ifrc/ifrc-statement-fraud-ebola-operations/> (Accessed: 11.03.2021).
- IMF, 2016. *Corruption: Costs and Mitigating Strategies*. *IMF Staff Discussion Note*, May 2016, SDN/16/05.
- Interpol, 2021. *Fake COVID vaccine distribution network dismantled after INTERPOL alert*. 03.03.2021. Available at:

- <https://www.interpol.int/en/News-and-Events/News/2021/Fake-COVID-vaccine-distribution-network-dismantled-after-INTERPOL-alert> (Accessed: 17.02.2021).
- Jenkins, M., Khaghaghordyan, A., Rahman, K. & Duri, J., 2020. *Anti-Corruption Strategies for Development Agencies During The COVID-19 Pandemic*. Transparency International.
- Jiao, W., 2007. Drug Review to rid sector of corruption. *ChinaDaily*. Available at: http://www.chinadaily.com.cn/cndy/2007-02/09/content_805232.htm. (Accessed: 17.02.2021).
- Johnston, M. & Fritzen, S.A., 2021. *The Conundrum of Corruption: Reform for Social Justice*. Abingdon: Routledge.
- Jong-Sung, Y. & Khagram, S., 2005. A comparative study of inequality and corruption. *American Sociological Review*, 70(1), pp. 136-157.
- Kaufmann, D., 2005. *Myths and Realities of Governance and Corruption*, Published in: Global Competitiveness Report 2005-06, pp. 81-98.
- Kerusauskaitė, I., 2018. *Anti-Corruption in International Development*. Abingdon: Routledge.
- Klitgaard, R., 1988. *Controlling corruption*. Berkeley: University of California Press. Klitgaard, R. & Light, P. C., 2005. *High - Performance Government: Structure, Leadership, Incentives*. Santa Monica: Rand Corporation.
- Kohler, J.C. & Bowra, A., 2020. Exploring anti-corruption, transparency, and accountability in the World Health Organization, the United Nations Development Programme, the World Bank Group, and the Global Fund to Fight AIDS, Tuberculosis and Malaria. *Global Health* (16) 101.
- Kohler, J.C. & Ovtcharenko, N., 2013. *Good governance for medicines initiatives: exploring lessons learned*. U4 Issue, 2013 May, no 3, p. 4.
- Koller, T., Clarke, D. & Vian, T., 2020. Promoting anti-corruption, transparency and accountability to achieve universal health coverage. *Global Health Action*, 13:sup1, 1700660.
- Koper, A. 2020. *Need a ventilator? Polish arms dealer has plenty*. Reuters. 17.12.2020. Available at: <https://www.reuters.com/article/health-coronavirus-poland-ventilators-in-idUSKBN28R0OI> (Accessed: 29.03.2021).
- KNAB, 2015a. *KNAB asks to initiate a criminal prosecution against three persons*. Available at: https://www.knab.gov.lv/en/knab/news/6279-knab_asks_to_initiate_a_criminal_prosecution_against_three_persons.html (Accessed: 07.04.2021).
- KNAB, 2015b. *KNAB has initiated a criminal proceeding against medical employees for unlawful requesting and receiving of benefits*. Available at: https://www.knab.gov.lv/en/knab/news/5937-knab_has_initiated_a_

- criminal_proceeding_against_medical_employees_for_unlawful_requesting_and_receiving_of_benefits.html (Accessed: 07.04.2021).
- Kregar, J., 1994. Deformation of Organizational principles: Corruption in Post-Socialist Societies. in: Trang, V.D. (ed.) *Corruption and Democracy*. Budapest: Institute for Constitutional and Legislative Policy, pp. 47-60.
- Kressa, K., 2021. Sputniku-avantüür maksis Slovakkia peaministrile koha, ostetud vaktsiini pole seni käiku lastud. *Eesti Päevaleht*, 29.03.2021. Available at: <https://epl.delfi.ee/artikkel/92981831/sputniku-avantuur-maksis-slovakkia-peaministrile-koha-ostetud-vaktsiini-pole-seni-kaiku-lastud> (Accessed: 08.04.2021).
- Kubbe, I., 2014. The Bigger Picture of Corruption: Europe in Comparative Perspective. *CSD Working Papers*, UC Irvine: Center for the Study of Democracy. Available at: <https://escholarship.org/uc/item/8361x62b> (Accessed: 18.03.2021).
- Laffont, J.J. & Martimort, D., 2002. *The Theory of Incentives: the principal-agent model*. New Jersey: Princeton University Press.
- Lambsdorff, J.G., 2000. Making corrupt deals: contracting in the shadow of the law. *Journal of Economic Behavior & Organization*, 48(2002), pp. 221-241.
- Lambsdorff, J.G., 2003a. How Corruption Affects Productivity. *Kyklos*, 56(4), pp. 457-474.
- Lambsdorff, J.G., 2003b. How corruption affects persistent capital flows. *Economics of Governance*, 4, pp. 229-243.
- Leff, N.H., 1964. Economic Development Through Bureaucratic Corruption. *American Behavioral Scientist*, 8(3), pp. 8-14.
- Lewis, M. & Pettersson, G., 2009. *Governance in health care delivery: raising performance*. Policy Research Working Paper 5074. The World Bank.
- Lexchin, J., 2012. Those who have the gold make the evidence: how the pharmaceutical industry biases the outcomes of clinical trials of medications. *Science and engineering ethics*, 18(2), pp. 247-261.
- Li, S., 2019. *Bribery and Corruption in Weak Institutional Environments: Connecting the Dots from a Comparative Perspective*. Cambridge: Cambridge University Press.
- Lui, F.T., 1985. An Equilibrium Queuing Model of Bribery Games. *Journal of Political Economy*, 93(4), pp. 760-781.
- MacIntyre Hudson, 2010. *The financial cost of healthcare fraud*. Available at: [http://www.ehfcn.org/media/documents/The-Financial-Cost-of-Healthcare-Fraud---Final-\(2\).pdf](http://www.ehfcn.org/media/documents/The-Financial-Cost-of-Healthcare-Fraud---Final-(2).pdf), accessed 2 July 2010 (Accessed: 12.02.2021).
- Mackey, T.K., Liang, B.A., York, P. & Kubic, T., 2015. Counterfeit drug penetration into global legitimate medicine supply chains: a global

- assessment. *The American Journal of Tropical Medicine and Hygiene*, 92 (6), pp. 59-67.
- Mackey, T.K., Kohler, J.C., Savedoff, W.D., Vogl, F., Lewis, M., Sale, J., Michaud, J. & Vian, T., 2016. The disease of corruption: views on how to fight corruption to advance 21st century global health goals. *BMC medicine*, 14(1), pp. 1-16.
- Mackey, T.K., Kohler, J., Lewis, M. & Vian, T., 2017. Combating corruption in global health. *Science translational medicine*, 9(402).
- Mackey, T.K., Vian, T. & Kohler, J., 2018. The sustainable development goals as a framework to combat health-sector corruption. *Bulletin of the World Health Organization*, 96(9), pp. 634-640.
- Majila, T., Taylor, T.D. & Raga, K., 2014. A comparative analysis of the implementation of anti-corruption legislation by anti-corruption agencies in the provinces of the Eastern and Northern Cape. *The Journal for Transdisciplinary Research in Southern Africa*, 10(1), pp. 219-240.
- Malalo, H., 2020. *Kenya Anti-Graft Agency Slams Procurement of COVID-19 Equipment*. Reuters. 24.09.2020. Available at: <https://www.reuters.com/article/us-kenya-corruption/kenya-anti-graft-agency-slams-procurement-of-covid-19-equipmentidUSKCN26F3CC> (Accessed: 29.03.2021).
- Marquette, H. & Peiffer, C., 2015. *Collective Action and Systemic Corruption*. Paper presented at the ECPR Joint Sessions of Workshops, University of Warsaw 29 March-2 April 2015. Available at: <https://ecpr.eu/Filestore/PaperProposal/b5944a31-85b6-4547-82b3-0d4a74910b07.pdf> (Accessed: 18.03.2021).
- Marquette, H., 2020. *Fighting corruption during the coronavirus*. Available at: <https://globalinitiative.net/analysis/corruption-coronavirus> (Accessed: 22.02.2021).
- Mauro, P., 1997. The effects of corruption on growth, investment, and government expenditure: A Cross-Country Analysis. in: K. A. Elliott (ed.) *Corruption and the Global Economy*. Washington DC: Institute for International Economics, pp. 83-108.
- Mauro, P., 2004. The Persistence of Corruption and Slow Economic Growth. *IMF Working Paper*, 51(1), pp. 1-18.
- Meon, P.-G. & Sekkat, K., 2003. Does corruption grease or sand the wheels of growth? *Public Choice*, 122, pp. 69-97.
- MDG, 2015. *Millennium Development Goal 8: Taking stock of the global partnership for development*. MDG Gap Task Force report 2015. New York: United Nations.
- Mietzner, M., 2020. Populist anti-scientism, religious polarisation, and institutionalised corruption: How Indonesia's democratic decline shaped its

- COVID-19 response. *Journal of Current Southeast Asian Affairs*, 39(2), pp. 227-249.
- Mrčela, M., 2020. *Corruption Risks and Useful Legal References in the context of COVID-19*. Issued by Mr Marin Mrčela, GRECO President. 15.04.2020. Greco(2020)4.
- Mungiu-Pippidi, A., 2017. Introduction: identifying and explaining governance virtuous circles. in: A. Mungiu-Pippidi & M. Johnston (ed.) *Transitions to good governance: Creating Virtuous Circles of Anti-Corruption*. Cheltenham: Edward Elgar, pp. 1-30.
- Mungiu-Pippidi, A. & Kukutschka, R.M.B., 2013. European Union Member States. in A. Mungiu-Pippidi (ed) “*Controlling Corruption in Europe*”. The Anticorruption Report, Vol. 1, Barbara Budrich Publishers, pp. 14-47.
- Nye, J.S., 1976. Corruption and Political Development: A Cost-Benefit Analysis. *The American Political Science Review*, 61(2), pp. 417-427.
- OECD, 2017. *Tackling Wasteful Spending on Health*. Available at: www.oecd.org/els/health-systems/Tackling-Wasteful-Spending-on-Health-Highlights-revised.pdf (Accessed: 12.03.2021).
- OLAF, 2021. *Olaf warns against fraudsters offering COVID-19 vaccines*. Press Release, 7/2021, 15.02.2021.
- Olson, R., 2015. *Design critique: Putting Big Pharma spending in perspective*. Available at: <http://www.randalolson.com/2015/03/01/design-critique-putting-big-pharma-spending-in-perspective> (Accessed: 12.02.2021).
- Ombler, M., 2020. *Eesti korruptsioonivastase tegevuse võimekuse tõstmise võimalused peamiste korruptsioonivastaste astutuste näitel*. Available at: <https://digiriidul.sisekaitse.ee/handle/123456789/2492> (Accessed: 12.02.2021).
- OpenDemocracy, 2021. *Tory MP broke ministerial code over paid consulting for COVID-19 tech firm*. Available at: <https://www.opendemocracy.net/en/dark-money-investigations/tory-mp-broke-ministerial-code-over-paid-consulting-covid-19-tech-firm> (Accessed: 21.02.2021).
- Paschke, A., Dimancesco, D., Vian, T., Kohler, J. & Forte, G., 2018. Increasing transparency and accountability in national pharmaceutical systems. *Bulletin of the World Health Organization*, 96(11), pp. 782-791.
- Persson, A., Rothstein, B. & Teorell, J., 2012. Rethinking the nature of the grabbing hand. in: S. Holmberg & B. Rothstein (ed.) *Good Government: The Relevance of Political Science*. Edward Elgar Publishing, pp. 251-276.
- Petkov, M. & Cohen, D., 2016. *Diagnosing corruption in health care*. Transparency International UK.
- Politsei-ja Piirivalveamet, 2020. *Korruptsiooniga seotud kohtulahendid*. Available at: <https://www.politsei.ee/et/korruptsiooniga-seotud-kohtulahendid> (Accessed: 23.03.2021).

- PSI, 2021. *Incident Trends*. Available at: <https://www.psi-inc.org/incident-trends> (Accessed: 20.02.2021).
- Rahman, A., Kisunko, G. & Kapoor, K., 2000. Estimating the effects of corruption - implications for Bangladesh (English). *Policy, Research working paper*, WPS 2479. Washington, DC: World Bank.
- Reuters, 2013. *World Bank president calls corruption „Public Enemy No. 1“*. Available at: <https://www.reuters.com/article/idUSBRE9B111P20131219> (Accessed: 08.02.2021).
- Roonemaa, H., 2021. Teolt tabatud: kõrge Vene diplomaat sai salaja juba teise COVID-i vaktsiini. Haigla alustas siseuurimist. *Eesti Päevaleht*, 28.01.2021. Available at: <https://epl.delfi.ee/artikkel/92397395/teolt-tabatud-korge-vene-diplomaat-sai-salaja-juba-teise-covid-i-vaktsiini-haigla-alustas-siseuurimist> (Accessed: 20.02.2021).
- Rose-Ackerman, S., 1997. The political economy of corruption. *Corruption and the global economy*, 31, pp. 31-60.
- Rose-Ackerman, S. & Palifka, B.J., 2016. *Corruption and Government: Causes, Consequences, and Reform*. 2nd edition. Cambridge: Cambridge University Press.
- Rose-Ackerman, S., 2021. Corruption and Covid-19. *Eunomia. Revista en Cultura de la Legalidad*, 20, pp. 16-36. doi: <https://doi.org/10.20318/eunomia.2021.6061>.
- Ross, P. & Veskimeister, A., 2021. *Peeter Ross ja Andre Veskimeister: vaktsineerimise lahendamise on logistiline juhtimisülesanne, mitte teaduslik või poliitiline probleem*. *Eesti Päevaleht*, 24.02.2021.
- Salman, J. & Penzenstadler, N., 2020. *Hundreds of Millions of Dollars Goes to COVID-19 Contractors Accused of Prior Fraud*. USA Today. 07.07.2020. Available at: <https://eu.usatoday.com/in-depth/news/investigations/2020/07/07/covid-19-contracts-overlook-fraud-claims-masks-sanitizer-and-ppe/5352886002/> (Accessed: 13.02.2021).
- Sartor, M. & Beamish, P., 2019. Private Sector Corruption, Public Sector Corruption and the Organizational Structure of Foreign Subsidiaries. *Journal of Business Ethics*. 10.1007/s10551-019-04148-1.
- Savedoff, W.D. & Hussmann, K., 2006. Why are health systems prone to corruption? in: Transparency International (ed.) *Global Corruption Report 2006*, pp. 3-16.
- Securities and Exchange Commission, 2011. *SEC charges Johnson & Johnson with foreign bribery*. Available at: <https://www.sec.gov/news/press/2011/2011-87.htm> (Accessed: 13.02.2021).
- Securities and Exchange Commission, 2020a. *SEC Charges Novartis AG with FCPA Violations*. Available at: <https://www.sec.gov/news/press-release/2020-144> (Accessed: 06.03.2021).

- Securities and Exchange Commission, 2020b. *SEC Charges Alexion Pharmaceuticals With FCPA Violations*. Available at: <https://www.sec.gov/news/press-release/2020-149> (Accessed: 06.03.2021).
- Sindzingre, A.N. & Milelli, C., 2010. The Uncertain Relationship between Corruption and Growth in Developing Countries: Threshold Effects and State Effectiveness. *EconomiX Working Papers 2010-10*, University of Paris Nanterre, EconomiX.
- Sishi, S. & Winning, A., 2020. *COVID-19 Graft Scandals Fuel South Africans' Anger with Ruling ANC*. Reuters. 16.09.2020. Available at: <https://www.reuters.com/article/health-coronavirus-safrica-corruption/covid-19-graft-scandals-fuel-south-africans-anger-with-ruling-anc-idINKBN2671ES> (Accessed: 29.03.2021).
- Slattery, G. & Brito, R., 2020. *The Ventilators Never Came: How Graft Hampered Brazil's COVID-19 Response*. Reuters. 25.09.2021. Available at: <https://www.reuters.com/article/us-health-coronavirus-brazil-corruption-idUKKCN26G1EW> (Accessed: 29.03.2021).
- Statista, 2021. *Revenue of the worldwide pharmaceutical market from 2001 to 2019*. Available at: <https://www.statista.com/statistics/263102/pharmaceutical-market-worldwide-revenue-since-2001> (Accessed: 13.02.2021).
- STT, 2021. *Large-scale investigation is conducted regarding the suspected corruption in participation in public procurement in the healthcare sector*. Available at: <https://www.stt.lt/en/news/7481/large-scale-investigation-is-conducted-regarding-the-suspected-corruption-in-participation-in-public-procurement-in-the-healthcare-sector:3076> (Accessed: 23.03.2021).
- Tassé, M., 2021. *Corruption and Covid 19*. 25.01.2021. Available at: <http://anticorruptionexperts.com/corruption-and-covid-19/> (Accessed: 12.02.2021).
- Teller Report, 2021. *Eskilstuna municipality: Several managers have had their relatives vaccinated*. Available at: <https://www.tellerreport.com/news/2021-01-27-%0A--eskilstuna-municipality--several-managers-have-had-their-relatives-vaccinated%0A--By9Kd7nAku.html> (Accessed: 12.02.2021).
- Teremetskyi, V., Duliba, Y., Kroitor, V., Korchak, N. & Makarenko, O., 2020. Corruption and strengthening anti-corruption efforts in healthcare during the pandemic of Covid-19. *Medico-Legal Journal*, 89(1), pp. 25–28.
- The FCPA Blog, 2016. *SciClone pays SEC \$12.8 million to settle China FCPA offenses*. Available at: <https://fcpablog.com/2016/2/4/sciclone-pays-sec-128-million-to-settle-china-fcpa-offenses> (Accessed: 12.02.2021).
- The FCPA Blog, 2017. *Pharmas and the repeated failure of anti-bribery compliance*. Available at: <https://fcpablog.com/2017/04/20/elizabeth-david-barrett-pharmas-and-the-repeated-failure-of> (Accessed: 12.02.2021).

- The Guardian, 2015. Ex-UN consultants jailed for bribes over drugs supplied to ‘starving Africans’. Available at: <https://www.theguardian.com/uk-news/2015/sep/23/un-guido-bakker-sijbrandus-scheffer-jailed-contracts-drugs-congo> (Accessed: 12.02.2021).
- The Nationale Pulse, 2021. *Conflict of interest: who’s covid investigator is recipient of chinese communist cash, worked with wuhan lab for 18 years*. Available at: <https://thenationalpulse.com/exclusive/who-investigators-ccp-covid-ties/> (Accessed: 20.03.2021).
- The New Humanitarian, 2021. *Tracking the coronavirus pandemic and vaccine rollouts*. Available at: <https://www.thenewhumanitarian.org/maps-and-graphics/2021/coronavirus-humanitarian-update-map-data-vaccine-aid-response> (Accessed: 03.05.2021).
- Thomson Reuters, 2009. *Where can \$700 billion in waste be cut annually from the US healthcare system?* Available at: <http://www.factsforhealthcare.com/whitepaper/HealthcareWaste.pdf> (Accessed: 12.02.2021).
- Transparency International, 2013. *Integrity Pacts in Public Procurement An implementation guide*. Transparency International.
- Transparency International, 2016a. *Corruption in the Pharmaceutical Sector: Diagnosing the challenges*. Transparency International.
- Transparency International, 2016b. *Healthcare companies claim second place on the current FCPA investigation list*. Available at: <https://www.transparency.org.uk/healthcare-companies-claim-second-place-current-fcpa-investigation-list> (Accessed: 17.02.2021).
- Transparency International, 2020a. *Written evidence submitted by Transparency International UK’s*. CGP0018. Available at: <https://committees.parliament.uk/writtenevidence/18733/pdf> (Accessed: 03.03.2021).
- Transparency International, 2020b. *The Ignore Pandemic behind Covid-19: The impact of corruption on healthcare service delivery*. Available at: <http://ti-health.org/wp-content/uploads/2020/12/The-Ignored-Pandemic-Behind-COVID-19-the-impact-of-corruption-on-healthcare.pdf> (Accessed: 14.03.2021).
- Transparency International, 2020c. *Corruption & Covid-19 – The story so far*. Available at: <https://www.transparency.org.uk/corruption-coronavirus-covid-19-latest> (Accessed: 18.03.2021).
- Transparency International, 2021a. *Combating Global Corruption: A Bipartisan Plan. 21 commitments for 2021*. Available at: <https://us.transparency.org/resource/combating-global-corruption> (Accessed: 23.02.2021).
- Transparency International, 2021b. *Why fighting corruption matters in times of COVID-19*. Available at: <https://www.transparency.org/en/news/cpi-2020-research-analysis-why-fighting-corruption-matters-in-times-of-covid->

- 19?utm_medium=social&utm_source=linkedin&utm_campaign=cpi2020-secretariat (Accessed: 09.03.2021).
- Transparency International, 2021c. *Will Covid-19 be the shot in the arm that improves pharmaceutical pricing transparency?* Available at: <https://www.transparency.org/en/blog/will-covid-19-be-the-shot-in-the-arm-that-improves-pharmaceutical-pricing-transparency> (Accessed: 29.01.2021).
- Transparency International, 2021d. *Zambia's medical supply scandal makes anti-corruption a key electoral issue this year.* 28.01.2021. Available at: <https://www.transparency.org/en/blog/cpi-2020-zambia-medical-supply-scandal-anti-corruption-key-electoral-issue> (Accessed: 29.01.2021).
- Transparency International, 2021e. *2020 corruption perceptions index reveals widespread corruption is weakening covid-19 response, threatening global recovery: Corruption and COVID-19 worsening democratic backsliding.* 28.01.2021. Available at: <https://www.transparency.org/en/press/2020-corruption-perceptions-index-reveals-widespread-corruption-is-weakening-covid-19-response-threatening-global-recovery> (Accessed: 29.01.2021).
- Trapnell, S. & Recanatini, F., 2017. Evidence, corruption, and reform: the importance of context-sensitivity. *Crime, Law & Social Change*, 68(4), pp. 477-491.
- Ugur, M. & Dasgupta, N., 2011. Corruption and economic growth: A meta-analysis of the evidence on low-income countries and beyond. *MPRA Paper 31226*, University Library of Munich, Germany, revised 31 May 2011.
- Ulst, M., 2021. Valga haigla juht pakkus väljaspool järjekorda oma prominentsetele Rotary klubivendadele koroonavaktsiini. *Delfi*, 19.01.2021. Available at: <https://m.delfi.ee/eesti/article.php?id=92304373> (Accessed: 13.02.2021).
- UNAIDS, 2021. *Global HIV & AIDS statistics - 2020 fact sheet*. Available at: <https://www.unaids.org/en/resources/fact-sheet> (Accessed: 13.02.2021).
- UNDP, 2011. *Fighting Corruption in the Health Sector: Methods, Tools and Good Practices*. Available at: https://www.transparency.org.uk/sites/default/files/pdf/publications/29-06-2016-Corruption_In_The_Pharmaceutical_Sector_Web-2.pdf (Accessed: 17.02.2021).
- UN News, 2018. *The costs of corruption: values, economic development under assault, trillions lost, says Guterres.* 9.12.2018. Available at: <https://news.un.org/en/story/2018/12/1027971> (Accessed: 13.04.2021).
- UN General Assembly, 2003. *United Nations Convention Against Corruption*, 31 October 2003, A/58/422.
- UNODC, 2013. *Guidebook on anti-corruption in public procurement and the management of public finances: Good practices in ensuring compliance with article 9 of the United Nations Convention against Corruption*. Available at: <https://www.unodc.org/documents/corruption/Publications/2013/>

- Guidebook_on_anti-corruption_in_public_procurement_and_the_management_of_public_finances.pdf (Accessed: 20.02.2021).
- UNODC, 2020a. *Signature and Ratification Status as of 6 February 2020*. Available at: <https://www.unodc.org/unodc/en/corruption/ratification-status.html> (Accessed: 22.03.2021).
- UNODC, 2020b. *Covid-19 vaccines and corruption risks: preventing corruption in the manufacture, allocation and distribution of vaccines*. Available at: https://www.unodc.org/documents/corruption/COVID-19/Policy_paper_on_COVID-19_vaccines_and_corruption_risks.pdf (Accessed: 12.03.2021).
- Vabariigi President, 2021. Kõned: Eesti Vabariigi aastapäeval Paide Muusikaja Teatrimajas. 24.02.2021. Available at: <https://www.president.ee/et/ametitegevus/koned/16450-eesti-vabariigi-aastapaeval-paide-muusika-ja-teatrimajas/index.html> (Accessed: 24.02.2021).
- Vian, T., 2008. Review of corruption in the health sector: theory, methods and interventions. *Health policy and planning*, 23(2), pp. 83-94.
- Vian, T., 2020. Anti-corruption, transparency and accountability in health: concepts, frameworks, and approaches. *Global health action*, 13(sup1), 1694744.
- Vigdor, N., 2020. It paid doctors kickbacks. Now, Novartis will pay a \$678 million settlement. *The New York Times*. Available at: <https://www.nytimes.com/2020/07/01/business/Novartiskickbacks-diabetes-heart-drugs.html> (Accessed: 18.03.2021).
- Wikipedia, 2020. Zheng Xiaoyu. Available at: https://en.wikipedia.org/wiki/Zheng_Xiaoyu (Accessed: 17.02.2021).
- Wolfensohn, J. D., 2005a. People and Development. Address to the Board of Governors at the Annual Meetings of the World Bank and the International Monetary Fund, Washington, D.C./ October 1, 1996. in: *The World Bank. Voice for the World's Poor: Selected Speeches and Writings of World Bank President James D. Wolfensohn, 1995-2005*. Washington, DC: World Bank, pp. 45-54.
- Wolfensohn, J. D., 2005b. The Right Wheel: An Agenda For Comprehensive Development. Remarks at the International Conference on Democracy, Market Economy, and Development, Seoul/February 26, 1999. In: *The World Bank. Voice For The World's Poor. Selected Speeches and writings of The World Bank President James D. Woldensohn, 1995-2005*. Washington, DC: World Bank, pp. 138-144.
- World Bank, 1997. Helping Countries Combat Corruption: The Role of the World Bank. *World Bank Publications*. Available at: <http://www1.worldbank.org/publicsector/anticorrupt/corruptn/corrptn.pdf> (Accessed: 04.09.2019).

- World Health Organization, 2004. *WHO Medicines Strategy: Countries at the Core 2004-2007* Available at: https://apps.who.int/iris/bitstream/handle/10665/84307/WHO_EDM_2004.5_eng.pdf (Accessed: 13.02.2021).
- World Health Organization, 2009. *Measuring transparency in the public pharmaceutical sector: assessment instrument* Available at: <https://apps.who.int/iris/handle/10665/112681> (Accessed: 13.02.2021).
- World Health Organization, 2017a. *A Study on the Public Health and Socioeconomic Impact of substandard and falsified medicinal products*. Available at: https://www.who.int/medicines/regulation/ssffc/publications/SE-Study_EN_web.pdf?ua=1c (Accessed: 13.02.2021).
- World Health Organization, 2017b. *Global Surveillance and Monitoring System for Substandards and Falsified Medical Products*. Available at: <https://apps.who.int/iris/bitstream/handle/10665/326708/9789241513425-eng.pdf?ua=1> (Accessed: 13.02.2021).
- World Health Organization, 2017c. *Tracking universal health coverage: 2017 Global Monitoring Report*. Geneva and Washington, DC: World Health Organization and The World Bank.
- World Health Organization, 2018. *Public spending on health: a closer look at global trends*. Available at: <https://apps.who.int/iris/bitstream/handle/10665/276728/WHO-HIS-HGF-HF-WorkingPaper-18.3-eng.pdf> (Accessed: 12.02.2021).
- World Health Organization, 2020b. *World health statistics 2020: A visual summary*. Available at: <https://www.who.int/data/gho/whs-2020-visual-summary> (Accessed: 16.02.2021).
- World Health Organization, 2020c. *Potential corruption risks in health financing arrangements: report of a rapid review of the literature*. Available at: <https://www.who.int/publications/i/item/potential-corruption-risks-in-health-financing-arrangements-report-of-a-rapid-review-of-the-literature> (Accessed: 11.04.2021).
- World Health Organization, 2021a. *WHO Coronavirus Disease (COVID-19) Dashboard*. Available at: <https://covid19.who.int> (Accessed: 03.05.2021).
- World Health Organization, 2021b. *International Clinical Trials Registry Platform (ICTRP)/ICRTP Registry Network*. Available at: <https://www.who.int/clinical-trials-registry-platform/network/primary-registries> (Accessed: 13.02.2021).
- WSJ, 2014. *The Corruption Cure: Transparency, Taxes, Trade. G-7 leaders should address the crony capitalism eating away at economic and political systems*. 4. June. 2014. Available at: <https://www.wsj.com/articles/david-cameron-the-corruption-curetransparency-taxes-trade-1401913005> (Accessed: 08.03.2021).