“The West Knows Best”: Unintended Consequences of Western Aid During the West African and Democratic Republic of the Congo Ebola Epidemics

by

Ella Mithra Edith Forgie

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Department of Anthropology
University of Alberta

Abstract

The two largest Ebola virus disease (EVD) epidemics on record occurred from 2013-16 in West Africa (Liberia, Sierra Leone, and Guinea) and 2018-20 in the Democratic Republic of the Congo (DRC), claiming 11 325 and 2 299 lives, respectively. The Western aid responses that followed centered on repressing "high-risk" individual behavioural practices and failed to take into account the role that structural violence and other macrolevel forces play in limiting individual behavioural autonomy and encouraging disease spread. Thus, individuals were frequently blamed for refusing to comply with public health orders such as the official and unofficial bans on hunting, sale, and consumption of bushmeat in West Africa and the DRC; the Safe and Dignified Burials Initiative; and the required reporting of suspected EVD cases to designated Ebola treatment units. Little effort was made to determine why noncompliance was occurring, and even less was done to customize protocols to the context wherein they were being delivered and increase community engagement.

Through a historico-political, economic, and sociocultural lens, I will explore how Western aid during the two largest EVD epidemics was influenced by racialized and Western-centric discourses around disease that failed to account for the social realities of bodies, among other things. Further, I will discuss why the implementation of aid responses standardized to the West in non-Western contexts was inadequate and even counterproductive in slowing the spread of the disease and reducing the death toll. Based on my discussion, I will argue that the scope of the Western aid responses was far too narrowly focused on individual behavioural practices, and that the priorities often misaligned with local values. I seek to debunk the commonly held though rarely acknowledged assumption that the West knows best. By demonstrating how approaches created by and standardized to the West can be ineffective and even deadly when implemented in

non-Western contexts, I put forth a call to the global health community to deploy customized rather than standardized aid, to amplify and empower rather than ignore or simply acknowledge the voices of those to whom aid is being distributed, and to incorporate into public health paradigms the role that individual social realities play in mediating disease susceptibility.

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Introduction

In 2009, as antibiotic resistance increasingly loomed in the minds of infectious disease physicians, public health specialists, and lay-people alike, a carbapenem-resistant *Klebsiella pneumoniae* strain was described by a team of researchers in Sweden [1]. One year prior to publication, a 59-year-old Swedish resident of Indian origin returned from India to Sweden after undergoing surgery on a major gluteal abscess. In Sweden, he tested positive for the novel gene conferring carbapenem-resistance, *bla*$_{\text{NDM-1}}$, named for its suspected location of origin and specific type of gene: New Delhi metallo-ß-lactamase-1.

The association of the superbug with one of India's major urban hubs led to discontentment from a number of residents. NDTV, a New Delhi media company, published an article describing the (mis)nomer as "a Conspiracy that could damage India's flourishing medical tourism that attract [*sic*] thousands of patients from the west" [2]. In the same article, the Secretary of the Department of Health Research stated that he planned to "register protest" [2] against the name. Over the next year, "outcry in India, with health authorities, media and medical practitioners" [3] precipitated an apology from the editor of the *Lancet*, wherein the name NDM-1 in reference to the enzyme encoding the *bla*$_{\text{NDM-1}}$ gene was published and popularized. A subsequent article was published in a lower impact journal, *Mens Sana Monographs*, calling for the name to change to PCM: plasmid-encoding carbapenem-resistant metallo-β-lactamase [3]. The author, Ajai R. Singh, referenced previous name changes including "'Mongolism'… to Down's syndrome; 'Australia' antigen to HBsAg; 'Mexican' Swine flu to H1N1; 'GRID' (Gay Related Immune Deficiency) and 4H-Disease (Haitians, Homosexuals, Haemophiliacs and Heroin Users Disease) to AIDS" [3] and argued that nomenclature traditions must shift from geographic and racial to purely scientific. Singh's efforts were admirable but NDM-1 has since

retained its name. The abbreviation, however, is often used without reference to its eponym, granting slight reprieve to New Delhi's medical tourism industry.

In December 2019, the Wuhan Municipal Health Commission reported an outbreak of atypical viral pneumonia to the World Health Organization (WHO) [4]. Once sequenced, the virus was officially named the 2019 novel coronavirus, colloquially referred to as the Wuhan coronavirus or the Chinese coronavirus – including in a number of high impact journal publications and reports (e.g., [5, 6]). On February 11, 2020, the WHO re-named the virus SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) and the disease COVID-19 (coronavirus disease) in an effort to move away from the racialized labels [4]. Newspapers and media outlets across the world urged people to make the transition (e.g., [7, 8]). While racial tensions lingered, COVID-19 caught on and quickly became the most widely used term for the agent behind the pandemic that ensued.

No such push has been made for the Zaire ebolavirus (EBOV), named after the Ebola river in the former Zaire (now Democratic Republic of the Congo; DRC), near the site of the first confirmed case [9]. Karl Johnson and Joel Breman, two American men working for the Centers for Disease Control and Prevention (CDC), were in charge of naming the virus and commendably declined the suggestion to name it after the town wherein it was discovered for fear of stigmatizing the locals. This had happened in Nigeria with Lassa fever. However, rather short-sightedly, they chose to name it after a geographical landmark and country, effectively stigmatizing the locals, the nation, and the continent as a whole.

For centuries, through sociocultural and politico-economic change, diseases have been touted as indiscriminate equalizers – perhaps the only in our hierarchical and unjust world [10, 11]. At the turn of the 20th century, rinderpest, a European-imported cattle disease, decimated

livestock and those who relied on it for agricultural purposes and nourishment. Dubbed "masilangane," or "let us all be equal," rinderpest ironically affected black Africans in hugely disproportionate numbers compared to white European colonizers [11]. H1N1, the culprit behind the Spanish Flu of 1918 and the Swine Flu of 2009, also disproportionately affected vulnerable populations [10]. Majority black and Hispanic neighbourhoods in the United States (US) saw drastically higher rates of infection and mortality during the beginning of the ongoing COVID-19 pandemic while, at the same time, a number of US celebrities referred to the disease as "the Great equalizer" on media platforms with followings in the millions [10, 12]. In reality, history has shown that pandemics are anything but equalizing – they foreground and reiterate existing social disparities [10]. That is not necessarily to say that certain individuals or populations are immune but rather that others are increasingly and disproportionately susceptible.

During the 2013-2016 Ebola virus disease (EVD) epidemic in West Africa, eleven cases were recorded in the US [13]. Nine of the eleven EVD patients had contracted the disease in West Africa before returning to the US and seeking care; of those, two died (22 percent mortality rate). The other two EVD patients came down with the disease in the US; both survived. Thus, the current mortality rate of EVD when treated in the US is 18 percent, and the mortality rate of US-contracted EVD is zero. In the same timeframe, Italy, Spain, and the United Kingdom (UK) each reported one EVD case, all of three of which were non-fatal [14]. As EVD encroached on the West and took center-stage in Western media, former US president Donald Trump tweeted "KEEP THEM OUT OF HERE!" and "STOP THE FLIGHTS! NO VISAS FROM EBOLA STRICKEN COUNTRIES!" However, despite the modest sample size and the online outbursts of what can only be described in retrospect as veiled xenophobia, it is likely, based on these data, that EVD has a mortality rate significantly lower than the official 50 percent average that has

reached upwards of 90 percent in previous outbreaks [15]. If Westerners have a considerably higher rate of survival, perhaps Ebola – like rinderpest, H1N1, and COVID-19, to name a few – is not an equalizer, either.

Ebola's popularity in Western media has not waned. In 2018, *New Amsterdam*, a medical drama similar to the better-known *Grey's Anatomy*, made its television debut on NBC. In the pilot episode, the audience is introduced to a young, black boy as he exits an international airport with visible sweating and laboured breathing before taking a cab directly to New Amsterdam Hospital [16]. Awaiting triage in the Emergency Department, the child collapses. Healthcare practitioners swarm and soon find a boarding pass on his person informing them of his recent travel from Liberia to New York City. In 2018, not a single case of EBOV had been reported in Liberia for two years. However, the team of physicians immediately isolate the child with suspected EVD. Not long after, agents from the Federal Bureau of Investigation arrive to question the child, suspecting bioterrorism and alleging that he came to New York City to transmit EVD in one of America's most populous hubs. In the end, laboratory tests confirmed Lassa Fever, not EVD, and all was well.

Here, I will argue that EVD is a racialized disease both born of and contributing to the othering of black African peoples in Africa and in the diaspora. Ebola is perceived by the white gaze to be so inextricably linked to the African continent and intrinsic to black bodies that there has been no public protest against Ebola's name despite its global relevance and popularity in Western media. Through a historico-political, economic, and sociocultural lens, I will explore how Western aid during the two largest EVD epidemics was influenced by racialized and Western-centric discourses around disease that failed to account for the social realities of bodies, among other things. Further, I will discuss why the implementation of aid responses standardized

to the West in non-Western contexts was inadequate and even counterproductive in slowing the spread of the disease and reducing the death toll. Based on my discussion, I will argue that the scope of the Western aid responses was far too narrowly focused on individual behavioural practices, and that the priorities often misaligned with local values.

My analysis will be structured in three parts, including two case studies and an overarching discussion. First, I will illustrate the contexts wherein the 2013-16 West African and the 2018-20 Democratic Republic of the Congo (DRC) EVD epidemics took place. I will then assess the shortcomings of the Western aid responses that ensued following a framework devised by James M. Shultz and colleagues on the three core elements driving the initiation, proliferation, and circulation of infectious diseases [17]. I seek to debunk the commonly held though rarely acknowledged assumption that the West knows best. By demonstrating how approaches created by and standardized to the West can be ineffective and even deadly when implemented in non-Western contexts, I put forth a call to the global health community to deploy customized rather than standardized aid, to amplify and empower rather than ignore or simply acknowledge the voices of those to whom aid is being distributed, and to incorporate into public health paradigms the role that individual social realities play in mediating disease susceptibility.

Ebola Virus Disease

In 2019, the WHO listed EVD, the disease caused by EBOV, as one of the top ten threats to global health [18]. EBOV is a filovirus nestled in the family *Filoviridae* alongside Marburg virus and Cuevavirus [15, 19, 20]. EVD is characterized by a variable asymptomatic incubation period followed by the onset of flu-like symptoms [15, 20]. Progression of the disease can result in severe hemorrhage, hypovolemic shock, and multiorgan failure, with a fatality rate between 25 and 90 percent in past outbreaks [15]. WHO recommendations for diagnosis include automated

or semi-automated nucleic acid tests (NATs) or rapid antigen detection tests where NATs may not be available. Prior to 2018, no treatment was available for EVD aside from supportive therapy. Currently, there is a multi-drug randomized control trial underway in the DRC testing the safety and efficacy of multiple experimental therapeutics, of which, two appear promising. In addition, an experimental vaccine (recombinant vesicular stomatitis virus – Zaire Ebola virus; rVSV-ZEBOV) has now been licensed in four countries in the WHO African region, including the DRC [21]. This vaccine was previously administered in the DRC via a ring vaccination strategy[1] under compassionate use while awaiting licensing [15, 22].

EBOV, like all viruses, cannot survive on its own outside of its host. Instead, it travels comfortably between bodies in "life"-sustaining droplets of blood and bodily fluids (such as urine, saliva, sweat, feces, vomit, breast milk, amniotic fluid, and semen) [19, 23]. These virus-harbouring droplets pose the highest risk immediately after they are ejected from the host's body; Ebola cannot suspend itself in the air the way *Varicella* (chickenpox), Tuberculosis, or Measles can, to give a few examples. EVD has earned the infamous title, the "caregiver's disease," because those caring for host bodies, whether pre- or post-mortem, are usually exposed in considerable quantities to these infectious excretions [24]. Any breach in the caregiver's protective sheath – an exposed nick in the skin of the arm, a scratch of the eye with an unwashed hand, an unmasked inhalation – can lead to infiltration.

Once EBOV penetrates the surface, the new host sends their cellular army to the point of entry [19, 25]. Dendritic cells, foot soldiers in the border war of the body, engulf the viral droplets to take them as prisoners of war to their captains – the T lymphocytes. Once

[1]Ring vaccination involves vaccinating individuals who have encountered a patient with confirmed EVD in the past 21 days in one of the following capacities: lived in the same household; visited the patient after EVD symptoms developed; or made physical contact with the patient's body, body fluids, or clothes.

intracellular, however, EBOV gets to work blocking the dendritic cell's ability to signal to the T cells. Without T cell signaling, antibodies are not produced, and there is nothing to stop EBOV from infecting new host cells. As the virus shuts down this line of communication, one specific Ebola protein, VP24, inhibits a transport protein on the dendritic cell's surface, simultaneously shutting down the interferon pathway. Usually, interferon prevents viral reproduction, but once blocked by VP24, EBOV is free to replicate rapidly and extensively. Ebola becomes undetectable and unregulated.

As the dendritic cell migrates further inwards from the breach site, EBOV, now in large quantities, begins to exit the cell in search of others to infect [19, 25]. Dendritic cells overflowing with EBOV and rendered ineffectual by it begin to die dramatic deaths in a self-inflicted process called apoptosis. Macrophages, second-line soldiers, get to work endocytosing extracellular EBOV. The infected macrophages begin erroneously triggering the formation of blood clots, starving internal organs of their blood supply. They also start to release cytokines – messenger molecules that signal that something is wrong and trigger inflammation as a result. The now-dead dendritic cells also exude cytokines during apoptosis. This "cytokine storm" instigates the release of nitric oxide, which eats through the lining of blood vessels, causing blood to hemorrhage into the body. Blood begins to flow everywhere except where it is needed. EBOV effectively uses the body's immune response against it, tricking the body into killing itself.

Recently, Niemann-Pick C1 (NPC1) protein was identified as the receptor for EBOV [26]. Receptors are integral to viral infiltration and thus often targeted by vaccines and treatments. Individuals with Niemann-Pick disease, type C, have mutated NPC1 proteins; they are resistant to EBOV. What is particularly interesting about NPC1 in the context of this work is

that it is upregulated, or found in higher quantities, in rural populations. What one study has inferred from these findings is that expression of NPC1 is likely correlated with susceptibility to EBOV and perhaps even outcome of EVD. Rural populations, who are often implicated in EVD outbreaks for their consumption of bushmeat and hesitancy to travel far distances to Ebola treatment units (ETUs), may be more susceptible to contracting EBOV due their environmentally-impacted genetics.

In 1976, the first two recorded cases of EBOV in humans occurred simultaneously in Nzara, South Sudan and Yambuku, DRC [18, 27]. Since then, and prior to 2014, there were 23 recorded natural outbreaks in sub-Saharan Africa [27]. In Russia, two infections, both fatal, were recorded in 1996 and 2004 after researchers working with the virus accidentally contracted it in their laboratories [28]. In 1989-90 and 2008, Reston ebolavirus, an asymptomatic species, crossed over from pig to human and infected three and six people, respectively, in the Philippines. Despite massive rates of nosocomial infection in sub-Saharan Africa, from 1976 to 2013, EVD was considered a low public health threat compared to other infectious diseases like malaria, tuberculosis, and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) [27].

December 2013 marked the beginning of the largest EVD outbreak to date, the majority of cases occurring in Liberia, Sierra Leone, and Guinea [27]. Due in large part to the initial categorization of EBOV as a low threat pathogen despite its relatively high disease severity, the West African EVD epidemic was characterized by a delayed international public health response, albeit one that was unprecedented in scale. By August 2014, the WHO had declared the outbreak a Public Health Emergency of International Concern (PHEIC), a declaration that remained in place nearly two years before it was lifted in March 2016 [14, 29, 30]. At that point,

the death toll had surpassed 11 000, more than seven times that of all previous outbreaks combined [27, 29, 30].

In the DRC, despite administration of an experimental vaccine and experimental treatments, the second largest EBOV outbreak in history occurred between August 1, 2018 and July 25, 2020 in the North Kivu and Ituri provinces, claiming 2 299 lives (66 percent mortality rate) [31, 32]. Only weeks before the outbreak was declared over, on June 1, 2020, an unrelated EVD outbreak was declared in the Équateur province of the DRC, ending in November of the same year and claiming another 55 lives [33, 34].

Case Study 1: 2013 to 2016 West African Ebola Virus Disease Epidemic

Satta Watson lived in the epicenter of the West African EVD epidemic – Liberia's capital city of Monrovia [35-37]. Seven of her neighbours residing under one roof had perished from EVD in the course of a month, and Watson awoke one July morning to find a crowd of people collecting in the street outside of her home. Another was ill, and 150 community members had gathered to blockade the Ministry of Health and accompanying politicians from seizing the victim and transporting them to hospital against their will.

According to one news report, Watson disclosed her skepticism of the virus's origins and even its existence [36]. She stated that she, like many, speculated on whether the virus was indeed EBOV or rather a government-concocted bioweapon to draw Western funding, which would surely land directly in pockets of the elite. After all, USD5 million in aid funding from the Red Cross was knowingly lost to fraud and corruption, and it is likely that much more was inconspicuously diverted away from its intended destination [35, 38]. Further, reports from Transparency International state that nearly half of Liberians and Sierra Leoneans were extorted upon seeking formal biomedical care [35, 39]. The reliability of these statistics is negligible;

what is notable is that extortion likely did occur to some degree, and rumor of extortion likely altered the attitudes and behaviours of citizens already mistrustful of the government, public health authorities, and biomedicine.

History of Liberia, Sierra Leone and Guinea

Liberia sits on the Western coast of Africa and houses nearly 5 million people, including over 8 000 refugees [40, 41]. Multidimensional poverty riddles the nation, which ranks within the bottom seven countries for both the human development index and the global hunger index [42]. The under-five mortality rate (U5MR) is 85 per 1 000 live births, and over 25 percent of the population lacks access to basic drinking water services [40]. Despite these alarming statistics, conditions in Liberia have improved significantly since the First and Second Liberian Civil Wars.

From 1989 to 2003, the Liberian Civil Wars "ran almost-unceasingly" [43] and became the "epicenter of a Mano-basin wide conflict system" [44] that involved Sierra Leone, Guinea, and the Ivory Coast. After over a century of colonial rule, the Mano region was "made flammable by a legacy of marginalisation and injustice, due to years of predatory and repressive rule" [44]. Through fourteen years of sustained conflict, an estimated 850 000 Liberian citizens sought refuge in neighbouring countries and another 250 000 were killed, the majority of whom were civilians [45]. In 1980, Samuel K. Doe seized control of the nation after leading the People's Redemption Council (PCR) to a successful military coup d'état; in 1985, he was elected president in what was widely speculated to be a fraudulent election [42, 46, 47]. While the proceeding decade that Doe held power was "characterised by sustained levels of brutality, dramatic economic decline, political immobilisation, and purges of real or imagined enemies"

[47], the citizens of Liberia were initially enthused by the overthrow of the century-and-a-half-long reign of the Americo-Liberian oligarchy. However, US involvement did not dissipate during Doe's presidency. In fact, during the Doe era, Liberia – "America's most strategic point in the west coast of Africa" [47], with ports full of American navy and commercial vessels – received the largest sum of US financial aid per capita of all of sub-Saharan Africa, the entirety of which Doe managed to squander.

Through the 1980s, tensions grew among citizens of Doe's minority ethnic group, the Krahn, whom he conspicuously favoured for powerful political positions, and the many other ethnic groups of Liberia [46]. A "new tribalism" began to permeate the political and social spheres of the nation [47]. Thomas Quiwonkpa, an ex-PCR member who had fled to Sierra Leone in fear of Doe's culling of non-Krahns in office, later returned to Liberia in an attempt to overthrow Doe [46]. He failed, precipitating his own death and the deaths of many innocent members of his ethnic group, the Gio, at the hands of the Doe government [46, 47]. Charles Taylor, another ex-PCR member who had fled to Ivory Coast, returned to Liberia in 1989 with a trained militia group, the National Patriotic Front of Liberia (NPFL), backed by Ivory Coast, Libya, and Burkina Faso, to complete what Quiwonkpa had started [42, 46, 47]. In retaliation to Doe's mass slaughter of the Gio (and Mano, who occupied much of the same territory) following Quiwonkpa's attempted coup, the NPFL committed "widespread atrocities" against the Krahn (and Mandigo, who were accused of supporting Doe) while encroaching on Monrovia [46, 47]. The NPFL fought for territory against Doe's Armed Forces of Liberia (AFL), who were backed by Nigeria and the US. The US denied any intervention in the Liberian Civil Wars in the public sphere and were criticized for it, but US military advisors operated covertly on the front lines of the AFL [47]. Simultaneously and somewhat contradictorily, both AFL and NPFL soldiers

indiscriminately targeted foreign individuals and organizations, attacking most notably a United Nations (UN) base in Monrovia. The UN was both critiqued for their delayed involvement, which came nearly three years after the fighting commenced despite calls for direct intervention from Liberia, and accused of taking sides during the war. Eventually, despite internal conflicts within the NPFL that caused a dichotomous split between members, Doe was "captured, tortured and killed" and the Economic Community of West Africa States (ECOWAS) installed an interim government in Monrovia [46, 47]. Struggles persisted within the NPFL and beyond as Taylor continued to battle for political power, executing Krahn and Mandigo peoples *en masse*, who eventually organized to form the United Liberation Movement of Liberia for Democracy (ULIMO) to defend themselves against the NPFL. A year later, the many opposing factions joined to form the Liberian Council of State, but the conflict persisted for another three years before an election was held and Taylor was voted into office by an overwhelming majority.

Not long after Taylor took office, he began supporting the Revolutionary United Front (RUF), a militia group fighting in the Sierra Leonean Civil War [46]. In response, the UN imposed sanctions on the Taylor government, including an arms embargo, a foreign-travel-ban on government officials and their families, and a trading-ban on "blood diamonds" [41, 46]. In the background, an opposition group mounted in the countryside: Liberians United for Reconciliation and Democracy (LURD) [46]. LURD battled with the AFL until they controlled the vast majority of rural Liberia; Taylor and the AFL maintained control of Monrovia. Accusations of human rights violations and employment of child soldiers by both LURD and the AFL abounded. In 2003, Taylor and others entered into what would become a 76-day conference mediated by ECOWAS, who were backed by the UN, to broker peace in Liberia [43, 46]. During the summit, which took place in Accra, Ghana, rebel leaders committed mass atrocities by-proxy

in order to achieve political power and pardons for their war crimes as a part of the agreement [43]. Bombs were dropped on Monrovia while summit members watched via livestream; citizen casualties mounted and opposing parties surrendered to the warlords' demands. Eventually, a peace deal was reached, but few faced any consequences for "acts of terrorism, murder, rape, sexual slavery, cruel treatment, recruitment of child soldiers, enslavement and pillage" [48]; historians have noted that "the language in the final agreement was left intentionally vague, leaving open the option of universal pardon for future governments" [43, 46]. Taylor sought asylum in Nigeria, where he lived for three years following the 2003 Peace Deal, despite a warrant issued for his arrest by the International Criminal Police Organization (INTERPOL) [43]. The Nigerian government protected Taylor from INTERPOL but agreed to extradite him to Liberia should the Liberian government wish to try him there.

In 2005, Ellen Johnson-Sirleaf was elected president of Liberia [43, 46]. Under her governance, Taylor was extradited to Sierra Leone and tried for his crimes related to backing the RUF during the Sierra Leone Civil War [43]. Taylor was neither tried nor held responsible for his crimes against Liberia and the Liberian peoples. For his crimes in Sierra Leone, Judge Richard Lussick determined that Taylor was "found responsible for aiding and abetting as well as planning some of the most heinous and brutal crimes recorded in human history" [48]. He was sentenced to 50 years in prison.

The effects of the Liberian Civil Wars on health were and are multifaceted, long-lasting, and "characterized by insufficient infrastructure, lack of appropriate qualified health personnel, and limited oversight capacity" [49]. Following the 2003 Peace Deal, only 51 of the 293 health facilities in Liberia remained functional and only ten percent of the population had access to basic healthcare services, due in part to the destruction of roads and lack of transportation

services, in addition to the limited number of functional health facilities [49, 50]. Thirty physicians managed the care of Liberia's 3 million citizens [50]. Six nurses managed the care of the 50 000 individuals who sought refuge in the Samuel K. Doe Football Stadium as rural populations fled to the capital, which was not equipped to sustain the present population, let alone the massive influx of displaced persons [51]. In all of Monrovia, upwards of 2 000 cases of cholera, a diarrheal disease caused by *Vibrio cholerae* that is often fatal if left untreated, occurred each week. The Ministry of Health, with aid from the WHO and the United Nations International Children's Emergency Fund (UNICEF), attempted to vaccinate the 71 percent of children who did not receive their measles vaccines after the collapse of the National Measles Immunization Programme. In 2008, depression and post-traumatic stress disorder riddled nearly half of Liberians [50, 52]. By 2012, "[the] overall standard of services [remained] low, with long waits for patients, few available drugs, and poor health outcomes" [53]. Healthcare remained largely inaccessible to those who could not afford it.

Sierra Leone borders northwestern Liberia and houses over 7.6 million people [54]. The Human Development Index (0.438) ranks Sierra Leone 181 out of 189 countries, and nearly one third of the population lives in severe multidimensional poverty [55]. The U5MR is 109 per 1 000 live births and Sierra Leone holds among the highest maternal mortality ratios in the world at 1 360 per 100 000 live births [54, 56]. Communicable diseases are the leading cause of death, and only ten percent of the population has access to safely managed drinking water services.

The Sierra Leonean Civil War ran from 1991 to 2002 [51, 57, 58]. In this time, an estimated 2 million people were displaced from their homes and 50 000 people, majority civilians, were killed [51, 57, 59]. The war was precipitated by "economic mismanagement, a lack of political and economic transparency, corruption, social exclusion of young people and the

crisis affecting the Sierra Leonean youth" [60], and it began with the overthrown of a long-standing political regime [60, 61].

British colonial authority reigned in Sierra Leone from 1808 to 1961. During this time, malaria was Sierra Leone's "principle enemy" – a leading cause of death in the British colony [62]. In 1899, when the *Anopheles* mosquito was discovered as the vector for malaria, a correlation was drawn between African children, who appeared to contract the virulent infectious disease more frequently and with greater severity than their older counterparts, and malaria. This, of course, can be explained by the lack of protective immunity towards malaria in children, whereas adults in endemic regions generally develop immunity to the disease through significant exposure in childhood [63]. At the time, however, the nuances of disease immunity were not understood, and colonial authorities turned to segregation as a "mode of prophylaxis" for themselves [62]. Colonial authorities imposed upon African bodies the condition of being perpetually and incurably diseased [64], rendering all Africans a public health risk to Europeans and further substantiating European disempowerment and subordination of Sierra Leone's peoples. In 1961, Britain left Sierra Leone with an overcentralized government – known to breed "predatory and personalised rule" and become "repressive in responding to the challenges they [face]" [44].

In 1991, the All Peoples' Congress (APC) had held power in Sierra Leone since the country gained independence in 1961, under the governance of Siaka Stevens followed by Joseph Saidu Momoh [61, 65]. By then, Sierra Leone's HDI ranked lowest in the world. Dwindling opportunities for education and employment over the past two decades led to "a large pool of disenfranchised youth ready to rise up violently against the system" [57, 66]. "Large

pool" is not an exaggeration – nearly half of Sierra Leone's population before the war was children under the age of fourteen [59].

Stevens assumed office in 1968, where his "de facto one-party government… used violence and political chicanery to stay in power" [61]. Post-independence, Britain left Sierra Leone with a healthcare system that was "both under-resourced and inefficient" [64], in which Stevens invested little more. He controlled both legitimate and underground markets, which precipitated the labelling of Sierra Leone as a "shadow state" [66]. The Sierra Leonean economy deteriorated as Stevens instituted state control of the Kono District diamond mines [61]. His followers were graciously compensated for their support while his adversaries and their territories "were deprived of major developmental efforts and welfare provisions" [61]. The informalization and privatization of the economy left many with no means of livelihood and no support from the government. Thus, "the RUF's demands for a slice of the national cake [were] understandable," but it should be noted that "the methods it [eventually] employed in pursuit of these demands [were] unjustifiable" [66]. Momoh's reign began in 1985 and was characterized by massive inflation of basic commodity pricing [61, 65]. He favoured his own ethnic group, the Ekutay, and alienated the Temnes and Mendes. Any talk of a multiparty democracy was quelled.

With Taylor's support from Liberia, the RUF, an estimated half of whom were 8 to 14 years old, invaded Sierra Leone in 1991 [57, 60, 61]. ECOWAS, which included Sierra Leone, had led bombing raids on NPFL-occupied territory in Liberia, precipitating Taylor's opposition to the Sierra Leonean government [61, 65, 66]. Within months, the RUF occupied significant territory in Sierra Leone, including the Kono District; the Sierra Leone Army (SLA) was no match for the RUF, and several SLA factions were allegedly "colluding with the rebels" [57, 65]. Shockingly, however, through fourteen years of sustained fighting, encounters between the RUF

and the SLA were few and far between [57]. Instead, the RUF targeted "chiefs – traditional rulers in rural areas – for massacres, burning schools and courthouses, and scattering the civilian population" [57]. Red Cross healthcare workers who pleaded for entrance into rebel-held territory to provide limited health services to civilians were often targeted, maimed, and killed [58]. Both the RUF and the SLA had huge financial incentive to continue battle; underground diamond trade funded both parties and was made possible only by the weakened state infrastructure that resulted from the war [57]. While combatants grew richer, agricultural production reached an all-time low, and severe acute malnutrition ravaged unacceptably high numbers of Sierra Leoneans and Liberians seeking refuge within Sierra Leone [65]. From the time the war commenced until 1995, "not a single economic sector or activity registered any growth" [66].

November 1996 marked the first of three peace agreements to be signed in Sierra Leone [66]. The Abidjan Accord was signed between the SLA and the RUF, but was broken soon after when the RUF, in partnership with the Armed Forces Revolutionary Council (AFRC), ousted President Ahmad Tejan Kabbah. The military junta looted and pillaged the capital city of Freetown [67]. In 1998, the ECOWAS armed forces unit, Economic Community of West African States Monitoring Group (ECOMOG), reclaimed Freetown, "first [bombarding] the city from air and sea and then… [fighting] a brutal urban ground war" [67] before reinstating Kabbah per the Conakry Peace Plan [66, 68]. The RUF/AFRC government quickly defaulted on the accord and attacked Freetown in 1999. Following, the Lomé Accord was instituted, drafted in large part by the US government and supported by the British government [66-68]. It provided RUF leader Foday Sankoh with legitimate control over Sierra Leone's natural resources, including the Kono District diamonds, and offered blanket amnesty to high-ranking RUF officials. The US and

British governments were highly criticized for their involvement in what Nigerian Kayode Fayemi coined a "'pact with the devil' whereby 'Western liberals in Britain [and the US]' had 'created' a 'Frankenstein in the name of so-called ethical foreign policy'" [66]. The Lomé Accord was said to be an imperfect solution to a problem for which there were no viable alternatives, but scholars argue that the lack of viable alternatives was precipitated by "lacklustre international support' that stood 'in marked contrast to the greater generosity displayed towards Kosovo and East Timor'" [66, 69]. Any strides made towards the call for improved economic stability, political and economic transparency, anti-corruption, and improved education and employment infrastructure that sparked the war were rendered obsolete by the Lomé Accord [60]. Rebel activity continued and in May 2000, RUF soldiers opened fire in Freetown [67]. The conflict came to a close in 2002, "with the disarmament of the fighting factions' leadership and the symbolic destruction of arms" [67]. In 2003, the Accra Comprehensive Peace Agreement that ended the Second Liberian Civil War likewise brought relative stability to Sierra Leone [68].

External aid in Sierra Leone was plenty, but it was not necessarily motivated by a desire on the part of external actors to instill peace in the nation [66]. According to Paul Williams, though external actors and international society were "the most likely source of Sierra Leone's salvation" [66], they acted in such a way that little "salvation" was actually achieved. Instead, Lomé was created as the result of "international society's failure to adequately support ECOMOG; US diplomatic pressure…; the ideological context guiding Western responses to 'internal wars'; and the lack of explicit UN authorization for intervention" [66].

"Brain drain," or human capital flight, during the war was significant; a large proportion of healthcare workers fled Sierra Leone "of fear or to look for greener pastures" [58]. Similar to post-war Liberia, there was a mass migration of citizens from rural to urban areas, which strained

the already limited water and sanitation infrastructure in Sierra Leone's major urban centres [64]. Following the war, Sierra Leone's healthcare system was "barely functioning" [59]. In an effort to combat globally-leading infant, child, and maternal mortality rates, President Ernest Bai Koroma implemented a policy to provide free healthcare to children under five years old and pregnant and lactating women in 2010 [58, 59, 70]. Unfortunately, few women had access to primary healthcare, let alone specialized antenatal care, so they were unable to capitalize on the subsidized healthcare services [58, 64, 70]. In fact, only three hospitals in Sierra Leone, all located in urban areas, were capable of conducting major surgeries and laboratory testing [64]. When the selective free healthcare policy was instituted, there was only approximately one physician for every 12 000 citizens [64, 70]. Further, well into the mid-2010s, Sierra Leone employed only two psychiatrists and two clinical psychologists to treat the estimated hundreds of thousands suffering from mental health disorders precipitated or aggravated by the war [64, 71].

Guinea borders both Liberia and Sierra Leone to the south and houses 12.4 million people [72]. Guinea's HDI (0.466) ranks 174 out of 189 countries and nearly two thirds of the population live in multidimensional poverty, half of whom live in severe multidimensional poverty [73]. Ninety-five percent of women and girls between the ages of 15 and 49 years have undergone female genital mutilation and the maternal mortality ratio is 679 per 100 000 live births [73, 74]. The U5MR is 89 per 1 000 live births and fewer than two thirds of Guineans have access to basic drinking water services [72, 74].

In 1958, Guinea became the first African country to gain independence from France, as the Democratic Party of Guinea rose to power under President Sekou Touré [44, 68]. Upon exit, the French took with them "much of the country's portable infrastructure" [68] and immediately terminated all monetary support to the region. Touré, paranoid of international – especially

French – invasion, developed a fixation on national security that resulted in repression of his own people [44, 68]. He oversaw the exile and execution of thousands of Guineans in concentration camps across the country. Meanwhile, the Soviet Union rushed to replace the aid that France had withdrawn, dedicating USD100 million in aid and precipitating US interest in Guinea [68]. The US invested a smaller sum of aid, but their involvement dwindled around 1970. Touré remained in power until his death in 1984, when he was replaced by a military junta led by Lansana Conté, who then ruled for the following twenty-four years [44, 68]. Conté drew the attention of the US once again, who dedicated further aid to the country in hopes of supporting economic and human rights reform as was promised by Touré's successor [68]. In 1993, Conté won an alleged 51 percent of the vote in Guinea's "first ever multiparty presidential election" after a sharp and unexplained increase in votes towards the end of the ballot count, as well as retraction of results from "an opposition stronghold" due to "irregularities reported by the governor's office" [68]. Angered by the apparently fraudulent results after having invested a great deal in Guinea's democratization, the US reduced financial aid by 60 percent and ceased distribution of food aid to the region completely by 1995.

The conflict in the forest region of Guinea resulted from spillover of the Liberian and Sierra Leonean civil wars. Eloquently put by Liberian political theorist Amos Sawyer, "in Liberia, state failure engendered violent conflicts that, in turn, ignited a combustible Sierra Leone and, for more than a decade, set ablaze the Mano basin area of Liberia, Sierra Leone, and parts of the forest region of Guinea" [44]. From the onset of conflict in Liberia and later Sierra Leone, there was a migration of an estimated 500 000 Liberians and Sierra Leoneans to the forest region of Guinea [75, 76]. Early waves of Liberian refugees self-settled along the border, integrating into Guinean communities in relatively good health and quickly becoming self-

sufficient and self-determined [76]. The Guinean communities accepted their role as host and were able to sustain the refugee populations with little issue and without intervention from government or foreign agencies. As more refugees trickled into Guinea, the Guinean government, in partnership with the United Nations High Commission for Refugees (UNHCR), declared that aid would be given only to those who settled in the forest region [75, 76].

When conflict erupted in Sierra Leone, many Liberians who had sought refuge within Sierra Leone fled alongside Sierra Leoneans to Guinea [76]. Their mental and physical health was worse compared to early expatriates due to prolonged periods of time living in conflict zones, "although still far from being dramatic" [76]. The situation deteriorated towards the mid 1990s:

> Most refugees arriving in 1992-95 had… already been internally displaced. Some had moved several times. Most had suffered several years of extreme hardship, close to forced labour or even slavery, inside their country. Consequently, more and more refugees were malnourished and sick upon arrival, without belongings, or even clothing. Family units were often split… Many of the refugees had no place to go to in Guinea, were exhausted on arrival and had little energy left to develop creative coping mechanisms. [76]

Despite the condition in which the refugees were arriving, many refused to register in Guinean refugee camps because the "preconditions unilaterally imposed by UNHCR were not acceptable" [76] to them. Refugees were mistrustful of UNHCR and skeptical that food provisions would be distributed as promised. Instead, they felt as though they would fare better on their own. Their suspicions were later substantiated by the severe rates of malnutrition that riddled the UNHCR camps.

By 1995, roughly ten percent of Guinea's population was comprised of refugees [76]. UNHCR categorized the refugee population into two groups: old (immigrated from 1990-93) and new (immigrated from 1994-95). This categorization was not proportional with the two massive

waves of refugees, which came in 1990-91 and 1992-95. Old refugees received fewer food provisions than new refugees under the assumption that they had had more time to become self-supporting in Guinea, contrary to evidence "that food insecurity was not linked to time of arrival but to area of residence" [75, 76]. Further, while many refugees were given land to farm, they "[were] forced to farm less productive land in the middle of the fallow cycle" [75], which yielded little for harvesting.

The influx of refugee populations into urban centres in the forest region marginalized autochthonous Guineans and increased ethnic tensions [76]. The Mandigo, who were driven from Liberia by the NPFL, settled in a region primarily inhabited by the Mano, Kpelle, Loma, and Kissi, who were avid NPFL supporters. Resultant conflicts led to the deaths of hundreds. The Mandigo were fierce and outspoken about their position and rights, leading UNHRC to favour distribution of limited resources to urban centres, so as to proactively quell the protests that ensued when aid was not provided to the Mandigo as promised.

In 1999, a LURD attack on Lofa County in Liberia precipitated an AFL retaliation led by Taylor on the Macenta Prefecture in Guinea [68]. While the LURD was based in Liberia, the leader of LURD, Sekou Dammaté Conneh, had a Guinean wife. By 2000, border towns in Guinea including regions in the Macenta Prefecture were demolished. Conté placed blame on the refugee populations inhabiting the area, stating that "combatants… had merged with and were recruiting from the refugee population" [68]. His assertion was not false in its entirety, but it vastly hyperbolized the proportion of refugees involved in the conflict as combatants. Nonetheless, his speech led to "attacks on refugee camps and the detention of about 3,000 people, many of whom were beaten and raped. Most of the victims were innocent Sierra Leonean refugees" [68]. In response, the Guinean government established their position in support of

LURD with an arms transfer. ECOWAS encouraged Guinea to adopt a passive defensive role, offering ECOMOG services for border protection. Conté declined and deployed troops in both Liberia and Sierra Leone, most of whom were involved in active defense and stabilization, but some of whom were involved in offensive attacks against the RUF in Sierra Leone [77].

Despite cross-border attacks and unceasing aggravation from their neighbours, Guinea did not fall into a full-scale civil war the way the rest of Mano River region countries did [77]. After the Accra Comprehensive Peace Agreement in 2003, the country saw relative stability in terms of conflict, but the economy declined steadily. In 2008, Conté succumbed to his declining health and was succeeded by Moussa Dadis Camara, who seized power by force and established the National Council for Democracy and Development (CNDD). The following year, protests against Camara and the CNDD escalated and "approximately 150 peaceful demonstrators were brutally murdered, with several women and girls raped by security forces" [77]. Resultant tension within the CNDD led to the nonfatal shooting of Camara. Power was transferred from Camara, hospitalized in Morocco, to Sékouba Konaté, who eventually facilitated a democratic election in 2010, won by opposition leader Alpha Condé. To the dismay of the vast majority of Guinean citizens, Condé proved similar to Conté in his approach to leadership and refused on multiple occasions to hold routine legislative elections. Since his rise to power, peaceful civilian protests have been met with "disproportionate force" [77] from security forces, leading to widespread mistrust of government authorities.

There is little information on the state of Guinean healthcare before the West African Ebola epidemic. However, paradoxically, the mass influx of Liberian and Sierra Leonean refugees to the forest region increased access to care for Guinean citizens and refugees [78]. While this may seem counterintuitive as the rapidly increasing population in the region should

have overburdened existing healthcare infrastructure, a refugee assistance program improved access to, in the case of one study, timely obstetric care. Though only obstetric indicators were recorded, the increase in financial stability due to economic liberalization and cheap labour from refugees, as well as the increase in transportation and health infrastructure due to the refugee assistance program, likely improved access to healthcare on the whole. Guinean citizens provided a means of livelihood to refugees, albeit in a somewhat exploitational manner, and agricultural production increased in the forest region. Transportation infrastructure was (re)built for the purposes of delivering food aid but allowed for improved access to healthcare facilities by car and ambulance. Further, refugees from Liberia and Sierra Leone, whose home countries housed more advanced healthcare systems, held the Guinean healthcare system to a higher standard. By 1992, "full coverage" [78] of healthcare facilities in the Guéckédou prefecture was reached, and more continued to be built. All of Guinea saw an increase in healthcare infrastructure, but regions where refugees were plenty saw "faster and more widespread" [78] development.

The conditions in Guinea were thus promising compared to those in neighbouring countries. The WHO describes the Guinean health landscape as lacking in quality care and characterized by "low levels of health-care coverage resulting from the inefficient and poor condition of existing health infrastructure and facilities" [79]. However, compared to Liberia and Sierra Leone, whose healthcare systems collapsed during the conflict, Guinea fared well, and its progress cannot go unacknowledged.

What becomes eminently clear upon conducting a contemporary historical analysis of the Mano River region (excluding the Ivory Coast) is the supranational politics that unite Liberia, Sierra Leone, and Guinea. What follows is a constant flow of peoples (citizens, soldiers, rebels,

and refugees) and resources (weapons and contraband) between the three nations, which are separated only by arbitrarily drawn borders that do not align with traditional ethnic (cultural and political) territories [80]. In fact, the borders within the Mano River region have been astutely described as “porous” and “contestable” [80], resulting in an undeniable sociocultural and historico-political interconnectedness. What is also clear is that citizens in all three countries were similarly mistreated, to say the least, by government authorities who were frequently backed by Western powers, fostering deeply rooted mistrust.

In December 2013, the death of an 18-month-old from Meliandou, a remote village in the Guéckédou prefecture in the forest region of Guinea, was recorded and later attributed to EVD, rendering it the index case of the West African EVD epidemic [81, 82]. Soon after, ten more cases in Meliandou were recorded, all of which were fatal [82]. Recent epidemiological data, however, speculate that there were nearly twice as many cases of EVD in Meliandou as were initially recorded (21 *versus* 11), bringing the case fatality rate from an unprecedented 100 percent to a more reasonable 55.6 percent in adults [83]. Initially, healthcare practitioners suspected Cholera as the causative agent of the proportionately mass perishing of the Meliandou inhabitants [81]. Following an investigation of the outbreak in late January, no correlations were drawn between the mysterious and deadly infectious disease and EBOV. Accordingly, no precautionary measures were enacted. On February 1, a Meliandou villager travelled to Conakry, Guinea’s capital, where he died in hospital. From there, EBOV, still unidentified, began to spread.

On March 13, the Guinean Ministry of Health commenced investigations into the causative agent of what was rapidly escalating into a public health emergency [81]. Nine days later, and nearly three months after the index case, the Institut Pasteur in France deduced that

EBOV was responsible for the mounting death toll – the first-ever documented appearance of EBOV in West Africa. At that point, 49 cases and 29 deaths had been recorded. EBOV continued to gain traction with little-to-no resistance.

It is speculated that during the three-month period when EBOV spread unbeknownst in Guinea it was carried into Liberia and Sierra Leone [84]. However, Liberia reported its first case on March 30 in Lofa County, and Sierra Leone, theirs, sometime in late May [85, 86]. By June, what initially seemed like a sustainable albeit deadly infectious disease outbreak began to overstretch the healthcare capacity in all three countries, and by August, the WHO, late to the table, declared the outbreak a PHEIC [14, 29, 30]. In Guinea, resistance mounted against foreign response teams, resulting in violence, vandalization, fear, and in some cases, death [87]. Médecins Sans Frontières (MSF) and the WHO were barred by local communities from entering numerous "zones of intense transmission" [87]. In Liberia, the John F. Kennedy Medical Center in Monrovia was the only regional referral hospital in the country; it was not equipped with personal protective equipment, there was no isolation ward, and staff were not trained in infection prevention and control [85]. Huge proportions of healthcare practitioners contracted EBOV and died, exacerbating "existing skill shortages in [a country] that had few health personnel to begin with" [88]. Liberians combed the city for available beds but were turned away by local healthcare facilities and MSF field hospitals [85]. Major urban slums were quarantined. In Sierra Leone, a traditional healer employed to treat EVD patients from Guinea contracted the virus and died; 365 subsequent EVD deaths were traced back to her funeral [86]. Kenema General Hospital, situated in the most heavily afflicted region of Sierra Leone, saw infection and mortality rates among healthcare practitioners similar to those in Liberia [88]. Treatment

facilities frequently cared for nearly twice as many patients as they were designed to house. It was a calamity [86].

After numerous premature declarations made by Liberian, Sierra Leonean, and Guinean health authorities, the EVD epidemic was officially declared over in June 2016 [85-87]. In total, 28 600 cases and 11 325 deaths were recorded – mere fractions of the actual tallies; poor surveillance and diagnostic capabilities, limited access to treatment facilities, and resistance to foreign institutionalized biomedical care likely masked a significant proportion of the data on suspected, confirmed, and fatal cases of EVD.

The Initiation, Proliferation, and Circulation of EBOV

In 2005, an article published in *Nature* was the first to provide definitive evidence of EBOV in fruit bats [89]. Though zoonotic spillover events have been recorded from fruit bats, chimpanzees, and forest antelope, fruit bats are generally identified as posing the highest risk to human populations because they are asymptotic carriers [20]. Other mammals for whom EBOV has adapted are symptomatic carriers and large proportions of their populations die from the disease, reducing the risk of a crossover event. Upwards of 98 percent of some great ape populations in Gabon and the DRC, for example, have perished from EVD. As a reservoir species, fruit bat consumption has been identified as the initial cause of many EVD epidemics [90]. Generally, one animal-to-human transmission event is associated with the index case, from whom the diseases begins to circulate human-to-human through blood, body fluid, and skin contact [91, 92]. Genomic surveillance from the West African outbreak supports a single crossover event, denoting the relative rarity of interspecies transmission of EBOV.

According to public health authorities, there were three major barriers to prevention and control that exacerbated the proliferation and circulation of EBOV during the West African outbreak: consumption of bushmeat, traditional burial practices, and low medical literacy levels [17, 84, 93-98]. Thus, prevention paradigms implemented by Western public health organizations, namely the WHO, centered on overcoming these obstacles. Once implemented, it became eminently clear that the interventions "[cultivated] community silence, [drove] activity underground, and further [risked] jeopardizing surveillance efforts and acceptable, evidence-based preventative strategies for zoonotic disease transmission" [97].

One of the first prevention interventions implemented during the West African epidemic was the Bushmeat Ban [97-99]. Early on, there was speculation as to which infected mammal species was responsible for triggering the epidemic and whether or not convergent crossover events were continuing to occur and contributing to case numbers [99]. Therefore, a comprehensive ban was placed on the hunting, sale, and consumption of all wild meat. However, within months, genomic tracing linked the index case of the West African epidemic to consumption of wild fruit bat and provided data to support that this was the only animal-to-human crossover episode in the entirety of the epidemic up to that point, rendering the Bushmeat Ban futile [91, 92, 97]. Nonetheless, the mandate remained in place for months to come, contributing to the already high prevalence of severe food insecurity in the region [97, 100, 101].

Traditional burial practices were also identified as a driver of EVD circulation, as West African funeral rites often involve washing the deceased body by hand, which can lead to EBOV transmission via body fluid intermixing and skin-to-skin contact [17, 93, 94]. Thus, public health shifted its focus from the Bushmeat Ban, still in operation, to standardizing and enforcing sanitary burials through the Safe and Dignified Burials Initiative [95, 102]. Cremation was

recommended as the safest means of corpse disposal by public health authorities and was instituted by the Liberian government as a mandatory procedure for all bodies deceased from EVD [95]. In Sierra Leone and Guinea, cremation was preferred, but alternatively, the body could be disinfected with a chlorine solution, double body-bagged, and immediately buried. Neither process incorporated traditional burial practices to any degree, and many were performed without any communication to the family about the status or location of burial of the deceased individual. Psychological distress stemmed from restrictions placed on these customs, and many continued to participate in traditional burial practices long after advisories were placed against them [17]. Enforcement of sanitary burials precipitated violent and sometimes fatal resistance from those who sought to maintain autonomy over their families' deaths. The WHO estimates that 60 percent of EVD case in Guinea and 80 percent of EVD cases in Sierra Leone during the West African outbreak could be traced back to participation in the burial of a person with confirmed EBOV [84].

In addition to the Bushmeat Ban and Safe and Dignified Burials Initiative, an educational aspect was introduced to correct misinformation about EVD through various media campaigns [17, 96]. Grotesque images and the reoccurring memos that read "EVD kills everyone" and "there is no cure" worsened fears that had already taken hold. The approach to educational messaging "[discouraged] adaption, [prohibited] engagement with local social realities, and [ignored] how people [would] interpret public health messages" [96] in the context that they were delivered.

Case Study 2: 2018 to 2020 Democratic Republic of the Congo Ebola Virus Disease Epidemic

In July 2018, 26 cases of acute hemorrhagic fever were diagnosed in the North Kivu province on the eastern border of the DRC [103]. Of those, 20 died (77 percent mortality rate). Blood sampling revealed EBOV to be the causative agent and confirmed that the outbreak was unrelated to any previous or ongoing, indicating that the disease once again crossed over from animal to human. Soon after, cases were recorded in the Ituri and South Kivu provinces. On August 1, the DRC Ministry of Health officially declared the outbreak, marking it the tenth on record in DRC history; the ninth had occurred in the Équateur province and ended only eight days prior. The following year, as EVD spread to Goma, the populous capital of North Kivu, and across the border into Uganda, the WHO declared the outbreak a PHEIC. The epidemic raged on until July 25, 2020, at which point 3 481 cases and 2 299 deaths (66 percent mortality rate) were recorded, the second largest EVD epidemic in documented history.

On October 12, 2018, the DRC government press deviated from their usual mechanistic and desensitized recount of case numbers and fatalities [104]. Within days, newspapers across the globe were detailing accounts of what was articulately described by one journalist to be "a vivid glimpse of a tumultuous, high stakes drama that is playing out almost daily" [104] – a "drama" that had, until then, been overlooked to a fault [104-107].

Two days prior, EVD response efforts were informally suspended in Beni, North Kivu [104-107]. A woman with confirmed EVD had died, one of ninety people victimized by the disease since the epidemic was officially declared in August. After pleading with WHO affiliates for active involvement in the Safe and Dignified burial of their matriarch, family of the deceased woman were granted the "privilege" of driving the hearse and carrying the casket to the official, WHO-approved burial plot – so long as they donned the appropriate personal protective

equipment (PPE). The hearse was to be accompanied by a police vehicle for safety and accountability purposes.

Well into the journey, the hearse operator veered off course and barreled towards the family cemetery, police in tow [104-107]. Violence erupted between local residents and law enforcement, the latter of whom soon recoiled and fled the scene, outnumbered. Despite their seeming victory, the family – supposedly wracked with guilt – decided to return the body to the WHO and forsake their mission. The original plan was thus readopted and executed, and the burial was conducted at the authorized location.

This story of moral fortitude – one that displays the indomitability of Western authority and government rule, even in the face of supposed triumph – is perhaps too good to be true. Western authorities and the DRC government alike benefitted from such a narrative and so it is impossible to gage the protagonists' true motives for abandoning post. However, it is clear the lengths that the Congolese were willing to go to in order to integrate even a degree of normalcy and tradition into the funeral rites of their loved ones.

Community resistances climaxed on November 28, 2019 when four WHO employees in Beni were executed by unidentified rebels [108, 109]. This constituted the deadliest attack on record against foreign aid workers during the epidemic. In response, WHO chief Tedros Adhanom Ghebreyesus stated that "our worst fears have been realized" [108], leaving unacknowledged the over 2 100 Beni locals who had perished due to EVD during the then-current epidemic and the 1 500 killed by a single rebel group in the preceding four years. The locals faced no reprieve in the aftermath of the attacks following a WHO announcement that detailed a complete cessation of EVD response for the undisclosed future, against the advice of

public health experts. This suspension in aid involved a 100 percent halt in vaccination and an almost immediate, drastic reduction in contact tracing.

History of the DRC

The DRC is the second largest country by land mass in Africa and houses over half of the continent's water reserves [110, 111]. The population over the past few years has fluctuated around 80 million, including roughly 4.1 million internally displaced persons and 500 000 refugees [100, 112]. The DRC ranks within the bottom fifteen countries in the world for the Human Development Index (0.457) and within the bottom three countries in the world for progress towards the Sustainable Development Goals [113, 114]. In 2012, upwards of three quarters of the population lived in extreme poverty, and today, roughly the same proportion have no access to clean water [112, 115]. The U5MR is 91 per 1 000 live births, and the DRC carries 12 percent of the global burden of severe acute malnutrition in children [100, 101].

Conflict pervades the social, political, and economic spheres in the DRC [116-120]. Dubbed "Africa's Great War," North and South Kivu remain a battle ground for multiple African countries, each fighting to install a government in Kinshasa that is "sympathetic to their own interests" [117]. The literature identifies three significant drivers of this ongoing conflict: spillover from the Rwandan and Burundian Genocides, ethnic tensions, and resource conflict [116-120]. While scholars dispute over which motivator takes precedence, all undoubtedly contribute in some capacity to the situation in the DRC that has resulted in, among other consequences, weakened healthcare systems and institutions [120]. Limited access to care, faltering water and sanitation infrastructure, rampant corruption, and massive population displacement have together encouraged the proliferation of (re-)emerging infectious diseases,

which now comprise five of the top ten causes of death in the country [121, 122]. An overview of the history of conflict in the DRC is therefore imperative to understanding the conditions that facilitated the spread of EBOV through the population.

In 1994, the Rwandan genocide led to the mass immigration of millions of Rwandan citizens to eastern DRC [118, 120]. Tensions between two ethnic groups, the Hutus and the Tutsis, had been brewing for decades prior, and initial conflict in the 1994 led to a short-lived Hutu regime in Rwanda [123]. By 1996, however, a new Tutsi government backed by the Rwandan Patriotic Front (RPF; a Tutsi resistance army) reclaimed power, resulting in a flood of Hutu refugees to Goma and North and South Kivu [118, 123]. Among these refugees were the Hutu *génocidaires*: defeated militia groups including the Rwandan Armed Forces (FAR) who had previously held office in Rwanda before they were overthrown by the RPF [120, 123]. Ex-FAR members capitalized on the weak governance of eastern DRC by the Congolese and quickly seized control of the region and its refugees [123]. Soon after, epidemics of a number of communicable diseases emerged, ravaging the camps, especially in Goma, where 12 000 Rwandan refugees died of cholera in the span of three weeks [122, 123]. Aid workers were barred access by the militias, and tens of thousands died due to a total lack of healthcare infrastructure.

The First Congo War climaxed in 1997 when dictator Mobutu Sese Seko of the DRC was overthrown in Kinshasa by the RPF and the Alliance of Democratic Forces for the Liberation of the Congo (ADFL) [118, 120, 123]. The RPF and the ADFL were displeased by his apparent support of the ex-FAR militia in the east [123]. Laurent Kabila, leader of the ADFL, came into power and in 1998 ordered the removal of all Rwandan and Ugandan forces from the DRC. The RPF and Ugandan forces, who had aided Kabila's seizure of power, were taken aback by this

demand and hesitant to retreat. Kabila then aligned himself with the Democratic Forces for the Liberation of Rwanda (FDLR), a rebel group situated in the eastern DRC and opposing the RPF, in an attempt to force them out of the country. This instigated the Second Congo War, where the DRC, backed by Angola and Zimbabwe, fought to remove Rwandan and Ugandan rebels from the eastern regions [117, 118, 120, 123]. Rwanda and Uganda, in turn, fought back. Over a four-year period of sustained fighting, CDC survey data estimated the crude mortality rate in the DRC to be the highest in the world, with nearly 60 percent of deaths caused by preventable infectious diseases [124]. In 2002, the Sun City Agreement, the Pretoria Accord between Rwanda and the DRC, and the Luanda Agreement between Uganda and the DRC ended the war [118-120]. A transitional government came into power in 2003, followed by five years of relative peace [118, 120].

A number of sources estimate that the untapped mineral reserves in the DRC are worth upwards of USD24 trillion [120, 125]. Control of these resource is thus a primary concern of militia groups and the DRC government alike. A proportion of conflict in the DRC is driven by competition for resource control alone, but militia groups also capitalize on resources in order to fund conflicts motivated by other factors [120]. In 2010, the US instituted legislation requiring companies, under certain circumstances, to disclose the use of "conflict minerals" in their products [120, 126]. The Dodd-Frank Act included a section that addressed concerns over the purchase of conflict minerals from the DRC [126]. The US government feared that these transactions were indirectly funding militias groups and helping to sustain the conflict in the region. As a result, many multinational corporations simply dissolved trade deals with the DRC, precipitating a massive upsurge in unemployment in the mining sector, forcing many young adults into rebel groups [120].

"Poor governance, weak institutions, and rampant corruption" are pinpointed as major internal forces facilitating ongoing conflict in the DRC [120]. Externally, naïve and counterproductive international policy is also to blame [126]. It is pivotal to analyze the context in which EBOV flourished, and to recognize that "Ebola kills, but the rebels kill more" [127]. In terms of infectious diseases as a whole, however, the WHO estimates that 98 percent of the roughly 1 000 conflict-driven deaths per day in the DRC can be attributed to preventable infectious diseases [128].

On July 28, 2018, the DRC Ministry of Health reported 26 cases of acute hemorrhagic fever in North Kivu to the WHO, 20 of which were fatal (77 percent mortality rate) [129]. A handful of probable cases had been identified from May 2018 onward, but it is unclear whether or not they prompted reporting. Laboratory testing conducted on August 1 at the Institut National de Recherche Biomédicale in Kinshasa confirmed the presences of EBOV in a number of blood samples and indicated that the outbreak was unrelated to that which had occurred in the Équateur province earlier that year. On the same day, the DRC Ministry of Health officially declared the outbreak. By August 5, at least one healthcare worker had died of EVD alongside 33 probable or confirmed EVD patients.

Immediately, locals and international aid agencies were aware of the precarity of an EVD outbreak in North Kivu [129]. Unlike Équateur, North Kivu was an active combat zone and housed roughly 6.4 million more inhabitants (the population of Équateur is approximately 1.6 million while that of North Kivu is upwards of 8 million). Furthermore, North Kivu is strategically (for the virus, that is) positioned between four other DRC provinces (Ituri, South Kivu, Maniema, and Tshopo), as well as Uganda and Rwanda. By 2018, the ongoing conflict had rendered one million North Kivu inhabitants internally displaced and precipitated massive

migrations of refugees into neighbouring Uganda and Rwanda. It is no surprise, then, that EBOV crossed over the border into Uganda within the year in a five-year-old boy returning from his grandfather's funeral [130]. The family immediately sought treatment at Kagando Hospital and were swiftly referred to the Bwera ETU where the boy, his grandmother, and his younger brother were diagnosed with EVD. The boy and his grandmother passed away within days.

Officially, Rwanda remained EVD-free throughout the entirety of the 2018-20 DRC epidemic [28]. In fact, at the time of writing, Rwanda has never reported a case of EVD within its borders. In July-August 2019, the first cases were recorded in Goma, the capital city of North Kivu on the southeastern cusp of the province, within walking distance of the Rwandan border and housing an international airport. Estimates suggest that approximately 90 000 people legally cross the border between the DRC and Rwanda each day, over half of whom cross at the *Petit Barrière*, which connects Goma, DRC and Gisenyi, Rwanda [131]. It is not uncommon for Congolese people to enter Rwanda seeking healthcare services, as Rwanda has universal health insurance; regulated healthcare facilities, including two ETUs; and impressive childhood vaccination rates.

Based on the many news articles that followed the outbreak in Goma, confusion abounded surrounding whether or not the Rwandan Ministry of Health was implementing a preventative border closure in response to the ever-encroaching EVD cases [132-134]. It appears as though the State Minister of Foreign Affairs, Olivier Nduhungirehe, announced the border closure on behalf of the Rwandan government, who swiftly substantiated his claims [135]. However, soon after, Rwanda's Health Minister denied the border closure entirely. Upon news of the likely possibility that EVD was soon to cross the border into virgin territory, the WHO

declared the outbreak a PHEIC [136]. At that point, over 1 800 EVD deaths had occurred in the DRC and Uganda [135].

The outbreak ended on June 25, 2020, nearly two years after it was declared by the DRC Ministry of Health [32]. Contact tracing was extensive and over 300 000 people were vaccinated against EVD, but still the fatality rate for reported cases sat just below 70 percent, with nearly 2 300 deaths on record.

The Initiation, Proliferation, and Circulation of EBOV

In many ways, the EVD epidemic response ran much smoother in the DRC than in West Africa. The DRC had an experimental vaccine and experimental treatments that were administered throughout the epidemic under compassionate use [15, 22]. Perhaps more importantly, they had experience. In the past forty years, the DRC had recorded nine other EVD outbreaks [33, 137]. Hospital staff were trained in EVD prevention and control and major hospitals housed isolation wards, albeit ones that were basic and underequipped [138]. After the West African epidemic drew international attention, the DRC had access to a comprehensive body of literature on lessons learned from the failings of their public health response on the part of internal and external actors [139]. Further, MSF and the WHO were presumably on a quest to improve their reputation after the unacceptably high case fatalities in Liberia, Sierra Leone, and Guinea, that were attributed in part to their slow and uninspiring role in prevention and control.

Despite notable improvements in prevention and clinical care, EBOV flourished due in part to rampant noncompliance with public health orders among the community; high rates of nosocomial infection (25 percent of reported EVD cases); and aversion to ETUs, which contributed to the 40 percent of EVD deaths that occurred at home [139, 140]. Whereas the nations most afflicted by the West African outbreak were on the mend from civil war, armed

conflict in the region was ongoing throughout the DRC epidemic [139]. Attacks on endemic regions, such as the ADF attack on Beni in October 2018, brought prevention efforts to an immediate standstill, granting irreconcilable advancements to EBOV [141].

There was not a Bushmeat Ban in effect in the DRC, but residual fear of wildlife from the ban during the West African epidemic lingered [140]. Educational messaging falsely implicated the consumption of bushmeat as a key driver of the epidemic, which further aggravated ethnic tensions in the DRC, where the Bambuti, a Pygmy hunter-gatherer tribe, were targeted for their lifestyle that revolved around hunting, selling, and consuming bushmeat.

Burials remained the number one mode of transmission in the DRC, despite the same WHO Safe and Dignified Burials Initiative in effect as was implemented in the West African outbreak [142]. Community resistance to burials escalated in certain cases, resulting in fear, morbidity, and a handful of deaths [143].

Analysis

According to James M. Shultz and colleagues, there are three core elements driving the initiation, proliferation, and circulation of an infectious disease during an epidemic: i) settings that facilitate networks of contact between people, ii) behaviours and practices that facilitate transmission, and iii) "a larger enabling social and societal environment" [17]. Significant emphasis was placed on the second element in the EVD response. Behaviours were commonly labelled as "barriers to be overcome," and the message that "tradition kills" was broadcast in prevention propaganda [96]. Efforts to correct misinformation in order to induce behavioural change were many, and there was an apparent lack of "any genuine engagement in the material, social, or spiritual implications of changing social practices" [96]. Prevention interventions used standardized approaches and took on "an inflexible stance in negotiating" [96] with local

customs and beliefs, ultimately blaming “immutable traditions” [96] for their destined failure [95, 96].

Behaviours and practices that facilitate transmission appear to be easily changeable. It is common and even expected for people to alter their day-to-day conduct during crises such as war or disease outbreak. In the words of anthropologist Mary H. Moran: MSF, the CDC, and the WHO “agreed that in the face of a global public health emergency, local sensibilities should clearly be subordinated to biomedical expertise” [95]. However, more often than not, people are either unwilling or unable to change due to their “larger enabling social and societal environment” [17]. This is often overlooked, as philosopher of science William Wimsatt discusses, because scientists are “primarily interested in the entities and relations internal to the system of study” [144], in this case, the physical body. Such a narrow boundary of study fails to take into account confounding variables that exist outside of the body but affect its inner workings. That is why, while EBOV is a disease of the body [145], critical medical anthropologists argue that bodies do not exist as “islands unto themselves” [146]. Rather, they are situated within their respective historical, political, economic, ecological, and sociocultural contexts; bodies have both a social and physical reality, and diseases of the body must be analyzed accordingly [147]. Microlevel approaches to the analysis of disease are reductive because they isolate bodies from the macrolevel forces operating on them. In doing so, those who identify microlevel factors as an isolated cause of disease initiation, proliferation, and circulation inadvertently adopt a “blame the victim” mentality that places an “impossible and unfair burden” on individuals [146]. Anthropologist Paul Farmer refers to the tendency to adopt such a mentality as “the ‘American flaw’” [148].

The body is not the only poorly defined entity in disease discourse. In the biomedical and public health literature, the notion of culture has been frequently "co-opted to serve oppressive ends" [149] by researchers using "culture" to define high-risk behaviours practiced by identified groups of people [145, 146, 148]. This occurs because the notion of culture is complex, polysemic, and employed differently depending on the context [145]. "Culture" thus carries different connotations within and between disciplines, necessitating a degree of self-reflexivity when employing the term that seldom appears to occur in practice. During the EVD response, policy failure was blamed on people's unwillingness to change their behaviour. Implicit in this statement is the notion that people have ultimate freewill. Such a conception labels macrolevel force as those over which people have "individual autonomy" [146]. Indeed, the "Western mind" revolves around individualism – "the idea of the self as separate from the social environment" [150]. Elaborated on by anthropologist Clifford Geertz, Western individualism is "a dynamic center of awareness, emotion, judgement, and action organized into a distinctive whole and set contrastively both against other such wholes and against a social and natural background" [151]. It leads to a "politics of blaming the poor [and vulnerable that] fosters a downward cycle of impoverishment, stigmatization and despair" [152]. Within the context of Western individualism, it makes sense how "culture" could have been reduced to mere behaviour by Western biomedical and public health authorities; as I will argue, it also illuminates the exact reason why that approach failed.

My analysis of the EVD response during the West African and DRC EVD epidemics will consist of three sections paralleling the three elements that drive the initiation, proliferation, and circulation of infectious disease epidemics described by Shultz et al. [17]. First, I will discuss the historico-political, economic, and sociocultural context that facilitated connections between

people in Liberia, Sierra Leone, and Guinea during the West African epidemic. I will then examine the behaviours and practices both shared and divergent between the West African and DRC epidemics that encouraged the success of EBOV. Finally, I will explore how overlooked macrolevel forces – moving beyond Shultz et al.'s "social and societal environment" [17] to include the historico-political, economic, and sociocultural context – resulted in inadequate EVD responses in West Africa and the DRC before aid even came to fruition.

Element I: Settings that Facilitate Networks of Contact Between People

In public health discourse, infectious diseases are usually discussed in terms of prevention and control; take for instance the name of the CDC, the Centers for Disease *Control* and *Prevention*. In general, prevention involves promoting individual and community level immunity pharmacologically, usually with vaccines, and through behavioural change. Control involves containment of the disease through quarantine and isolation. While this model may seem intuitive to supressing an outbreak by intervening in settings that facilitate networks of contact between people, it is inherently inhumane to those already afflicted by the disease because it draws the focus away from care.

A prevailing theme throughout Farmer's recent treatise on EVD in West Africa, *Fevers, Feuds, and Diamonds: Ebola and the Ravages of History*, is the control-over-care paradigm implemented during the West African EVD epidemic [24]. Working as a physician in Sierra Leone when the disease struck, Farmer soon realized that "the primary purpose of the ETU was isolation, rather than treatment… There was too little *T* in the ETU" [24]. While no cure existed for EVD at the time, Farmer describes the ease by which supportive treatment could have been administered – treatment that had been conceived over a century prior and administered to EVD victims in the US and other countries outside of Africa. He notes that blood samples were used to

diagnose EVD but not to determine who needed care; the protocol was based on diagnosing and isolating, rather than diagnosing and treating.

In the DRC, attacks on ETUs led to near-complete cessations of aid, including halts in contact tracing, vaccination, and treatment [108, 109, 153]. While some later attacks were fatal, many were nonviolent and involved only property destruction. What is most disconcerting about the cessation of aid following rebel attacks on Western-affiliated medical personnel is that they took with them available vaccines and treatments. Rather than leaving these medicines with capable local healthcare practitioners, doses were withheld until aid personnel were reinstated at their posts. Still, EVD patients were expected to continue to isolate.

Settings that facilitate networks of contact between people are a primary target of public health initiatives in the control-over-care model. Here, I will discuss two such settings: porous national borders and increased transportation from rural to urban areas. Attitudes towards the former were overwhelmingly negative, and it was heavily targeted by Western aid interventions. The latter was thought to be positive, and its negative mediation effects were largely overlooked.

Porous Borders

In the renowned piece "The Mindful Body: A Prolegomenon to Future Work in Medical Anthropology," pioneering cultural anthropologists Nancy Scheper-Hughes and Margaret M. Lock discuss the three bodies: the individual body, the social body, and the body politic [154]. All three are delineated by borders, whether physically or symbolically (usually both), which become increasingly scrutinized and rigid when under threat of infiltration by a foreign entity such as an infectious disease. Here, I will talk mostly about the physical borders used to demarcate the body politic of the many nations involved in the West African and DRC EVD

epidemics. According to Scheper-Hughes and Lock, “the stability of the body politic rests on its ability to regulate populations (the social body) *and* to discipline individual bodies”; such is the approach usually employed by authorities attempting to quell, in this case, EBOV.

Porous borders were identified in the context of the West African EVD epidemic, especially, as facilitating networks of contact between people [80, 155-157]. The CDC and the WHO played a substantial role in dictating which borders were to close during the West African and DRC EVD epidemics, in service of protecting their own body politic. During the West African outbreak, the CDC began erecting major screening ports in afflicted African countries’ international airports [157]. According to the CDC, this was done to protect neighbouring African nations after Nigeria recorded their first EVD case (carried into the country by plane). They did not acknowledge that this move came almost immediately after the first case of EVD in the US. Further, going against public health recommendations, the CDC chose to execute exit screening, rather than entrance screening. Over the two-year period they operated, the CDC screened approximately 300 000 travellers and detected zero cases. They justify the intervention by stating that it encouraged airlines to continue to land in the afflicted countries, which is necessary for flow of commercial goods and response personnel.

In terms of land border crossings, the CDC deemed the discrepancy between the physical and social boundaries of the nations an insurmountable obstacle to comprehensive border screening, as was performed in airports [157]. While there is little information surrounding the number of individuals travelling between Guinea, Liberia, and Sierra Leone each day, based on the available data about land border crossing in other sub-Saharan African nations and the per capita income levels that prohibited flying for most inhabitants, it can be reasonably inferred that it is dramatically higher than that of air border crossing. Land travellers brought EVD from

Guinea to Liberia, Sierra Leone, Mali, and Senegal, but the outbreaks in the latter two nations were almost immediately controlled and extinguished. This parallels the outbreaks brought by air to Nigeria, Italy, Spain, the US, and the UK, where little more than a handful of cases were reported. Perhaps the failure of the airport exit screening campaign to detect a single case of EVD and the fact that land border crossing posed little risk when the traveller crossed into a country other than Liberia, Sierra Leone, and Guinea should have alerted the CDC to the unnecessary nature of their border security interventions. Likewise, it should have illuminated to the CDC that they had yet to discover the confounding variables that would actually slow the spread of EVD in the countries that needed it most.

In the DRC, the CDC took much the same approach as in West Africa [156]. An anthropological study into the political economy shaping lived experiences along the DRC-Uganda border during the EVD epidemic found that economic dependency on cross-border travel and mistrust of authority in border regions tended to overshadow travel advisories [158]. With few formal employment opportunities, many relied on informal work that hinged on frequently crossing the border. Further, in Uganda, populations along the border were frequently identified by British colonial authorities as belonging to an inferior caste. The legacies of their marginalization resulted in structural violence that persists today, rendering many of those individuals deeply mistrustful of authority. Ultimately, these political dynamics reduced compliance with public health orders on the peripheries of the country and increased the likelihood of cross-border transmission of EVD.

The focus on border control by Western aid entities, especially, again demonstrates what Farmer refers to in *Fevers, Feuds, and Diamonds* as a focus on control over care. Conducting exit screening rather than entrance screening or, better yet, anything remotely useful to those

inhabiting the countries battling EBOV rather than those outside of it, was a self-preserving and effectively useless employment of Western aid. The flow of people, first restricted by arbitrarily drawn borders during the colonial era, became controlled by foreign public health authorities at every major point of entry. Individuals whose livelihoods depended on cross-border travel faced even greater barriers to economic security than were already imposed by conducting informal work.

Increased Transportation and Centralized Healthcare Systems

In the seminal global public health article "Too far to walk: Maternal mortality in context," Sereen Thaddeus and Deborah Maine describe the major barriers to attaining quality healthcare in low- to middle-income countries (LMICs) [159]. Such barriers revolve around the three types of delays, as identified by Thaddeus and Maine, that lead to poor outcomes for, in their case study, pregnant mothers. These include delays in the decision to seek care, delays in arriving at healthcare facilities, and delays in receiving quality care at said healthcare facilities. "Too far to walk" encouraged global public health specialists to focus on, among other things, improving transportation from rural areas to primary healthcare facilities and bolstering the quality and rate of delivery of healthcare services in those facilities.

In Guinea, the influx of refugees during the Liberian and Sierra Leonean Civil Wars drew Western aid that was put towards improving transportation infrastructure, which likewise improved access to healthcare facilities [78]. At the same time, aid was used to strengthen the Guinean healthcare system, especially in regions with large numbers of refugees, to support the rapid increase in catchment populations. Similar to post-colonial governments erected through foreign intervention, this approach led to an overly centralized healthcare system.

The over-centralization of healthcare led to two major issues: i) individuals, especially those from remote areas, were mistrustful of the far-away, foreign ETUs, and hesitant to report suspected cases of EVD; and ii) those who did report had to travel long distances, potentially infecting many along the way, and usually bringing EVD into densely populated areas where the ETUs were located. The latter issue was likely a significant driver of the proliferation and circulation of EBOV, considering past outbreaks were generally confined to rural areas surrounding the index case [84]. Overall, the increase in transportation that was facilitated by Western aid interventions and necessary to accommodate the over-centralized healthcare system, also largely a product of Western aid, promoted the transmission of EBOV, rather than slowing it.

Six months into the epidemic, Sierra Leone adopted a more decentralized approach that consisted of erecting a number of Community Care Centres (CCCs) in rural areas [160]. These CCCs isolated individuals with suspected EVD while awaiting definitive laboratory results. Positive cases were then transported to ETUs if specialized care was needed. One study found that the CCCs were "more compatible with community values" [160]; generally, they were operated by local healthcare practitioners and the inner proceedings were more transparent to onlookers. The authors of the study noted that "accessibility [to care] is not to be measured in miles by ambulance but in terms of the logistical challenges" [160], which often centered on families' desires to be actively involved in the caregiving process by providing food and, in fatal cases, participating in the burial process. This approach balanced the need for rural facilities and decentralization with the limited resources that hindered erection of ETUs in remote areas. Had this approach been adopted earlier and in all three countries of the Mano region, it is possible and even likely that EBOV would have been contained earlier. To my knowledge, no such

decentralized approach was implemented in the DRC despite the promising findings associated with Sierra Leone's CCCs. As well, ETU erection and subsequent access to ETUs was limited by conflict in the area.

Element II: Behaviours and Practices that Facilitate Transmission

As previously stated, behaviours and practices that facilitated transmission of EBOV were the primary targets of most public health interventions during the West African and the DRC EVD epidemics. "Resistance" became the choice term for continued participation in any and all "high-risk" behaviours. However, anthropologists Annie Wilkinson and James Fairhead argue that intentional acts of resistance were few and far between compared to hesitation and noncompliance based on valid concerns about the EVD response [161]. Here, I aim to foreground the validity of those concerns to depict why targeting identified "high-risk" behaviours was short-sighted, ineffective, and counterproductive.

Non-Compliance with the Bushmeat Ban

Liberia, Sierra Leone, Guinea, and the DRC together carry an unacceptably high proportion of the world's moderate and severe acute malnutrition [97, 100, 101]. According to one study, meal frequency during the epidemic in West Africa decreased across all income and educational levels [162]. Likewise, the Global Hunger Index categorized the DRC as "alarming" during the epidemic, the lowest designation in terms of food security [163]. Alternatives food sources to bushmeat were reduced both by the epidemics and, in the DRC, by the conflict, resulting in an increase in price [162]. Dwindling supply can be attributed to labour shortages, quarantining requirements, and border closures in areas afflicted by EVD and conflict, which ultimately

reduced agricultural production and trade. Since moving underground, and without competition from urban centres and cross-border merchants, the price of bushmeat increased, as well.

In regions with high numbers of refugees and IDPs such as Guinea and the DRC, as discussed earlier, Western aid agencies frequently failed to deliver on their promise of food provisions for members of large refugee and IDP camps [75, 76]. It became increasingly clear to those shorted of their nutritional supplements that they fared better on their own. When transitioned to a more self-sufficient post by the camps, refugees and IDPs were often given unharvestable lands that yielded few foodstuffs. With little to eat and even less to sell, it is understandable why many may have turned to hunting, consuming, and selling bushmeat.

In general, hunting, consuming, and selling bushmeat is more prevalent among rural populations [97]. This is relevant because crossover events in the past have tended to occur in rural settings, hence the association between bushmeat and infectious disease outbreaks. However, preliminary findings suggest rural populations may in fact be more susceptible to contracting EBOV, implying that there may be a confounding variable at play [26]. This, coupled with the fact that crossover events tend to occur only once in infectious disease outbreaks and can occur from something as seemingly benign as eating fruit that a bat or other infected animal has bitten or salivated on, strongly supports the elimination of bushmeat bans for future epidemics [24, 91].

Non-Compliance with the Safe and Dignified Burials Initiative

According to philosopher and death historian Philippe Ariès and many researchers to follow, in the West, death and dying have become increasingly medicalized and commodified [164-166]. The realities of dying are frequently denied until death, which occurs within dedicated

institutions, "[removing] from view all the gruesome sights, smells, and sounds" [166] – the "nauseating spectacle" [164] – of death. Eloquently put by mortician Caitlin Doughty, "the hospital [has become] a place where the dying [can] undergo the indignities of death without offending the sensibilities of the living" [166].

If an EVD epidemic were to occur in the West, it is likely that the Safe and Dignified Burials Initiative would face little resistance. I argue this for two reasons: i) the care of the dying and the dead is largely professionalized between physicians, nurses, and other healthcare practitioners, as well as morticians and funeral directors, respectively; and ii) death is both feared and denied in Western society [164-166]. Likewise, if an analogous crisis situation in the West resulted in a public health order that forced individuals to independently prepare and bury their dead, it is likely that emotional distress and resultant noncompliance would ensue.

In much of the non-Western world, death does not occur behind closed doors. In West Africa and the DRC, the common practices of washing, touching, and kissing the corpse of an EVD victim were labelled by Western public health authorities as "exotic," "mystifying," and "superstitious" [95]. The overall funeral rite was contemptuously branded as a ritual, rather than as an understandable "[aspect] of bereavement and grieving" [95]. While cultural anthropologists might argue that those are not mutually exclusive, Western employment of the word ritual usually aligns it with primitivism and magicality rather than rationality and purpose [167]. Analogous Western practices that occurred pre-professionalization of the care of the dead were seldom acknowledged. It is no wonder, in a context where attitudes towards death differ so greatly, that resistance occurred.

Rejection of Biomedical Truths

Studies have shown that biomedical education is "insufficient to induce behavioural changes" [96]. During infectious disease epidemics, people's priorities often do not align with the lowest risk course of action. What occurs in this case is what anthropologist Lenore Manderson refers to as "competing knowledge and value systems" [168]. It is not so much that people do not understand the epidemiological risks associated with their actions, as is often assumed by public health specialists. In fact, one study on knowledge, attitudes, and practices around EVD during the DRC epidemic found that knowledge of modes of transmission was high and misconceptions were low [127]. Problems occur when knowledge of risk runs contrary to values and/or priorities, the latter of which usually takes precedence. Explicitly put, "although many people [understand] key aspects of transmission, some people [still engage] in high-risk behaviours" [127].

To some degree, anthropologists were involved on the ground during the EVD response for both the West African and DRC epidemics [95, 169, 170]. However, their participation, whether because they were contracted to take a reductionist approach, or because their findings were inappropriately excised from their context or ignored altogether, appeared to accomplish little other than to identify areas as targets for educational campaigns. Critical anthropologist Byron J. Good critiques applied medical anthropologists involved in public health response teams for their tendency to conform to the Western ideal that places traditional knowledge as inferior to biomedical knowledge [171]. In reference to Good's work, Manderson states that while many anthropologists may be aware of effective nonbiomedical means of diagnosing and treating disease, "the pragmatic position which most anthropologists adopt is to facilitate access to known, effective interventions" [168]. Unfortunately, to facilitate physical access is redundant

if the people for whom you are facilitating said access choose not to make use of it, as seemed to be the case in West Africa and the DRC, where educational messaging accomplished little in terms of altering behaviour.

Fear-Related Behaviours

In a review of the role that fear-related behaviours played in the West African epidemic, Shultz and colleagues determined that fear increased the speed at which EVD spread; reduced the use of potentially life-saving supportive treatment; reduced the use of life-saving medication for treatable conditions like malaria, tuberculosis, and HIV; increased the prevalence of psychiatric disorders; and intensified the stigma around EVD [17]. Fear-related behaviours were not targeted by public health interventions. In fact, more often than not, they were exacerbated by the EVD response, from fear-inducing educational campaigns to an influx of foreign authority figures in biosafety level 4 personal protective equipment. Franklin Obeng-Odoom and Matthew Bockarie describe how "panic arises from risk but more importantly from the technical and scientific response to risk" [172], and since panic leads to risk, as Shultz et al. demonstrate, what results is a vicious cycle of, ultimately, disease transmission.

Fear responses to infectious diseases can be protective, and as such, irrationality was not at the basis of these fears – they were "understandable, reality based, and almost universal" [17]. The disease symptoms of EVD, especially its staple hemorrhagic presentations, induced fear in both victims who became immediately aware of their "precarious existence" [17], and those witnessing the horrifying manifestations of the disease in others. The stark contrast between traditional healing centers and the newly erected ETUs generated panic among locals, whose usual healing practices were quickly labelled as "deadly Ebola risk behaviours" [17]. Families

were barred from visiting members in the ETUs and from retrieving their bodies post-mortem. Fear of the ETUs also stemmed from the unacceptably high rates of nosocomial infection during the outbreak; many people who entered with treatable conditions contracted EBOV, and subsequently never left. Rumours of poor-quality care abounded, exacerbating fears that medical professionals staffing the ETUs were intentionally harming or killing the patients. In response, many treated and buried victims of EVD at home, sometimes hiding EBOV-positive family members from the authorities and participating in secret burials in an attempt to avoid the ETUs [17, 95]. This served only to proliferate the spread of the virus.

Element III: An Enabling Macrolevel Environment

The enabling macrolevel environment is frequently overlooked in the West, where the prevailing ideology centers on individualism. The "American Dream" is founded on the myth of a meritocracy, where each individual has equal opportunity to succeed professionally, implying similarly equal access to services such as healthcare – or at least equal opportunity to work to afford such services [173]. On the contrary, structural violence, "social structures – economic, political, legal, religious, and cultural – that stop individuals, groups, and societies from reaching their full potential" [174], plays a determinant role in both professional success and access to healthcare, among other services. There are a number of forces in operation in any given society and at any given time that render certain groups of people subordinate to others, hindering their individual autonomy over their circumstance. During disease outbreaks, this suppression of autonomy is often interpreted as a refusal to follow public health mandates; it is imperative to recognize that, due to structural violence, those "refusing" to comply often have little choice in the matter, at all.

Contemporary Impositions of Colonial Rhetoric

In general, Western aid is contingent on a crisis declaration [175]. That is to say, aid does not manifest, at least substantially, until its purveyors deem a recipient cause worthy; for that to occur, it must be a crisis situation. It follows that those immediately affected by what they deem to be a crisis do not have the privilege of defining it as such – not everyone holds equal influence when it comes to decision-making around aid distribution [176]. Thus, aid becomes "distributed according to disparate donor priorities that [do] not necessarily match priority needs of the health sector" [177].

During the West African EVD epidemic, aid did not materialize until Kent Brantly and Thomas Duncan travelled from Liberia to the US, where they were diagnosed with the disease [175]. In fact, the WHO did not classify the Ebola epidemic as a PHEIC until it emerged on a continent other than Africa [14]. Despite four African countries diagnosing cases of EVD within their borders prior to the PHEIC declaration, it apparently did not constitute an "[event] with a risk of potential international spread or that [required] a coordinated international response" [14] in the eyes of the WHO.

Even the WHO admits that its own EVD response in West Africa was late [178]. By August 8, over 1 770 cases and 950 deaths had been recorded [179]. With considerable morbidity and mortality occurring in three of the five countries afflicted, it is clear that the boat had long sailed on potential international spread. For reference, the 2009 swine flu pandemic was declared a PHEIC on April 25, ten days after the first laboratory confirmed case of Influenza A H1N1 virus in the world [180]. Arguably, the delay in West Africa can be attributed, at least in part, to false perceptions of Africa and black bodies that were developed and sustain throughout the colonial era, the legacies of which persist today.

The Africa-as-a-country narrative emerged in the late 19th century during the Scramble for Africa, when borders were drawn by European colonizers with a complete disregard for the existing divisions (not "finite territories or fixed geographical borders" but " virtual grammars of action encoded in the idiom of kinship" [181]) between the diverse peoples who inhabited the continent [175]. Africans were disregarded, separated, and assimilated into 54 countries, which were to be governed by European rulers or their proxies. Homogeneity among peoples was assumed and the expanse of Africa was reduced to that of a single nation. In the context of disease, this assumption of homogeneity led to the mutually inclusive assumption of ubiquity: all Africans were presumed to carry disease even when only a handful of regions faced disease epidemics at any given time. This resulted in what was earlier described in the context of malaria during British colonial rule in Sierra Leone – a condition of perpetual and incurable disease that was projected onto black bodies. What follows is the implication that "people *over there* (that is, Africans) are *supposed* to get sick and die" [175]. The late PHEIC announcement by the WHO, especially in contrast to the rapid announcement during the 2009 H1N1 pandemic, is arguably linked to both points: i) the WHO viewed Africa not as a vast and diverse continent but rather as a single, homogenous nation – the potential for international spread was therefore not apparent until EVD appeared in the US; and ii) disease-induced morbidity and mortality fit within the WHO's preconceived notions of Africa and black bodies and thus did not demand the level of attention that a "crisis" would have.

When EVD was finally recognized as a crisis by Western actors, the scales tipped far in the opposite direction. EVD began to receive widespread media attention throughout the West that propagated fear and mistrust [182-184]. By 2019, when the EVD outbreak in the DRC graced the pages of media outlets across North America, it became clear that disease severity

was not the sole reason for EVD's infamy. During the DRC EVD epidemic, Measles – a disease for which there is a safe and effective vaccine that provides life-long immunity – killed significantly more Congolese than EVD [185]. However, despite contributing to a great deal more morbidity and mortality in the DRC, measles received considerably less media attention and aid.

The popularity of EVD in Western media and its subsequent ability to draw massive amounts of aid compared to other infectious diseases was not coincidental. Rather, EVD became a Western favourite because it is a racialized disease that contributes to the process of othering of black Africans in Africa and in the diaspora. The disease itself aligns with colonial rhetoric and Western preconceived notions of a disease-ridden Africa and an untouchable, invincible West [186].

Racial othering, or racialization, is a process or framework both born out of and feeding into systems of racism [187]. The process of othering is founded upon the creation of hierarchical distinctions between groups of individuals that culminate in the establishment of an "us" in opposition to a "them." Not only does this effectively distance and stigmatize the Other, it "secures one's own identity… [reinforcing] notions of our own 'normality'" [188]. As psychologist Hélène Joffre eloquently asserts, "identity is forged, at least in part, by a sense of difference from others, and by excluding those whom the individual, and the culture in which the individual is located, associates with undesirable qualities" [187]. Such undesirable qualities, those which the dominant group wishes to distance themselves from, are often invented and projected onto the Other and furthermore labelled as deviant [187, 188]. The Othered group is then marginalized, disempowered, and socially excluded "in the service of identity protection" [187] of the dominant group [187, 188].

Often, the Other is a less powerful group in society to begin with, already identified as "foreign," and the process of othering perpetuates the stigma against them, further relegating Othered individuals to the periphery [187, 188]. The dichotomized "us" and "them" become mutually exclusive and directly opposed to one another, implying that the more negative attributes associated with "them," the more positive a culture perceives themselves; a sort of "defence by way of representation" [187]. In terms of race, specifically, othering becomes synonymous with "racialization": "colonialism's first step to the demonization of the [black] Other" [189]. Steve Martinot articulates the process of racialization as that "through which white society has constructed and co-opted differences in bodily characteristics and made them modes of hierarchical social categorizations" [190].

Under regular circumstances, the Other is perceived to be "mildly threatening, a challenge to the core values of society" [175, 187]. In times of crisis, however, when individuals perceive themselves to lack control, they tend to scapegoat the Other, who subsequently becomes labelled as "the [purveyor] of chaos" [187]. According to Joffre, anxieties associated with mass crises rapidly morph into paranoia, exacerbating the process of othering and deflecting blame onto the Othered. The implications of this are grave: not only does othering affect community and sovereignty [188], in times of crisis, such as an infectious disease outbreak, othering may lead to "the desire for the removal of the so-construed 'polluting' presence" [187]. Anthropologist Mary Douglas likewise discusses the association between perceived pollution and danger, and the desire to maintain a symbolic distance between oneself and the polluting presence [191]. This shift in the concept of othering demonstrates the power of discourse: "it not merely reflects attitudes, but can effect change and affect behavior" [175]. Othering, especially in times of crisis, is thus not only a threat to quality of life, but a threat to life itself for Othered

individuals. Colonial narratives that contribute to African othering and influence contemporary attitudes and perceptions of, for example, Western healthcare practitioners and public health specialists, are therefore hazardous at best and deadly at worst.

EVD is characterized by some of the most gruesome, macabre symptoms of any disease on record: vomiting, diarrhea, rash, internal and external bleeding (e.g., "oozing from the gums" [15]), and kidney and liver failure [15, 192]. These chilling clinical presentations, especially those associated with severe hemorrhage, are arguably inconceivable to a Western audience. I maintain this for two reasons: i) hemorrhagic diseases are practically nonexistent in the West, and ii) healthcare is so institutionalized that, should these symptoms manifest, they would likely occur in complete isolation, behind hospital walls. In that way, EVD was inextricably linked to the Other – that is, Africans. According to Sarah Monson, Western racialized discourse maintained that "Ebola happens to *those* people *over there*" and "nobody in the [West] *should* be affected" [175]. As Douglas might argue, Ebola in the US would constitute "matter out of place" – a disruption of order [191]. Thus, black bodies, indissolubly tied to EVD, become the purveyors of chaos, the disruptors of order, the polluting presence. The disease upheld the dichotomy between "us" and "them" that was born during the colonial era. Historical narratives describing an African diseased condition were dehumanizing and contributed to the process of othering of the victims, for example:

> There were skeleton-like women with the madness of starvation in their sunken eyes, children looking more like frogs than human beings, "warriors" who could hardly crawl on all fours, and apathetic, languishing elders. There people would eat anything. Dead donkeys were a delicacy to them, but they would not reject bones, skins, and even horns of slaughtered cattle… Swarms of vultures followed them from high, awaiting the certain victims [193].

Since colonization, Africans have been thought to be uniquely susceptible to diseases and their associated symptoms in a way that Westerners are not. EVD contributed to a "'reality'… rooted in language and images [colonizers] understood and expected" [194] and further ostracized and marginalized African peoples, even those who were not at risk of contracting EVD.

Racialization of EVD had direct, measurable impacts on the aid that was distributed to Africans during both the West African and DRC epidemics. Western healthcare practitioners and public health specialists were not immune to the misconceptions that had plagued the West since the colonial era, and the manifestation of their beliefs in practice had serious implications for the quality of public health interventions they deployed and care they gave [195].

The Bushmeat Ban, for example, was entirely ineffective at preventing the spread of EVD during the West African epidemic. What anthropologists have tried to dissect following the unnecessary implementation of the Bushmeat Ban by Western public health specialists is why it was implemented in the first place [97, 98]. Mike McGovern makes a convincing argument for the role of the politics of disgust in pushing the Bushmeat Ban despite the consequences outweighing any potential benefit [98]. The term "bushmeat" itself is analogous to the Western term "game," but it carries with it more derogatory connotations. That is, use of the term "bushmeat" is a "linguistic move that participates in the semiotics of denigration" [98]. Certain foods commonly consumed in West Africa like bat and nonhuman primates involuntarily instill in most Westerners feelings of disgust. These feeling, according to McGovern, have "powerful political valences" [98], they compel us to look down upon other human beings – "to downgrade them, their needs, and their claims on us" [98]. What is implicit here is that, whether cognisant or not, these feeling of disgust likely also compel us to implement prevention interventions like the Bushmeat Ban without the necessary sympathetic acknowledgements of the repercussions they

might cause. We cannot passively empathize with those affected by the prohibition on hunting, selling, and consuming bushmeat because we are disgusted with the practice in the first place and we ourselves would never participate. Unconsciously, we may even view the implementation of the Bushmeat Ban as a favour to West African people in the long-run, one that teaches them to abandon such "exotic" and "disgusting" practices. This would not mark the first intervention in which Western biomedical experts attempted essentially to save West African people from themselves [95]. It would take active recognition of the harms caused by an initiative like this to elicit sympathy from those imposing it.

Perhaps one could argue that the Bushmeat Ban was an expected primary measure. After all, prior to available genomic surveillance data that definitively proved that there was only a single animal-to-human crossover event, it is arguably logical to cut off the point of origin of the epidemic. However, when genomic surveillance data were presented only a few months after the Ban was put in place, it was not lifted. Resources continued to be funneled into anti-bushmeat information dissemination and enforcement of the Bushmeat Ban. Mistrust and unrest among neighbours escalated as EVD became associated with "forest people" [196]. Such accusations were not only dangerous for hunter-gatherer populations, who were now being blamed for initiating and propagating the spread of EVD; city-dwellers gained false confidence and security in knowing that they did not hunt, consume, or sell bushmeat and abandoned many preventative behavioural practices, increasing their risk of contracting EVD. Food insecurity and moderate and severe acute malnutrition soared [97], an ailment for which Western aid interventions were known to provide little reprieve, as was evident in the Guinean refugee camps during the civil war era of the Mano River region [76]. It is possible that this is because chronic stunting and

wasting are associated with the singular and inalterable African condition, alongside perpetual and incurable disease. Take the following quotation, for example, about the rinderpest epidemic:

> Desperate for food, people first boiled and ate the skins of decomposed cattle, then abandoned their farms and villages to forage, consuming leaves and roots, picking through animal dung for undigested seeds, and eating the rotting corpses of horses, dogs, hyenas, jackals, and vultures. Some turned to cannibalism. Parents sold their children into slavery in the hope that slave masters would save the childrens' [*sic*] lives by feeding them. Others committed suicide and murder. Smallpox epidemics broke out. Starving people fell and died in the forests, along roadsides, and around churches. Lions, leopards, and jackals began to attack and kill people in broad daylight. Throughout the night, villagers heard the screams of starvation-weakened neighbors being dragged off and eaten by hyenas [197].

It follows that, if malnutrition is an expected side-effect of disease in Africa, and all Africans are thought to carry disease, malnutrition is another inextricable aspect of the Western-conceived African condition. Therefore, as a consequence of the Bushmeat Ban, rising malnutrition did not alert Western authorities to the preventable damage that was being inflicted by the already-unnecessary policy because it was an anticipated by-product of the EVD epidemic.

It is also clear that, despite the horrific conditions Africans were forced to endure due to a disease that was brought by European colonizers and yet affected them in significantly less dramatic and dire ways [198], Africans were still portrayed as villains in dialogues such as that in the above quotation – as perpetrators of their own undoing. Despite its colonial origin, a considerable amount of hostility mounted against migratory African peoples who were deemed high-risk for transporting rinderpest within and between African nations [11, 199]. The disease thus became racialized and African cattle-herders (specifically "Border Tribes" [199]) were labelled as vectors of the disease, sufficiently othering them from colonial settlers [187-189,

199]. Narratives that focus not on the ravages of a disease brought to Africa by European colonizers who then proceeded to leave African peoples to their own devices in dealing with the matter, but rather on how Africans ate "decomposed cattle," "animal dung," and "rotting corpses" and "sold their children into slavery" demonstrate the sheer political valences of Western disgust and African othering. What is notable about the quoted dialogue is that it is not a colonial narrative, but rather a contemporary article based on colonial accounts of the 19th century disease. Thus, it is clear that colonial rhetoric is reiterated in contemporary narratives and has implications for contemporary attitudes and behaviours.

The Role of External Actors in State Collapse

State collapse precipitated conflict in Liberia, Sierra Leone, Guinea, and the DRC and undoubtedly contributed to the weakened healthcare infrastructure in all four countries that allowed EBOV to flourish. Prevention interventions failed to account for the historical and contemporary politico-economic contexts wherein they were being implemented. This oversight left Western healthcare practitioners and public health specialists ignorant and ill prepared for the resistance – born of decades and centuries of mistrust between citizens and ranked officials, both governmental and international – that awaited them. Further, their oversight resulted in an EVD response that was neither politically nor economically context-specific.

Earl Conteh-Morgan describes the process of globalization and its effects on national political systems as a traumatic experience for poor states [200]. He describes globalization – "[ending] the state's role to provide for the social welfare needs of… society" [200] – and state failure – "a process of rapid, basic transformation of the state-society relationship from one of a provider state to one of a more hands off relationship in terms of delivery of social services"

[200] – in much the same terms. In LMICs, the economic (and subsequent political) restructuring necessary to adapt to a globalized market, according to Conteh-Morgan, therefore often leads to civil strife and, in certain cases, full-blown civil war.

It is ahistorical to attribute the civil wars in West Africa and the DRC to a failure in state leadership. Undoubtedly, the governments in all four countries did fail their people, but colonial legacies, Cold War superpower "preoccupation with establishing client states" [200], economic globalization, and structural adjustment policies (SAPs) played exigent roles in Liberia, Sierra Leone, Guinea, and the DRC's state collapses [200, 201].

Colonization left African countries with more than just racialized discourses that contributed to African othering. As discussed earlier, when colonial governments pulled out of their respective colonized states, they often took with them a great deal of portable infrastructure and left in their wake overcentralized governments [44, 68]. In Sierra Leone:

> Independence in 1961 came, as in most of Africa, with the inheritance of a highly unintegrated society, a very weak and limited industrial base, economic imbalance, rural neglect, weak state structures, an unproductive power elite, foreign domination, and extreme vulnerability to the dependence on the international system [200].

Further, colonial governments' responses to disease outbreaks (or lack thereof) during their reign contributed to citizens' "mistrust and antagonism" of their leaders [201]. Conteh-Morgan argues that the only reason post-colonial governments lasted as well as they did for as long as they did is because they were "propped up" by Cold War superpowers [200]. Undoubtedly, superpower support for predatory leaders contributed to African mistrust of foreign aid.

The International Monetary Fund (IMF) and World Bank, "transnational hegemonic [powers]" [200] in terms of economic globalization, imposed SAPs on Liberia, Sierra Leone, Guinea, and the DRC [202, 203]. Under the guise of stimulating economic development in

LMICs, SAPs really aimed to hasten their transitions towards neoliberal capitalism, so that poor states might begin to contribute to the globalized market [201]. Loans were contingent on limiting investment in social services and public sector wages, which had implications for healthcare infrastructure erection, resource availability, and worker pay. Overall, "IMF austerity measures tended to aggravate rather than alleviate [countries'] economic problems" [200].

External actors called for West African and Congolese assimilation into the global politico-economic system. The implications for both the public health responses and the people who bore the consequences of its faults were immense. As Farmer puts it, "the control-over-care paradigm [became] caught up in a broader neoliberal one: when everything is for sale and public goods are few, both prevention and care are at risk of becoming commodities" [24].

Breakdown of Social Accommodations

According to anthropologist Jeffrey A. Sluka, "understanding the cultural context is essential to understanding any specific instance or example of social conflict" [204]. He goes on to state that "it is axiomatic that all social or cultural systems have organization characteristics that predispose them toward particular kinds and degrees of social conflict" [204]. "Organization characteristics" together form social structures, and built into social structures, especially those that are profoundly unequal, are the social accommodations that uphold it. We can infer, then, that a breakdown of social accommodations and thus a breakdown of social structure can and does inevitably lead to social conflict.

Anthropologist James Fairhead argues that a breakdown of social accommodations in Guinea led to social conflict in the form of noncompliance and resistance to public health initiatives during the West African EVD epidemic [196]. While his case study was specific to

Guinea, the root of his argument can be extrapolated to other societies. The first accommodation that Fairhead argues was damaged was that between funerals and hospitals. He makes a point to acknowledge the integrated and pluralistic natural of healthcare in Guinea, which has been recognized in other sub-Saharan African countries including Liberia [95, 205], and which renders obsolete the common assumption made by public health authorities "that 'biomedicine' and 'Kissi culture' are somehow distinct and opposed" [196]. On the contrary, biomedical treatment in formal facilities in medically pluralistic societies is highly sought after when a person is sick so long as their family may continue to provide nonmedical care, such as cooking and laundry [95, 196, 205]. Further, if the patient dies, their body is returned to the family for preparation and burial [196].

Fairhead describes how ETUs operated in Guinea without community engagement [196]. This led to deceased bodies being returned to families "unwashed and in zipped-up body bags to be buried by the Guinean Red Cross," if they were returned at all [196]. In Liberia, where cremation was government mandated in certain regions during the epidemic, anthropologist Mary Moran describes a similar situation [95]. During the Liberian Civil Wars, bodies went missing during rebel attacks, often in the middle of the night, and were never found or identified. According to Moran, many Liberians felt as though they had "unfulfilled obligations to the dead [that] could result in a lifetime of misfortune for the living" [95]. This parallels many anthropological discourses around death that consider death rituals to be a "means to mediate the constant tension between the desire of an individual to meet egocentric ends and the individual's attempt to fulfill [their] social obligations to the family group and community" [206]. It is not so much that these rituals are inflexible, as was assumed by public health authorities. Rather, they are dynamic and flexible, but they cannot be discarded completely without causing

noncompliance driven by the distress of those who feel they are leaving their obligations unmet. As Fairhead remarks:

> Not only did [ETUs] prevent people from caring for the mortally ill and witnessing the expression of their last wishes, but they also undermined the rituals of mourning, the settling of debts, the conducting of autopsy to identify the cause of death, the appropriate practices that help lead the dead to their appropriate destination (washing, oiling, dressing, closing eyes, preparing hair), the choice of burial location, and sacrifices. Moreover, as the specifics of burial of initiated adults involve their co-initiates – men for a man and women for a woman – the intervention of the [ETUs] undermined the work of the initiation institutions, too [196].

Fairhead goes on to emphasize that simply stating that noncompliance arose from mistrust of ETUs is misinformed. If that were the case, which many public health authorities believed it to be, it was seen as either easily fixable with acts of mutual respect or, when those failed, entirely insurmountable. Rather, the motivator behind noncompliance was nuanced and required a more integrative solution. Even the CCCs in Sierra Leone, which found great success compared to the ETUs, likely would not have mediated all instances of noncompliance if erected ubiquitously [160]. I posit this because the CCCs did not reconcile the "burial issue." They did, however, allow for families to participate in nonmedical caregiving to a greater extent than the ETUs, through policy and location, which certainly contributed to their success in rural communities.

The second accommodation that Fairhead argues was broken by EVD was the political accommodation [196]. The forest region of Guinea, especially, was historically oppressed by colonial and Guinean rulers alike. Local leaders clung to what little power they had in an overcentralized political system, similar to Liberia, Sierra Leone, and the DRC post-colonization, and the political accommodations that resulted hinged on them maintaining said power. When EVD struck, the "loci of political power" [196] became further centralized, in order to mount a

coordinated national response to the disease. Such a campaign was, of course, driven by Western aid entities, who aligned themselves with federal authorities and thus with the Other, as far as the locals were concerned. Based on the pervasive mistrust of government in Liberia, Sierra Leone, and the DRC, in addition to Guinea, Fairhead's argument can be easily extrapolated.

The extractive accommodation was the third recognized by Fairhead [196]. The federal government had full jurisdiction over the iron, gold, and diamond mines in Guinea. Generally, the inhabitants of the mine territories worked them but saw none of the profit. Still, an accommodation had been reached with the "promise of jobs, some community payments, and any benefits that so-called 'corporate social responsibility' might bring" [196]. A commodity price collapse during the EVD epidemic led to high rates of unemployment and mine foreclosures. Locals attributed a causal association between the two events, speculating that EVD was purposely introduced to the region by foreigners colluding with the federal government to further profit from the extractive industry. In the DRC, according to the World Bank, a parallel commodity price drop, "particularly for cobalt and copper" [112], significantly stunted economic growth during the EVD epidemic.

The final accommodation discussed by Fairhead concerns sorcery [196]. Fairhead describes EVD as "a disease of the social" [196]; it is also referred to as the caregiver's disease by others [24]. Antisocial behaviour is associated with sorcery, as is greed and selfishness, which is in part why Guinean locals have long been skeptical of Westerners, who tend to display all three qualities in excess [196]. Antisocial behaviour was mandated to protect from EVD – "public health communications that suggested avoiding all that is socially and morally 'good'… inverted moral practice and promoted a sorcery ethic" [196]. The biosafety level 4 suits donned by medical staffers of the ETUs mimicked the masking practices of sorcerers, and the

disinfectant spraying of markets and other public arenas paralleled "well-known traditional practices in which society leaders sprinkle decoctions" [196]. These actions were seen as outward displays of sorcery, inflicting fear among the locals, especially when their suspicions could neither be confirmed nor denied by autopsying the dead, a routine practice performed on those suspected of maleficence.

Future Implications and Concluding Remarks

Based on my analysis, it is clear that two central facets of infectious disease responses in the global health context must change: the scope and the priorities. According to Wimsatt, built into the scientific method is an inherent tendency towards reductionism that I have demonstrated is reflected in biomedical and public health disciplines [207]. Wimsatt states that every researcher must make "intuitive judgements about the natural chunks and boundaries in [their] area," without which, any project quickly becomes infeasible. However, too narrow a focus on "entities and interrelations… *internal* to the system" [207] leads to the simplification "first and most extremely… [of] description, observation, control, and analysis of the environment" [207]. In the case of EVD, the boundaries of study (i.e. the targets of the public health response led by Western aid entities) were limited almost exclusively to individual behavioural practices. An attempt to broaden the boundaries by studying "culture" at the level of the social body did occur, but the definition of culture as behaviours and practices conducted by individual members belonging to a social group once again reduced the system to its parts and excised bodies from their environment. The scope, of course, depends on the objective of the study. Farmer acknowledges this:

> I'm not arguing that providing effective care for those sick with Ebola requires familiarity with the long and sorry history of… West Africa. In preference to historical consciousness, that

> neglected task requires staff, stuff, space, and attention to infection control. But historical understanding can help us in many ways. It can help us decipher unfamiliar and often hostile responses to disease-control efforts. It can help us call out outlandish claims from experts and novices alike. Historical understanding can even help us show respect for people native to West Africa. And if history can enlighten us in these ways, we might do better the next time around [24].

I would take this assertion one step further from Farmer's emphasis on "historical understanding" to note the importance of political, economic, and sociocultural understanding, as well. Nonetheless, what Farmer posits is that, if your priority is to provide effective care for EVD victims, you can theoretically do so without broadening the scope of your study to include the context wherein the care is being delivered. Fluid resuscitation involves staff with the requisite knowledge of when and how to administer it, the necessary physical resources (e.g., the "fluid," the intravenous line, etc.), and perhaps a sterile place in which to carry out the procedure. But what is so frequently overlooked in the design stages of a public health response that depends on administering such care is that it also requires a present and consenting patient. Public health responses tend to operate under the assumptions that if a patient needs care, they i) will understand that they need care, and ii) can and will seek it at the proper time and from the proper place and people. I have demonstrated that, in the case of EVD, these assumptions are flawed. That is why the scope must be broadened, even if the priorities seem straightforward.

While I have just used care as an example of a theoretical priority in the public health response to EVD, the fact of the matter is that it was not. As I discussed, the primary priority of the Western aid response was containment of the disease. What is clear from my analysis, however, is that the international agenda depended on containing the disease to African peoples in Africa, not containing it on the whole. The priority of Western aid entities, whether

acknowledged or not, was to protect the West, and their aid responses reflected that. Citing sociologist Ulrich Beck, Obeng-Odoom and Bockarie assert that "in a catastrophe… people in a stronger class position minimise risk for themselves, while maximising risk for others and therein lies the faulty thinking of expert-led approaches that overlook class, politics and morality" [172, 208]. The West African outbreak garnered little international attention until EBOV left Africa and entered the US. In both outbreaks, little focus was placed on person-to-person transmission among Africans and care for those afflicted compared to, for example, border control in the form of exit screening in international airports. Many parallels can be drawn with colonial times. Take for example Sierra Leone, when British authorities segregated black African peoples from white colonial settlers in order to protect the latter from the "malaria-ridden" children of the former; the aim was to contain the disease to black bodies. It is possible and even likely that proper care would have improved containment by strengthening trust between locals and foreign aid workers. As Farmer puts it, "the question… is whether effective containment is possible without safe and effective care" [24].

If care for those sick and scared had been made a priority, the EVD response would have looked much different from both sides. Not only would resources have been allocated differently to accommodate the massive population of people in need of medical care, the individual and community level response to public health interventions might have looked considerably different, as well. In a crisis situation where resources are limited and time is of the essence, it is essential to establish a hierarchy of priorities. To shift the priority entirely from containment to care would have been counterproductive, as the increasing number of those in need of care would have quickly overburdened the available resources. However, proper care may have decreased the fatality rate (based on data from outbreaks outside of the US, it *would* have), and

thus improved trust between ETU staffers and communities and increased ETU admissions. Increasing compliance with isolation protocols is a form of containment in and of itself, though likely not enough to fully control the disease. For this reason, I argue that containment should have been secondary to care in the hierarchy of priorities – still garnering attention and resources, but no more than those required to provide timely, quality care.

My reason for employing two case studies, one in West Africa and the other in the DRC, was not purely for the purposes of triangulation and generalizability. Rather, I sought to demonstrate that the scope and priorities did not change between the two epidemics despite numerous calls to action from various social sciences disciplines – not to mention local populations afflicted by the disease – following the West African outbreak. During the DRC epidemic, colonial narratives of disease continued to be reflected in the construction of Africans "as risk groups by media sources, in political rhetoric, and among medical professionals" [195], contributing to their stigmatization and discrimination through a process of othering in Africa and in the diaspora, and ultimately rendering the EVD response suboptimal. African historian Paul Tiyambe Zeleza describes this struggle:

> I am afraid of Ebola because it has quarantined me in the denigrated Africa of the Western imagination, in the diseased blackness of my body. Ebola has robbed the American public of Africa's multiple stories, of the continent's splendid diversities, complexities, contradictions, and contemporary transformations [209].

According to French authors Carolyn Sargent and Stéphanie Larchanché, "contemporary imposition of colonial meanings" has rendered black bodies "powerful metaphors in the politics of discrimination" [195]. These contemporary impositions of colonial meanings shape the white gaze, through which Western public health initiatives are designed.

In France, rather than reflecting on how the persistence of colonial rhetoric may negatively impact attitudes and behaviours towards African immigrants, they have implemented in policy the concept of republican universalism, colloquially referred to as the "I don't see colour" narrative or "colourblind racism" [195]. Republican universalism "[forbids] the mention of social inequalities and discrimination that particularly affect ethnic minorities" [195]. As a result, stereotypes are often perpetuated in general discourse ahistorically and uncritically. In medicine, there is no targeted screening based on ethnicity, race, or origin, "[speaking] to the contested relationship between the invisibility of cultural difference and the fear of the diseased African body" [195], increasing risk of morbidity due to misdiagnosis and/or improper treatment. Fairhead comments on republican universalism in the context of EVD, eloquently exposing the dangers of such a mentality:

> For some taking this line, an overarching intent was to recover respect – to enable public health officials to engage with communities more respectfully. And yet there is a problem: this critique suggests that respect is to be achieved through appeal to our common nature, rather than a respect for difference… While overlooking alterity might be tactically appealing, doing so can be even more demeaning [196].

Western physicians and healthcare professionals are not immune to the misconceptions that have plagued the West since the colonial era, and the manifestation of their beliefs in their practice can and does have serious implications on the quality of healthcare received by Africans. Republican universalist thought is not unique to France, either [175].

Republican universalism supports standardization rather than customization. If recognizing difference is discriminatory, accommodating for difference is sacrilegious. Thus, everyone is to be treated equally, rather than equitably. Refusal to acknowledge differences between the West and Africa, whether nonarbitrary or socially constructed, leads to

implementation of context-nonspecific aid responses, such as those implemented during the West African and DRC EVD epidemics. Aid responses designed in the West, where racism is rampant though ever-changing in form – today often "expressed in covert, subtle, or symbolic fashion" [210] – and increasingly left unacknowledged, become "standard." According to numerous racial scholars, "although colorblind approaches appear to be politically neutral, they actually work to exacerbate racial oppression" [211]. This is exemplified by the discrepancies in fatality rates between EVD patients in Africa *versus* the West and the ineffective aid response that focused on containment rather than care and employed approaches that had been designed in and standardized to the West. Such standardization is only "viable" when the scope is exceedingly narrowed and the priorities, overly simplified. However, having argued against such restrictive boundaries and illustrated the dangers of republican universalism, I have elucidated how standardization, a process designed to increase efficiency, can have quite the opposite effect.

Aid responses must be customized to the context wherein they are being delivered. The white gaze must be decentered; a fundamental fault of aid responses is that they are designed based on the inherent assumption that "whiteness is the only referent of progress" [212] or objectively correct way of knowing. To standardize aid responses to the West because of this design flaw proves ineffective and often counterproductive, as I have demonstrated. Customization requires expanding the scope to include historico-political, economic, and sociocultural considerations. Western public health specialists must "take [the] time and flexibility to negotiate mutually agreed [courses-of-action] that are locally practical, socially acceptable, as well as epidemiologically appropriate" [96]. In order to further decentralize the white gaze, Western aid entities must prioritize empowering public health specialists from the

region to develop aid responses themselves. What is needed is resources, both human and nonhuman, not necessarily leadership, and certainly not militant control.

As the COVID-19 pandemic rages on well into its second year, the implications of my findings are pertinent now more than ever. Almost immediately after COVID-19 was diagnosed outside of China, the Chinese government implemented a Bushmeat Ban [213]. Soon after, calls for global bans on the sale and consumption of bushmeat were made, even before the evidence for animal-to-human COVID-19 crossover due to bushmeat consumption was substantial. Similar to the Bushmeat Bans in West Africa, scholars concluded that the Chinese ban and any further global bans would "have substantial unintended consequences, while not necessarily reducing pandemic risk" [213].

Along with the Bushmeat Ban, the global spread of COVID-19 coincided with a massive upsurge in anti-Asian racism and discrimination, including violent attacks [214]. These acts of discrimination "[occurred] in a context of historically entrenched attitudes regarding race and social structures that reflect and reinforce racially based power disparities" [214]. This parallels the anti-black racism that occurred during the EVD epidemics, much of which was rooted in racist colonial narratives.

Many parallels have been drawn between EVD and COVID-19. Still, similar approaches have been taken in attempts to slow the latter pandemic – approaches that implicate behavioural practices but fail to address the macrolevel forces in operation. Anthropologists Lenore Manderson and Susan Levine note that COVID-19 has been and continues to be referred to as if it transcends culture; unlike EVD, the issue is not that culture has been left unacknowledged, but that its influence has been deemed extraneous [215]. This is ironic and ultimately hazardous for both the people whose "behaviours" are implicated and the public health response as a whole,

considering “manifold risks are tied to the poverty of infrastructures and resources” [215]. In sum, in many regions of the world, “COVID-19… [capitalizes] on structural violence… and vulnerability… in which context people are at high risk of infection, vilification, and social exclusion” [215].

Moving forward, we must work towards broadening “biomedical definitions of disease that fragment, decontextualize, and depoliticize health-related phenomena and turn statistics into privileged forms of knowledge” [216]. Logically, the scope of the public health response to disease outbreaks must likewise expand. The white gaze must be decentered when determining the priorities of outbreak responses, and local knowledge and expertise must be respected and integrated into all levels of design and implementation. Finally, customization must take precedence over standardization in order to maintain the integrity of precarious social accommodations that “[enable] radically different and massively unequal worlds to coexist” [196].

Together, these actions will improve the lived experiences of many people dealing with infectious disease outbreaks on the ground. Still, they leave unacknowledged the macrolevel forces that preclude individual autonomy through structural violence. Critical medical anthropologists often avoid presenting short-term solutions for exactly that reason; many proponents of the approach have argued that any application of their findings in a healthcare system that both reflects and reproduces inequality is counterproductive [149]. However, dismantling oppressive systems and structures does not occur overnight, and it is naïve to assume that such an approach would not face vehement resistance from those benefitting from the current systems and structures in place. Accordingly, I argue for a two-pronged, critical praxis approach that addresses both the acute and chronic issues at play.

Critical praxis, introduced in 1995 by Merrill Singer, is an emerging methodology in the field of medical anthropology that works towards dismantling oppressive systems and structures while simultaneously addressing the immediate needs of individuals suffering from said oppression [146, 149, 217]. In order to truly ameliorate the healthcare situations in West Africa, the DRC, and beyond, and to decrease the burden of preventable infectious diseases in a sustainable manner, an approach that targets macrolevel forces driving conflict, corruption, racialization, and structural violence is warranted. At the same time, individual needs must be addressed, and change at the individual level must be encouraged and facilitated. Critical praxis is not always feasible because it is rare if not impractical for a single anthropologist to address all aspects of the micro and macrolevel forces in operation. I recognize this limitation, and I propose that proponents of different medical anthropological methodologies collaborate to employ this holistic, multifaceted approach. Further, in order to apply anthropological findings practically and sustainably, cooperation with biomedical and public health specialists, especially those local to the places wherein these interventions are being implemented, is warranted.

Anthropologists employing a critical praxis approach are uniquely well positioned to mediate between expert cultures in the same way as they mediate between "traditional" cultures. Their broad focus on the micro and macrolevel factors that impact disease susceptibility, including conventional variables like biology, genetics, and epidemiology, and non-conventional variables like politics, economy, history, and culture, allow anthropologists to facilitate teams of biologists, geneticists, epidemiologists, political scientists, economists, historians, and other cultural anthropologists, among other experts. Their approach to multifaceted problem solving that targets as many facets as possible provides a basis for interdisciplinary cooperation in public health and beyond. Successfully responding to a crisis as inherently complex as a disease

outbreak requires paradigms that take into consideration as many influential variables as possible, and employing only one group of experts (in this case, biomedical practitioners) who are trained to find and target only a handful of influential variables simply removes from the equation too many others. I do not propose that biomedical practitioners expand the scope of their training to account for more variables, though it is important that they are cognisant that more exist that are influential to patient and public health outcomes. Rather, I suggest that anthropologist be employed for their range: their ability to mediate between specialists each trained to identify and address specific factors that altogether allow us to better understand, in this case, disease susceptibility.

There are limitations to my findings. Most notably, while Liberia, Sierra Leone, and Guinea were often referred to independently, they were likewise frequently generalized throughout my analysis. Their porous borders, overlapping cultural and ethnic populations, and supranational politics render them alike in many ways. However, it is important to note that their differences in colonial experience, political and economic history, relationships with international actors, legislation, and overall social organization, among many other factors, affected their responses and their ability to respond to EVD, as well as the lived experiences of their inhabitants during the epidemic. A second limitation stems from the lack of research conducted in the DRC during the EVD epidemic due to the conflict in the region that discouraged research efforts. Significantly more information is available surrounding the West African EVD epidemic, and that is reflected in this work. Nonetheless, my findings illuminate the failings of Western aid in the context of EVD in sub-Saharan Africa and are valuable to ameliorating future public health responses to infectious disease outbreaks, including the

ongoing COVID-19 pandemic that, at the time of writing, has claimed 2.54 million lives worldwide.

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